

# Rexroth IndraDrive MPx-16 to MPx-18 Parameters

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Reference Book



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# 1 Documentations

## 1.1 Drive Systems, System Components

### Drive systems with single axis or double axis drive controllers

Title Rexroth IndraDrive ...	Documentation type	Document typecode <sup>1)</sup> DOK-INDRV*-...	Material number R911...
Cs Drive Systems with HCS01	Project Planning Manual	HCS01*****-PRxx-EN-P	322210
Mi Drive Systems With KCU02, KSM02, KMS02	Project Planning Manual	KCU02+KSM02-PRxx-EN-P	335703
Drive Systems With HMV01/02 HMS01/02, HMD01, HCS02/03	Project Planning Manual	SYSTEM*****-PRxx-EN-P	309636
Supply Units, Power Sections HMF, HMS, HMD, HCS02, HCS03	Project Planning Manual	HMF-S-D+HCS-PRxx-EN-P	318790
Drive Controllers Control Sections CSB01, CSH01, CDB01	Project Planning Manual	CSH*****-PRxx-EN-P	295012
Control sections CSE02, CSB02, CDB02, CSH02	Project Planning Manual	Cxx02*****-PRxx-EN-P	338962
Additional Components and Accesso- ries	Project Planning Manual	ADDCOMP****-PRxx-EN-P	306140

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: PR01 is the first edition of a Project Planning Manual)

Tab. 1-1: Documentations – Drive Systems, System Components

### Drive Systems with Multi-Axis Drive Controllers

Title	Kind of documentation	Document typecode <sup>1)</sup>	Material number R911...
Rexroth IndraDrive Drive Controllers HCQ02, HCT02	Project Planning Manual	DOK-INDRV*-HCQ-T+HMQ-T- PRxx-EN-P	324185
Rexroth IndraDrive Additional Components and Accesso- ries	Project Planning Manual	DOK-INDRV*-ADDCOMP****- PRxx-EN-P	306140
Rexroth IndraControl VDP 80.1 Machine Operator Panel Operator Display	Project Planning Manual	DOK-SUPPL*-VDP*80.1***-PRxx- EN-P	329156

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: PR01 is the first edition of a Project Planning Manual)

Tab. 1-2: Documentations – Drive Systems, System Components

## Documentations

## 1.2 Motors

Title Rexroth IndraDyn ...	Kind of documentation	Document typecode <sup>1)</sup> DOK-MOTOR*-...	Material number R911...
A Asynchronous Motors MAD / MAF	Project Planning Manual	MAD/MAF****-PRxx-EN-P	295781
H Synchronous Kit Spindle Motors	Project Planning Manual	MBS-H*****-PRxx-EN-P	297895
L Synchronous Linear Motors	Project Planning Manual	MLF*****-PRxx-EN-P	293635
L Ironless Linear Motors MCL	Project Planning Manual	MCL*****-PRxx-EN-P	330592
S Synchronous Motors MKE	Project Planning Manual	MKE*GEN2***-PRxx-EN-P	297663
S Synchronous Motors MSK	Project Planning Manual	MSK*****-PRxx-EN-P	296289
S Synchronous Motors MSM	Data Sheet	MSM*****-DAXx-EN-P	329338
S Synchronous Motors QSK	Project Planning Manual	QSK*****-PRxx-EN-P	330321
T Synchronous Torque Motors	Project Planning Manual	MBT*****-PRxx-EN-P	298798

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: PR01 is the first edition of a Project Planning Manual)

Tab. 1-3: Documentations – Motors

## 1.3 Cables

Title	Kind of documentation	Document typecode <sup>1)</sup> DOK-CONNEC-...	Material number R911...
Rexroth Connection Cables IndraDrive and IndraDyn	Selection Data	CABLE*INDRV-CAxx-EN-P	322949

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: CA02 is the second edition of the documentation "Selection Data")

Tab. 1-4: Documentations – Cables

## 1.4 Firmware

Title Rexroth IndraDrive ...	Kind of documentation	Document typecode <sup>1)</sup> DOK-INDRV*-...	Material number R911...
MPx-18 Functions	Application Manual	MP*-18VRS**-APxx-EN-P	338673
MPx-18 Version Notes	Release Notes	MP*-18VRS**-RNxx-EN-P	338658
MPx-17 Functions	Application Manual	MP*-17VRS**-APxx-EN-P	331236
MPx-17 Version Notes	Release Notes	MP*-17VRS**-RNxx-EN-P	331588
MPx-16 Functions	Application Manual	MP*-16VRS**-APxx-EN-P	326767

Documentations

<b>Title</b> <b>Rexroth IndraDrive ...</b>	<b>Kind of documentation</b>	<b>Document typecode<sup>1)</sup></b> <b>DOK-INDRV*-...</b>	<b>Material number</b> <b>R911...</b>
MPx-16 Version Notes	Release Notes	MP*-16VRS**-RNxx-EN-P	329272
MPx-16 to MPx-18 Parameters	Reference Book	GEN1-PARA**-RExx-EN-P	328651
MPx-16 to MPx-18 Diagnostic Messages	Reference Book	GEN1-DIAG**-RExx-EN-P	326738
Integrated Safety Technology as of MPx-1x	Application Manual	SI3-**VRS**-APxx-EN-P	332634
Integrated Safety Technology as of MPx-1x (Safe Motion)	Application Manual	SI3*SMO-VRS-APxx-EN-P	338920
Rexroth IndraMotion MLD Libraries as of MPx-17	Reference Book	MLD-SYSLIB2-RExx-EN-P	332627
Rexroth IndraMotion MLD Libraries as of MPx-18	Reference Book	MLD-SYSLIB3-RExx-EN-P	338916
Rexroth IndraMotion MLD as of MPx-17	Application Manual	MLD2-**VRS*-APxx-EN-P	334351
Rexroth IndraMotion MLD as of MPx-18	Application Manual	MLD3-**VRS*-APRS-EN-P	338914

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: RE02 is the second edition of a Reference Book)

Tab. 1-5: Documentations – Firmware

## 1.5 Control Unit

<b>Title</b> <b>Rexroth IndraMotion MTX micro</b>	<b>Documentation type</b>	<b>Document typecode<sup>1)</sup></b> <b>DOK-MTXMIC-...</b>	<b>Material number</b> <b>R911...</b>
Easy setup for Standard Turning and Milling Machines	Commissioning Manual	EASY*****-COxx-EN-P	332281
12VRS System Description	Manual	SYS*DES*V12-RExx-EN-P	334369
12VRS Functional Description	Manual	NC*FUNC*V12-APxx-EN-P	334357
12VRS Machine Parameters	Reference Book	MA*PAR**V12-RExx-EN-P	334365
12VRS Programming Manual	Manual	NC**PRO*V12-RExx-EN-P	334361

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: RE02 is the second edition of a Reference Book)

Tab. 1-6: Documentations – Control Unit



## 2 Safety Instructions for Electric Drives and Controls

### 2.1 Definitions of Terms

<b>Application Documentation</b>	Application documentation comprises the entire documentation used to inform the user of the product about the use and safety-relevant features for configuring, integrating, installing, mounting, commissioning, operating, maintaining, repairing and decommissioning the product. The following terms are also used for this kind of documentation: User Guide, Operation Manual, Commissioning Manual, Instruction Manual, Project Planning Manual, Application Manual, etc.
<b>Component</b>	A component is a combination of elements with a specified function, which are part of a piece of equipment, device or system. Components of the electric drive and control system are, for example, supply units, drive controllers, mains choke, mains filter, motors, cables, etc.
<b>Control System</b>	A control system comprises several interconnected control components placed on the market as a single functional unit.
<b>Device</b>	A device is a finished product with a defined function, intended for users and placed on the market as an individual piece of merchandise.
<b>Electrical Equipment</b>	Electrical equipment encompasses all devices used to generate, convert, transmit, distribute or apply electrical energy, such as electric motors, transformers, switching devices, cables, lines, power-consuming devices, circuit board assemblies, plug-in units, control cabinets, etc.
<b>Electric Drive System</b>	An electric drive system comprises all components from mains supply to motor shaft; this includes, for example, electric motor(s), motor encoder(s), supply units and drive controllers, as well as auxiliary and additional components, such as mains filter, mains choke and the corresponding lines and cables.
<b>Installation</b>	An installation consists of several devices or systems interconnected for a defined purpose and on a defined site which, however, are not intended to be placed on the market as a single functional unit.
<b>Machine</b>	A machine is the entirety of interconnected parts or units at least one of which is movable. Thus, a machine consists of the appropriate machine drive elements, as well as control and power circuits, which have been assembled for a specific application. A machine is, for example, intended for processing, treatment, movement or packaging of a material. The term "machine" also covers a combination of machines which are arranged and controlled in such a way that they function as a unified whole.
<b>Manufacturer</b>	The manufacturer is an individual or legal entity bearing responsibility for the design and manufacture of a product which is placed on the market in the individual's or legal entity's name. The manufacturer can use finished products, finished parts or finished elements, or contract out work to subcontractors. However, the manufacturer must always have overall control and possess the required authority to take responsibility for the product.
<b>Product</b>	Examples of a product: Device, component, part, system, software, firmware, among other things.
<b>Project Planning Manual</b>	A project planning manual is part of the application documentation used to support the sizing and planning of systems, machines or installations.
<b>Qualified Persons</b>	In terms of this application documentation, qualified persons are those persons who are familiar with the installation, mounting, commissioning and operation of the components of the electric drive and control system, as well as with the hazards this implies, and who possess the qualifications their work

## Safety Instructions for Electric Drives and Controls

requires. To comply with these qualifications, it is necessary, among other things,

- 1) to be trained, instructed or authorized to switch electric circuits and devices safely on and off, to ground them and to mark them
- 2) to be trained or instructed to maintain and use adequate safety equipment
- 3) to attend a course of instruction in first aid

**User** A user is a person installing, commissioning or using a product which has been placed on the market.

## 2.2 General Information

### 2.2.1 Using the Safety Instructions and Passing Them on to Others

Do not attempt to install and operate the components of the electric drive and control system without first reading all documentation provided with the product. Read and understand these safety instructions and all user documentation prior to working with these components. If you do not have the user documentation for the components, contact your responsible Rexroth sales partner. Ask for these documents to be sent immediately to the person or persons responsible for the safe operation of the components.

If the component is resold, rented and/or passed on to others in any other form, these safety instructions must be delivered with the component in the official language of the user's country.

**Improper use of these components, failure to follow the safety instructions in this document or tampering with the product, including disabling of safety devices, could result in property damage, injury, electric shock or even death.**

### 2.2.2 Requirements for Safe Use

Read the following instructions before initial commissioning of the components of the electric drive and control system in order to eliminate the risk of injury and/or property damage. You must follow these safety instructions.

- Rexroth is not liable for damages resulting from failure to observe the safety instructions.
- Read the operating, maintenance and safety instructions in your language before commissioning. If you find that you cannot completely understand the application documentation in the available language, please ask your supplier to clarify.
- Proper and correct transport, storage, mounting and installation, as well as care in operation and maintenance, are prerequisites for optimal and safe operation of the component.
- Only qualified persons may work with components of the electric drive and control system or within its proximity.
- Only use accessories and spare parts approved by Rexroth.
- Follow the safety regulations and requirements of the country in which the components of the electric drive and control system are operated.
- Only use the components of the electric drive and control system in the manner that is defined as appropriate. See chapter "Appropriate Use".
- The ambient and operating conditions given in the available application documentation must be observed.
- Applications for functional safety are only allowed if clearly and explicitly specified in the application documentation "Integrated Safety Technolo-

## Safety Instructions for Electric Drives and Controls

gy". If this is not the case, they are excluded. Functional safety is a safety concept in which measures of risk reduction for personal safety depend on electrical, electronic or programmable control systems.

- The information given in the application documentation with regard to the use of the delivered components contains only examples of applications and suggestions.

The machine and installation manufacturers must

- make sure that the delivered components are suited for their individual application and check the information given in this application documentation with regard to the use of the components,
- make sure that their individual application complies with the applicable safety regulations and standards and carry out the required measures, modifications and complements.
- Commissioning of the delivered components is only allowed once it is sure that the machine or installation in which the components are installed complies with the national regulations, safety specifications and standards of the application.
- Operation is only allowed if the national EMC regulations for the application are met.
- The instructions for installation in accordance with EMC requirements can be found in the section on EMC in the respective application documentation.

The machine or installation manufacturer is responsible for compliance with the limit values as prescribed in the national regulations.

- The technical data, connection and installation conditions of the components are specified in the respective application documentations and must be followed at all times.

### *National regulations which the user must take into account*

- European countries: In accordance with European EN standards
- United States of America (USA):
  - National Electrical Code (NEC)
  - National Electrical Manufacturers Association (NEMA), as well as local engineering regulations
  - Regulations of the National Fire Protection Association (NFPA)
- Canada: Canadian Standards Association (CSA)
- Other countries:
  - International Organization for Standardization (ISO)
  - International Electrotechnical Commission (IEC)

## 2.2.3 Hazards by Improper Use

- High electrical voltage and high working current! Danger to life or serious injury by electric shock!
- High electrical voltage by incorrect connection! Danger to life or injury by electric shock!
- Dangerous movements! Danger to life, serious injury or property damage by unintended motor movements!
- Health hazard for persons with heart pacemakers, metal implants and hearing aids in proximity to electric drive systems!

## Safety Instructions for Electric Drives and Controls

- Risk of burns by hot housing surfaces!
- Risk of injury by improper handling! Injury by crushing, shearing, cutting, hitting!
- Risk of injury by improper handling of batteries!
- Risk of injury by improper handling of pressurized lines!

## 2.3 Instructions with Regard to Specific Dangers

### 2.3.1 Protection Against Contact With Electrical Parts and Housings



This section concerns components of the electric drive and control system with voltages of **more than 50 volts**.

Contact with parts conducting voltages above 50 volts can cause personal danger and electric shock. When operating components of the electric drive and control system, it is unavoidable that some parts of these components conduct dangerous voltage.

#### High electrical voltage! Danger to life, risk of injury by electric shock or serious injury!

- Only qualified persons are allowed to operate, maintain and/or repair the components of the electric drive and control system.
- Follow the general installation and safety regulations when working on power installations.
- Before switching on, the equipment grounding conductor must have been permanently connected to all electric components in accordance with the connection diagram.
- Even for brief measurements or tests, operation is only allowed if the equipment grounding conductor has been permanently connected to the points of the components provided for this purpose.
- Before accessing electrical parts with voltage potentials higher than 50 V, you must disconnect electric components from the mains or from the power supply unit. Secure the electric component from reconnection.
- With electric components, observe the following aspects:  
Always wait **30 minutes** after switching off power to allow live capacitors to discharge before accessing an electric component. Measure the electrical voltage of live parts before beginning to work to make sure that the equipment is safe to touch.
- Install the covers and guards provided for this purpose before switching on.
- Never touch electrical connection points of the components while power is turned on.
- Do not remove or plug in connectors when the component has been powered.
- Under specific conditions, electric drive systems can be operated at mains protected by residual-current-operated circuit-breakers sensitive to universal current (RCDs/RCMs).

## Safety Instructions for Electric Drives and Controls

- Secure built-in devices from penetrating foreign objects and water, as well as from direct contact, by providing an external housing, for example a control cabinet.

### High housing voltage and high leakage current! Danger to life, risk of injury by electric shock!

- Before switching on and before commissioning, ground or connect the components of the electric drive and control system to the equipment grounding conductor at the grounding points.
- Connect the equipment grounding conductor of the components of the electric drive and control system permanently to the main power supply at all times. The leakage current is greater than 3.5 mA.
- Establish an equipment grounding connection with a minimum cross section according to the table below. With an outer conductor cross section smaller than 10 mm<sup>2</sup> (8 AWG), the alternative connection of two equipment grounding conductors is allowed, each having the same cross section as the outer conductors.

Cross section outer conductor	Minimum cross section equipment grounding conductor	
	Leakage current $\geq 3.5$ mA	
	1 equipment grounding conductor	2 equipment grounding conductors
1,5 mm <sup>2</sup> (AWG 16)	10 mm <sup>2</sup> (AWG 8)	2 × 1,5 mm <sup>2</sup> (AWG 16)
2,5 mm <sup>2</sup> (AWG 14)		2 × 2,5 mm <sup>2</sup> (AWG 14)
4 mm <sup>2</sup> (AWG 12)		2 × 4 mm <sup>2</sup> (AWG 12)
6 mm <sup>2</sup> (AWG 10)		2 × 6 mm <sup>2</sup> (AWG 10)
10 mm <sup>2</sup> (AWG 8)		-
16 mm <sup>2</sup> (AWG 6)	16 mm <sup>2</sup> (AWG 6)	-
25 mm <sup>2</sup> (AWG 4)		-
35 mm <sup>2</sup> (AWG 2)		-
50 mm <sup>2</sup> (AWG 1/0)	25 mm <sup>2</sup> (AWG 4)	-
70 mm <sup>2</sup> (AWG 2/0)	35 mm <sup>2</sup> (AWG 2)	-
...	...	...

Tab.2-1: Minimum Cross Section of the Equipment Grounding Connection

## 2.3.2 Protective Extra-Low Voltage as Protection Against Electric Shock

Protective extra-low voltage is used to allow connecting devices with basic insulation to extra-low voltage circuits.

On components of an electric drive and control system provided by Rexroth, all connections and terminals with voltages between 5 and 50 volts are PELV ("Protective Extra-Low Voltage") systems. It is allowed to connect devices equipped with basic insulation (such as programming devices, PCs, notebooks, display units) to these connections.

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**Danger to life, risk of injury by electric shock! High electrical voltage by incorrect connection!**

If extra-low voltage circuits of devices containing voltages and circuits of more than 50 volts (e.g., the mains connection) are connected to Rexroth products, the connected extra-low voltage circuits must comply with the requirements for PELV ("Protective Extra-Low Voltage").

### 2.3.3 Protection Against Dangerous Movements

Dangerous movements can be caused by faulty control of connected motors. Some common examples are:

- Improper or wrong wiring or cable connection
- Operator errors
- Wrong input of parameters before commissioning
- Malfunction of sensors and encoders
- Defective components
- Software or firmware errors

These errors can occur immediately after equipment is switched on or even after an unspecified time of trouble-free operation.

The monitoring functions in the components of the electric drive and control system will normally be sufficient to avoid malfunction in the connected drives. Regarding personal safety, especially the danger of injury and/or property damage, this alone cannot be relied upon to ensure complete safety. Until the integrated monitoring functions become effective, it must be assumed in any case that faulty drive movements will occur. The extent of faulty drive movements depends upon the type of control and the state of operation.

**Dangerous movements! Danger to life, risk of injury, serious injury or property damage!**

A **risk assessment** must be prepared for the installation or machine, with its specific conditions, in which the components of the electric drive and control system are installed.

As a result of the risk assessment, the user must provide for monitoring functions and higher-level measures on the installation side for personal safety. The safety regulations applicable to the installation or machine must be taken into consideration. Unintended machine movements or other malfunctions are possible if safety devices are disabled, bypassed or not activated.

**To avoid accidents, injury and/or property damage:**

- Keep free and clear of the machine's range of motion and moving machine parts. Prevent personnel from accidentally entering the machine's range of motion by using, for example:
  - Safety fences
  - Safety guards
  - Protective coverings
  - Light barriers
- Make sure the safety fences and protective coverings are strong enough to resist maximum possible kinetic energy.
- Mount emergency stopping switches in the immediate reach of the operator. Before commissioning, verify that the emergency stopping equip-

## Safety Instructions for Electric Drives and Controls

ment works. Do not operate the machine if the emergency stopping switch is not working.

- Prevent unintended start-up. Isolate the drive power connection by means of OFF switches/OFF buttons or use a safe starting lockout.
- Make sure that the drives are brought to safe standstill before accessing or entering the danger zone.
- Additionally secure vertical axes against falling or dropping after switching off the motor power by, for example,
  - mechanically securing the vertical axes,
  - adding an external braking/arrester/clamping mechanism or
  - ensuring sufficient counterbalancing of the vertical axes.
- The standard equipment **motor holding brake** or an external holding brake controlled by the drive controller is **not sufficient to guarantee personal safety!**
- Disconnect electrical power to the components of the electric drive and control system using the master switch and secure them from reconnection ("lock out") for:
  - Maintenance and repair work
  - Cleaning of equipment
  - Long periods of discontinued equipment use
- Prevent the operation of high-frequency, remote control and radio equipment near components of the electric drive and control system and their supply leads. If the use of these devices cannot be avoided, check the machine or installation, at initial commissioning of the electric drive and control system, for possible malfunctions when operating such high-frequency, remote control and radio equipment in its possible positions of normal use. It might possibly be necessary to perform a special electromagnetic compatibility (EMC) test.

### 2.3.4 Protection Against Magnetic and Electromagnetic Fields During Operation and Mounting

Magnetic and electromagnetic fields generated by current-carrying conductors or permanent magnets of electric motors represent a serious danger to persons with heart pacemakers, metal implants and hearing aids.

**Health hazard for persons with heart pacemakers, metal implants and hearing aids in proximity to electric components!**

- Persons with heart pacemakers and metal implants are not allowed to enter the following areas:
  - Areas in which components of the electric drive and control systems are mounted, commissioned and operated.
  - Areas in which parts of motors with permanent magnets are stored, repaired or mounted.
- If it is necessary for somebody with a heart pacemaker to enter such an area, a doctor must be consulted prior to doing so. The noise immunity of implanted heart pacemakers differs so greatly that no general rules can be given.
- Those with metal implants or metal pieces, as well as with hearing aids, must consult a doctor before they enter the areas described above.

## Safety Instructions for Electric Drives and Controls

## 2.3.5 Protection Against Contact With Hot Parts

**Hot surfaces of components of the electric drive and control system. Risk of burns!**

- Do not touch hot surfaces of, for example, braking resistors, heat sinks, supply units and drive controllers, motors, windings and laminated cores!
- According to the operating conditions, temperatures of the surfaces can be **higher than 60 °C (140 °F)** during or after operation.
- Before touching motors after having switched them off, let them cool down for a sufficient period of time. Cooling down can require **up to 140 minutes!** The time required for cooling down is approximately five times the thermal time constant specified in the technical data.
- After switching chokes, supply units and drive controllers off, wait **15 minutes** to allow them to cool down before touching them.
- Wear safety gloves or do not work at hot surfaces.
- For certain applications, and in accordance with the respective safety regulations, the manufacturer of the machine or installation must take measures to avoid injuries caused by burns in the final application. These measures can be, for example: Warnings at the machine or installation, guards (shieldings or barriers) or safety instructions in the application documentation.

## 2.3.6 Protection During Handling and Mounting

**Risk of injury by improper handling! Injury by crushing, shearing, cutting, hitting!**

- Observe the relevant statutory regulations of accident prevention.
- Use suitable equipment for mounting and transport.
- Avoid jamming and crushing by appropriate measures.
- Always use suitable tools. Use special tools if specified.
- Use lifting equipment and tools in the correct manner.
- Use suitable protective equipment (hard hat, safety goggles, safety shoes, safety gloves, for example).
- Do not stand under hanging loads.
- Immediately clean up any spilled liquids from the floor due to the risk of falling!

## 2.3.7 Battery Safety

Batteries consist of active chemicals in a solid housing. Therefore, improper handling can cause injury or property damage.

**Risk of injury by improper handling!**

- Do not attempt to reactivate low batteries by heating or other methods (risk of explosion and cauterization).
- Do not attempt to recharge the batteries as this may cause leakage or explosion.
- Do not throw batteries into open flames.
- Do not dismantle batteries.

## Safety Instructions for Electric Drives and Controls

- When replacing the battery/batteries, do not damage the electrical parts installed in the devices.
- Only use the battery types specified for the product.



Environmental protection and disposal! The batteries contained in the product are considered dangerous goods during land, air, and sea transport (risk of explosion) in the sense of the legal regulations. Dispose of used batteries separately from other waste. Observe the national regulations of your country.

### 2.3.8 Protection Against Pressurized Systems

According to the information given in the Project Planning Manuals, motors and components cooled with liquids and compressed air can be partially supplied with externally fed, pressurized media, such as compressed air, hydraulics oil, cooling liquids and cooling lubricants. Improper handling of the connected supply systems, supply lines or connections can cause injuries or property damage.

#### **Risk of injury by improper handling of pressurized lines!**

- Do not attempt to disconnect, open or cut pressurized lines (risk of explosion).
- Observe the respective manufacturer's operating instructions.
- Before dismounting lines, relieve pressure and empty medium.
- Use suitable protective equipment (safety goggles, safety shoes, safety gloves, for example).
- Immediately clean up any spilled liquids from the floor due to the risk of falling!



Environmental protection and disposal! The agents (e.g., fluids) used to operate the product might not be environmentally friendly. Dispose of agents harmful to the environment separately from other waste. Observe the national regulations of your country.

## 2.4 Explanation of Signal Words and the Safety Alert Symbol

The Safety Instructions in the available application documentation contain specific signal words (DANGER, WARNING, CAUTION or NOTICE) and, where required, a safety alert symbol (in accordance with ANSI Z535.6-2006).

The signal word is meant to draw the reader's attention to the safety instruction and identifies the hazard severity.

The safety alert symbol (a triangle with an exclamation point), which precedes the signal words DANGER, WARNING and CAUTION, is used to alert the reader to personal injury hazards.



In case of non-compliance with this safety instruction, death or serious injury will occur.

## Safety Instructions for Electric Drives and Controls

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** WARNING**

In case of non-compliance with this safety instruction, death or serious injury **could** occur.

---

---

** CAUTION**

In case of non-compliance with this safety instruction, minor or moderate injury could occur.

---

---

***NOTICE***

In case of non-compliance with this safety instruction, property damage could occur.

---

## 3 General Information

### 3.1 Document Structure

#### 3.1.1 General Information

All standard and product-specific parameters are listed in this documentation in a numerically ascending order. In addition to the data contained in the Functional Description, it represents a complete description of all parameters used in the drive firmware. The description of the individual parameters is divided into **four** subsections.

##### **1. Parameter number, parameter name, structure index and structure element:**

The description specifies the parameter number (P-0-1621.0.1), the parameter name and, optionally, the structure index and the structure element.

**Structure index (SI)** - Serves to address the structure of the same type within a sub-unit. One sub-unit may contain 255 units of the same structure.

**Structure element (SE)** - The structure element is used to address elements. There may be up to 256 elements. Structure elements 1... 127 are standardized (sercos specification). The remaining structure elements 128... 255 are manufacturer-specific.

##### **2. Assignment**

This overview shows in which firmware version, in which functional package(s) and for which hardware the parameter is available.

##### **Hardware:**

**optional master communication card** - depending on the master communication selected

**optional drives card** - with certain optional modules

**optional safety technology module** - with certain optional safety technology modules

##### **Functional packages:**

Parameters are assigned to functional packages and only accessible as long as the particular functional package is active:

**open-loop** - Base package for axis control (U/f control) -> controlled operation without encoder information

**closed loop** - Base package for axis control -> controlled operation with encoder feedback

**servo (compensation)** - Functional package for servo-specific expansions

**synchronization (ELS)** - Functional package for position synchronization tasks and velocity synchronization tasks

**main spindle** - Functional package with main spindle functionalities

**motion logic** - Functional package for drive-integrated PLC

##### **Device parameters:**

**device-specific:** The parameter applies to a specific device. If the device is a multi-axis device, each axis accesses the same data.

**axis-specific:** The parameter applies to a specific axis. If the device is a multi-axis device, each axis has its own defined data.

## General Information

**3. Function, structure, use**

The function and structure of the parameter, as well as information on its parameterization (use), are contained in the general description.

**4. Attributes**

The characteristic values and features specified help to classify the parameter.

**3.1.2 Definitions**

The following data and abbreviations are used:

**Function:**

**Par** - The parameter is used to display, set and configure values.

**Cmd** - The parameter is used to execute commands.

**(Editable) Editability of the operating data:**

-- - Cannot be edited.

++ - Can always be edited.

**P2** - Can only be edited in communication phase 2.

**P23** - Can be edited in communication phases 2 and 3.

**P3** - Can only be edited in communication phase 3.

**P4** - Can only be edited in communication phase 4.

**PM** - Can only be edited in parameter mode.

**OM** - Can only be edited in operation mode.

**CCD\_P2** - Can only be edited in CCD phase 2.

**SCM** - Can only be edited in SMO configuration mode.

**Data length:**

**2Byte** – The data length of the operating datum is 2 bytes.

**4Byte** – The data length of the operating datum is 4 bytes.

**1Byte var** – This is an operating datum of variable length (list). The length of a data element is 1 byte.

**2Byte var** – This is an operating datum of variable length (list). The length of a data element is 2 bytes.

**4Byte var** – This is an operating datum of variable length (list). The length of a data element is 4 bytes.

**Memory:**

-- - The operating datum is not buffered in the drive; the value after switching the drive controller on is not defined.

**PARAM\_SP/FIX\_IDN\_SP** - The operating datum is stored in the non-volatile memory on the control panel.

**ON\_BOARD\_SP** - The operating datum is stored in the non-volatile memory on the control section.

**RETAIN\_KUNDE** – In the event of a control voltage failure, the operating datum is stored in the non-volatile memory on the control section.

## General Information

**RETAIN\_GERAET** – In the event of a control voltage failure, the operating datum is stored in the non-volatile memory on the device.

**FEEDB\_I2C** – The operating datum is stored in the non-volatile memory of the motor feedback (only in case of Rexroth motors with data feedback).

**LT\_SP** - The operating datum is stored in the non-volatile memory on the power section.

### (Validity ch.) Validity check:

-- - The operating datum is not checked for validity.

**P2⇒P3** - The operating datum is checked in command "Communication phase 3 transition check".

**P3⇒P4** - The operating datum is checked in command "Communication phase 4 transition check".

**PM⇒OM** - The operating datum is checked in command "Exit parameterization level procedure command".

### (Format) Format of the operating datum:

**BIN** - Binary number

**HEX** - Hexadecimal number

**DEC\_OV** - Unsigned decimal number

**DEC\_MV** - Signed decimal number

**ASCII** - Text

**IDN** - Ident number

**FLOAT** - Floating-point number

### Unit:

If existing, the corresponding unit of the parameter is specified.

### (Extr. val. ch.) Extreme value check:

-- **(no)** - When a value is written to it, the operating datum is not checked for its extreme values.

+ **(yes)** - When a value is written to it, the operating datum is checked for its extreme values.

### (Decim. pl.) Decimal place:

Indicates the number of decimal places with display formats DEC\_OV and DEC\_MV.

Example: 6 decimal places, transmitted value: 30 000 ⇒ display value 0.030000.

### (Cycl. tra.) Cyclically transmittable:

-- - The operating datum can neither be configured as cyclic datum in the master data telegram nor in the drive telegram.

**AT** - The operating datum can be configured as a cyclic datum in the drive telegram.

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**MDT** - The operating datum can be configured as cyclic datum in the master data telegram.

**AT+MDT** - The operating datum can be configured as cyclic datum in the master data telegram and in the drive telegram.

**(Comb. check) Combination check:**

– - When a value is written to it, the operating datum is not checked for a valid combination (bit lists).

+ - When a value is written to it, the operating datum is checked for a valid combination (bit lists).

**(Set-depend.) Set-dependent:**

With parameter set switching available, these parameters are available 8 times as a maximum (parameter set 0 to parameter set 7).

– - Available in all parameter sets, not assigned to any parameter group.

**Grp. 1** - The parameter is parameter set switchable, when "group 1, application parameters" has been activated.

**Grp. 2** - The parameter is parameter set switchable, when "group 2, control loop parameters" has been activated.

**Grp. 3** - The parameter is parameter set switchable, when "group 3, load gear parameters" has been activated.

**Grp. 4** - The parameter is parameter set switchable, when "group 4, winding parameters" has been activated.

**Grp. 5** - The parameter is parameter set switchable, when "group 5, motor control and motor encoder parameters" has been activated.

See also Functional Description "Parameter Set Switching"

**(min./max.) Minimum value/maximum value:**

The minimum value and maximum value of the parameter are specified depending on the derivative.

**(Default) Default value:**

The parameter is set to its default value if the "S-0-0262, C07\_x Load defaults procedure command" is executed. This is done as follows:

- Push the <ESC> key when the display shows "PL", or
- start the "S-0-0262" command with "P-0-4090, Configuration for loading default values" (factory settings) = 1.

The default value is only relevant for parameters with attribute PARAM\_SP, SPS\_IDN\_SP, FIX\_IDN\_SP. There may be activated "configurable factory default values" that are different therefrom.

**Firmware variants**

See also Functional Description "Overview of Drive Firmware"

## 4 Standard Parameters

### 4.1 S-0-0000 to S-0-0100 Standard Parameters

#### 4.1.1 S-0-0000, Dummy parameter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This parameter serves as a wild card, it does not have any function. This parameter can be cyclically written and read.					
	Possible applications:					
	<ul style="list-style-type: none"><li>Filling up "S-0-0370, Data container A: Configuration list command value-1" with wild cards</li><li>Measuring dead time for writing and reading data via the bus</li><li>etc.</li></ul>					
S-0-0000 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

#### 4.1.2 S-0-0001, NC cycle time (TNcyc)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	The NC cycle time indicates the time intervals in which the numerical control provides new command values.					
	See also Functional Description of firmware "SERCOS interface"					
Use	In the case of SERCOS interface (SERCOS II), the NC cycle time has to be transmitted from the master to the slave in communication phase 2 and be taken into account in the slave from communication phase 3 on. The TNcyc has to be an integral multiple of the "S-0-0002, SERCOS Cycle time (TScyc)".					
<div><math display="block">T_{Ncyc} = T_{Scyc} \cdot j</math></div>						
	j	1, 2, 3 ...				
	T <sub>Ncyc</sub> :	NC cycle time				
	T <sub>Scyc</sub> :	SERCOS cycle time				
	Fig.4-1: Determining the NC cycle time					
S-0-0001 - Attributes	Function:	Par	Editable:	P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Standard Parameters

Input	min./max.	Default value
MPB:	250 / 65000	2000
MPC:	250 / 65000	2000
MPE:	250 / 65000	2000
MPM:	250 / 65000	2000

## 4.1.3 S-0-0002, sercos cycle time (TScyc)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The content of "S-0-0002" defines the time intervals in which the cyclic real-time data (MDT and AT) is transmitted via EtherCAT and processed in the drive.

Minimum bus cycle time (TScyc): 1 ms

See also Functional Description "Performance Data"

See also Functional Description "EtherCAT"



EtherCAT master communication requires that the bus cycle time (TScyc) be transmitted from master to slave in communication phase 2 and be activated in both master and slave in communication phase 3 and above.

S-0-0002 - Attributes	Function:	Par	Editable:	P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	500 / 65000	2000
MPC:	500 / 65000	2000
MPE:	500 / 65000	2000
MPM:	500 / 65000	2000

## 4.1.4 S-0-0003, Minimum AT transmit starting time (T1min)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional master communication card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** In the value of this parameter the slave indicates the minimum time required between the end of the received master synchronization telegram and the transmission of its drive telegram.

See also Functional Description "SERCOS interface"

**Use** The T1min time is read by the master in communication phase 2 in order to calculate the transmission starting time of the drive telegram T1 "S-0-0006, AT Transmission starting time (T1)".

S-0-0003 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

#### 4.1.5 S-0-0004, Transmit/receive transition time (TATMT)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional master communication card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	The value of this parameter indicates the time required by the slave in order to switch to reception of the master data telegram after having transmitted its drive telegram.  See also Functional Description "SERCOS interface"					
Use	The transmit/receive transition time (MDT) is read by the master in communication phase 2 in order to calculate the transmission starting time of the master data telegram T2 "S-0-0089, MDT Transmit starting time (T2)".					
S-0-0004 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

#### 4.1.6 S-0-0005, Minimum feedback acquisition time (T4min)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	Minimum time required by the slave between actual value acquisition and the end of the master synchronization telegram (MST in the case of SERCOS). The drive generates this value in such a way that the current actual values can be transmitted to the numerical control in the next drive telegram.  See also Functional Description "SERCOS interface"					
Use	In the case of the SERCOS interface, the master reads this value in communication phase 2 in order to set the acquisition starting time of the actual values T4 S-0-0007, Feedback acquisition starting time (T4) accordingly for all drives.					
S-0-0005 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

#### 4.1.7 S-0-0006, AT Transmission starting time (T1)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	The AT transmission starting time defines the point in time at which the slave must transmit its drive telegram in communication phases 3 and 4 after the				

## Standard Parameters

end of the master synchronization telegram. The master transmits this parameter to the slave in communication phase 2. The parameter becomes active in and after communication phase 3.

This parameter is not used with EtherCAT.

See also Functional Description "SERCOS Interface"

## S-0-0006 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	4 / 65000	200
MPC:	4 / 65000	200
MPE:	4 / 65000	200
MPM:	4 / 65000	200

## 4.1.8 S-0-0007, Feedback acquisition starting time (T4)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** By the master specified measuring time of the feedback value after ending the synchronization telegram.

The master can therefore set the same measuring time of the feedback values for all drives that operate in a co-ordinate mode. Thereby, the synchronization of the feedback value measurement for all drives concerned is ensured. The cyclically transferred command value is also processed at time T4.

See also Functional Description: "SERCOS Interface"

**Use** For SERCOS interface, the measuring time of the feedback value of the master must be set smaller or equal with the difference of "S-0-0002, SERCOS cycle time (TScyc)" and the displayed "S-0-0005, Minimum feedback acquisition time (T4min)"

The following must apply:  $T4 \leq TScyc - T4min$



The drive activates the measuring time of the feedback value from communication phase 3.

## S-0-0007 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	11 / 65000	500
MPC:	11 / 65000	500
MPE:	11 / 65000	500
MPM:	11 / 65000	500

## 4.1.9 S-0-0008, Command value valid time (T3)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional master communication card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The "command valid time" indicates the point of time at which the drive is allowed to access the new command values.

## Standard Parameters

The master can therefore set the same "command valid time" for all drives that operate in a co-ordinate mode. The drive activates the "command valid time" from communication phase 3 on.

See also Functional Description "SERCOS interface"

<b>S-0-0008 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0 / 65000		900	
		MPC:	0 / 65000		900	
		MPE:	0 / 65000		900	
		MPM:	0 / 65000		900	

### 4.1.10 S-0-0009, Position of data record in MDT

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional master communication card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter represents the beginning address of a data record of a drive in the MDT, represented as a byte position. Starting with 1 for the first data byte after the address position in the MDT.

The beginning address of the drive data record in the MDT is transmitted to each drive by the master in communication phase 2 and activated from communication phase 3 on.

See also Functional Description "SERCOS interface"

<b>S-0-0009 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	1 / 65531		1	
		MPC:	1 / 65531		1	
		MPE:	1 / 65531		1	
		MPM:	1 / 65531		1	

### 4.1.11 S-0-0010, Length of master data telegram

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional master communication card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** The length of the master data telegram, which is the number of bytes, contains the data records of all drives. The length of the MDT is transmitted by the master to all drives in communication phase 2 and activated by master and slave from communication phase 3 on.

See also Functional Description "SERCOS interface"

<b>S-0-0010 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Byte	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	4 / 65534		4	
		MPC:	4 / 65534		4	
		MPE:	4 / 65534		4	
		MPM:	4 / 65534		4	

## Standard Parameters

## 4.1.12 S-0-0011, Class 1 diagnostics

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** When a class 1 diagnostics error is detected in the drive, this causes the static error bit to be set in the corresponding status word of the master communication:

- **SERCOS:** S-0-0135, Drive status word, bit 13
- **Field bus:** P-0-4078, Field bus: Status word, bit 13
- **Analog/parallel:** P-0-0115, Device control: Status word, bit 13 for class 1 diagnostics

See also Functional Description "Status Classes, Status Displays, Control Parameters"

**Structure**

Bit	Designation/function	Comment
0	Overload shutdown	
1	Amplifier overtemperature shutdown	
2	Motor shutdown temperature (S-0-0204)	
3	Reserved	
4	Control voltage error	
5	Encoder error	
6	Reserved	
7	Overcurrent error	
8	Overvoltage error	
9	Undervoltage error in power section	
10	Reserved	
11	Excessive deviation	
12	Communication error	
13	Position limit value exceeded	
14	Reserved	
15	Manufacturer-specific error	

Tab.4-2: S-0-0011, Class 1 Diagnostics

**Use**

Bits 0 to 14 have been defined in the SERCOS specification. All unspecified messages are displayed via bit 15.

The following setting generally applies:

- **Bit x = "0":** No class 1 diagnostics error present
- **Bit x = "1":** Class 1 diagnostics error present

The error bit will only be reset to "0" by the drive, when

- there are no more class 1 diagnostics errors and
- the "S-0-0099" command was started.

## Standard Parameters

### Drive lock-out

Any class 1 diagnostics error situation detected by the drive will cause

- the drive to initiate an "error reaction", and
- the static error bit for class 1 diagnostics to be set.

#### S-0-0011 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.13 S-0-0012, Class 2 diagnostics

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** When a class 2 diagnostics warning becomes active or inactive in the drive, this causes the change bit to be set in the corresponding status word:

- **SERCOS:** The change bit "S-0-0135, Drive status word", bit 12, for class 2 diagnostics is only cleared by the drive when parameter "S-0-0012" is read.
- **Field bus:** The change bit "P-0-4078, Field bus: Status word", bit 12, for class 2 diagnostics is immediately cleared by the drive when the condition for the warning is no longer fulfilled.

See also Functional Description "Status Classes, Status Displays, Control Parameters"

#### Structure

Bit	Designation/function	Comment
0	<b>Overload warning</b> (See also P-0-0445, bit 8; P-0-0445, bit 9; P-0-0861, bit 7)	
1	<b>Amplifier overtemperature warning</b> (See also P-0-0861, bit 12; P-0-0861, bit 14)	
2	<b>Motor overtemperature warning</b> (See also P-0-0445, bit 14)	
4/3	Reserved	
5	<b>Positioning velocity &gt; nlimit</b> (See also P-0-0315, bit 0)	
8-6	Reserved	
9	<b>Undervoltage in DC bus</b> (See also P-0-0861, bit 0; P-0-0861, bit 3)	
12-10	Reserved	

## Standard Parameters

Bit	Designation/function	Comment
13	<b>Target position outside of position limit values</b> (See also S-0-0323, bit 0)	
15	<b>Manufacturer-specific warning</b> (See also P-0-0115, bit 2)	

Tab.4-3: S-0-0012, Class 2 Diagnostics

**Use** As regards the bits, the following setting generally applies:

- **Bit x = "0"**: Condition for warning not fulfilled
- **Bit x = "1"**: Condition for warning fulfilled

As illustrated in the table above, the individual status bits are mapped to other manufacturer-specific parameters (e.g. P-0-0861, P-0-0115, ...).



For configuration in "S-0-0144, Signal status word", preferably use the manufacturer-specific bits in the P-parameters.

## S-0-0012 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.14 S-0-0013, Class 3 diagnostics

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** When a class 3 diagnostics message becomes active or inactive in the drive, this causes the change bit to be set in the status word:

**Field bus:** Change bit "P-0-4078, Field bus: Status word", bit 11, for class 3 diagnostics is immediately cleared by the drive when the condition for the warning is no longer fulfilled.

See also Functional Description "Status Classes, Status Displays, Control Parameters"

**Structure** Defined operating status messages are assigned to the individual bits of this parameter. The structure of the parameter and the significance of the individual bits are explained below.

Standard Parameters

Bit	Designation/function	Comment
0	Feedback velocity = command velocity (S-0-0330, Status "n_feedback = n_command"): Absolute tolerance window $ (S-0-0040) - (S-0-0036) - (S-0-0037)  \leq S-0-0157$	
0	Feedback velocity = command velocity (S-0-0330, Status "n_feedback = n_command"): Absolute plus command-value-percentage-based tolerance windows $ (S-0-0040) - (S-0-0036) - (S-0-0037)  \leq ((S-0-0157) +  S-0-0036  + (S-0-0037) + (P-0-0690)) * (S-0-0272)$	As of MPx17VRS
1	Feedback velocity   < standstill window (S-0-0331, Status "n_feedback = 0"): $ S-0-0040  < S-0-0124$	
2	Feedback velocity   < velocity threshold (S-0-0332, Status "n_feedback < n <sub>x</sub> "): $ S-0-0040  < S-0-0125$	
3	Torque/force feedback value   ≥ torque threshold (S-0-0333, Status "T ≥ Tx"): $ S-0-0084  \geq S-0-0126$	
4	Torque/force feedback value   ≥ minimum torque limit value (S-0-0334, Status "T ≥ Tx"): $ S-0-0084  \geq \text{minimum from } (P-0-0444, P-0-0442, P-0-0443)$	
5	Command velocity   > velocity limit value (S-0-0335, Status "n_command > n_limit"): $ (S-0-0036) + (S-0-0037)  > S-0-0091$	
6	In position (S-0-0336, Status "In position"):   Lag error   < positioning window $ S-0-0189  < S-0-0057$ Only with active "Position spindle procedure command": $ S-0-0040  < S-0-0124$ (S-0-0331) and  actual position value - (S-0-0430)  < S-0-0057 and $ S-0-0036  +  S-0-0037  < S-0-0124$	
7	Power feedback value   ≥ power threshold (S-0-0337, Status "P ≥ Px"): $ S-0-0382  \geq S-0-0158$	
11	Lag error < coarse positioning window (S-0-0341, Status "In coarse position"): $ S-0-0189  < S-0-0261$	
12	Target position attained (S-0-0342, Status "Target position attained"): Internal position command value = effective target position $P-0-0434 = S-0-0430$	

Tab.4-4: S-0-0013, Class 3 Diagnostics

As regards the bits, the following setting generally applies:

- **Bit x = 0:** Condition for message not fulfilled

## Standard Parameters

- **Bit x = 1:** Condition for message fulfilled

## S-0-0013 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.15 S-0-0014, Interface status

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains important status bits with regard to master communication and the communication phases.

See also Functional Description "Basic Functions of Master Communication"

## Structure

Bit	Designation/function	Comment
2-0	Communication phase	
3	Double MST failure	
4	Double MDT failure	
5	Invalid phase (phase > 4)	
6	Error during phase progression (order)	
7	Error during phase regression (not to phase 0)	
8	Phase switch without ready signal	
9	Bus interruption	
10	PLC stop	
11	Bus stop	
12	SERCOS III: Incorrect sequence during phase switch, timeout during phase switch	
13	SERCOS III: Incorrect sequence during phase switch, phase input without phase switch	
15/14	Reserved	

Tab.4-5: Relevant Bits of S-0-0014, Interface status



Bits 3, 5, 6, 7 and 8 are only supported with SERCOS interface!  
Bits 9, 10 and 11 are only supported with field bus interface!

#### Use Current communication phase

By means of the lower three bits (0, 1, 2), it is possible to read the current communication phase (binary coding):

- 010 b: The drive is in phase 2 (parameter mode).
- 011b: The drive is in phase 3 (parameter mode).
- 100 b: The drive is in phase 4 (operation mode).

## Standard Parameters

### Communication error bits according to SERCOS interface

When a master communication interface error occurs with SERCOS and field bus drives,

- one of bits 3-15 is set in "S-0-0014, Interface status" (bit in 4 .. 13 = 1 => error is present)
- and bit 12 is set in "S-0-0011, Class 1 diagnostics".



The communication error bits will only be cleared by the drive when the respective interface error is no longer present and the "S-0-0099, C0500 Reset class 1 diagnostics" command was started.

#### S-0-0014 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

### 4.1.16 S-0-0015, Telegram type parameter

#### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

#### Function

In the telegram type parameter, it is possible to choose between standard telegrams and configured telegram.

- When "configurable telegram" has been selected, it is possible to configure "S-0-0016, Configuration list of AT" and "S-0-0024, Configuration list of MDT" as desired.
- In standard telegrams, the content of "S-0-0016" and "S-0-0024" is automatically adjusted to the selected standard telegram.
- With sercos III, the parameter takes effect when the configuration type selected in "S-0-1050.x.1, SIII-Connection: Configuration" is "10".



The telegram type selected is activated in the master and in the slave only from communication phase 3 on.

#### Structure

Bit	Designation/function	Comment
2-0	Selection of standard telegram or configured telegram	
3	0: Position feedback value 1 (motor encoder) 1: Position feedback value 2 (external encoder)	

## Standard Parameters

Bit	Designation/function	Comment
9/8	<b>MDT service channel data width:</b> 00: 2 bytes info (EtherCAT) 01: 4 bytes info (SERCOS III) 10: 6 bytes info 11: 8 bytes info	
11/10	<b>AT service channel data width:</b> 00: 2 bytes info (EtherCAT) 01: 4 bytes info (SERCOS III) 10: 6 bytes info 11: 8 bytes info	

Tab.4-6: S-0-0015, Telegram Type Parameter

The following table describes the individual standard telegrams that can be selected via bit 2...0.

Bit 2...0		MDT (cyclic command values)	AT (cyclic actual values)
000	VZ 0	No cyclic data	No cyclic data
001	VZ 1	DF1: S-0-0080, Torque/force command value	No cyclic data
010	VZ 2	DF1: S-0-0036, Velocity command value	DF1: S-0-0040, Velocity feedback value
011	VZ 3	DF1: S-0-0036, Velocity command value	DF1: S-0-0051/S-0-0053 Position feedback 1/2 value
100	VZ 4	DF1: S-0-0047, Position command value	DF1: S-0-0051/S-0-0053 Position feedback value
101	VZ 5	DF1: S-0-0047, Position command value DF2: S-0-0036, Velocity command value	DF1: S-0-0051/S-0-0053 Position feedback value DF2: S-0-0040, Velocity feedback value
110	VZ 6	DF1: S-0-0036, Velocity command value	No cyclic data
111	Config. telegram		Configurable telegram

Tab.4-7: Supported Bits

With VZ: Standard telegram

DF1/2: Data field 1/2

## S-0-0015 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0x0
<b>MPC:</b>	--- / ---	0x0
<b>MPE:</b>	--- / ---	0x0
<b>MPM:</b>	--- / ---	0x0

## Standard Parameters

### 4.1.17 S-0-0016, Configuration list of AT

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter specifies the parameters which are contained in the drive telegram (AT) when the configurable telegram has been defined by parameter "S-0-0015, Telegram type parameter".					
Use	The configurable parameters are contained in parameter "S-0-0187, List of configurable data in the AT" and are entered in this parameter as IDN list.					
S-0-0016 - Attributes	Function:	Par	Editable:	P2	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

### 4.1.18 S-0-0017, IDN-list of all operation data

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	The IDNs of all operating data available in the drive are stored in this IDN list. See also Functional Description "Parameters, Basics"					
S-0-0017 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 4.1.19 S-0-0018, IDN-list of operation data for CP2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	In this IDN list, the IDNs of all those parameters are stored which the drive checks in the transition check command for phase 3. Only if the data of the contained IDNs are correct can the transition check command be positively acknowledged and switching to communication phase 3 can be allowed.  See also Functional Description "IDN Lists of Parameters"					
S-0-0018 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	

## Standard Parameters

MPC:	---	---	---
MPE:	---	---	---
MPM:	---	---	---

## 4.1.20 S-0-0019, IDN-list of operation data for CP3

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In this IDN list, the IDNs of all those parameters are stored which the drive checks in the transition check command for phase 4. Only if the data of the contained IDNs are correct can the transition check command be positively acknowledged and switching to communication phase 4 can be allowed.

See also Functional Description "IDN Lists of Parameters"

S-0-0019 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.21 S-0-0021, IDN-list of invalid operation data for CP2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Before the drive switches from phase 2 to phase 3 in accordance with the command "S-0-0127, C0100 Communication phase 3 transition check", it checks whether all communication parameters are complete and correct.

See also Functional Description "IDN Lists of Parameters"

**Use** If the drive recognizes one or more invalid IDNs, it writes the operating data still required or invalid to this IDN list. The drive displays this by means of the fault diagnosis "C0101 Invalid parameters (-> S-0-0021)". In the case of other fault diagnoses, the respective parameters are written to "S-0-0021", too.

S-0-0021 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.22 S-0-0022, IDN-list of invalid operation data for CP3

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Standard Parameters

**Function** Before the drive switches from phase 3 to phase 4 in accordance with the command "S-0-0128, C5200 Communication phase 4 transition check", it checks the parameters for the following aspects:

- Validity of the parameter
- Parameter within the possible input range
- "Compatibility" with other parameters

See also Functional Description "IDN-Lists of Parameters"

**Use** If the result of the parameter check is negative, the drive writes the respective operating data to this IDN list.

The drive then acknowledges the transition command with the messages:

- C0201 Invalid parameters (->S-0-0423) or
- C0202 Parameter limit error (->S-0-0423) or
- C0203 Parameter conversion error (->S-0-0423) or
- C0242 Multiple configuration of a parameter (->S-0-0423).

S-0-0022 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 4.1.23 S-0-0024, Configuration list of MDT

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter specifies the parameters which are contained in the master data telegram (MDT) if the configurable telegram has been defined by parameter "S-0-0015, Telegram type parameter".

**Use** The configurable parameters are contained in parameter "S-0-0188, List of configurable data in the MDT" and are entered in this parameter as list.

S-0-0024 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		s. Text	
		MPC:	--- / ---		s. Text	
		MPE:	--- / ---		s. Text	
		MPM:	--- / ---		s. Text	

### 4.1.24 S-0-0025, IDN-list of all procedure commands

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The IDNs of all commands available in the drive are stored in the data of the IDN list.

See also Functional Description "Commands"

## Standard Parameters

<b>S-0-0025 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 4.1.25 S-0-0026, Configuration list for signal status word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In this parameter it is possible to list (configure) a maximum of 16 parameter IDNs, one bit of each is to be mapped to "S-0-0144, Signal status word". The first line of the list corresponds with the LSB of S-0-0144. The following lines correspond with the respective more significant bits.

See also Functional Description "Configurable Signal Status Word"

- Use**
- The IDNs of the parameters that can be entered in S-0-0026 are contained in "S-0-0398, IDN-list of configurable data in signal status word".
  - The assignment with regard to which bit of the respective parameter is mapped to S-0-0144 is made in "S-0-0328, Assign list signal status word".



- If the IDN S-0-0000 is entered, this position does not have any function, the respective bit in the signal status word (S-0-0144) displays the value "0".
- If an IDN is entered that is not contained in S-0-0398, the parameter error "Data incorrect" (error code 7008h) is generated.

<b>S-0-0026 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		s. Text	
	MPC:		--- / ---		s. Text	
	MPE:		--- / ---		s. Text	
	MPM:		--- / ---		s. Text	

## 4.1.26 S-0-0027, Configuration list for signal control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In this parameter it is possible to list (configure) a maximum of 16 parameter IDNs, one bit of each is to be written via "S-0-0145, Signal control word". The first line of the list corresponds with the LSB of S-0-0145, the following lines with the respective more significant bits.

See also Functional Description "Configurable Signal Status Word"

## Standard Parameters

- Use**
- The IDNs of the parameters that can be entered in S-0-0027 are contained in "S-0-0399, IDN-list of configurable data in signal control word".
  - The assignment with regard to which bit of the respective parameter is to be written in S-0-0027 is made in "S-0-0329, Assign list signal control word".
  - If the IDN S-0-0000 is entered, the respective bit does not have any function in the signal control word S-0-0145.
  - If an IDN is entered that is not contained in S-0-0399, the parameter error "Data incorrect" (error code 7008h) is generated.

<b>S-0-0027 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			s. Text	
MPC:		--- / ---			s. Text	
MPE:		--- / ---			s. Text	
MPM:		--- / ---			s. Text	

### 4.1.27 S-0-0028, MST error counter

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional master communication card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** This parameter registers the number of all invalid master synchronization telegrams (MSTs) in the communication phases 3 and 4.

See also Functional Description "Interface Errors and Diagnostic Possibilities"

**Use** If two MSTs are invalid in immediate succession, the error "F4001 Double MST failure shutdown" is generated and the drive is switched back to communication phase 0. The maximum countable number of invalid MSTs is  $2^{16}-1$  (65535). If parameter S-0-0028 has high values, this implies frequent communication failures. When switching to communication phase 3, the count is reset to zero.

<b>S-0-0028 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

### 4.1.28 S-0-0029, MDT error counter

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** This parameter displays the number of all invalid master data telegrams (MDTs) in the communication phases 3 and 4.

See also Functional Description "Interface Errors and Diagnostic Possibilities"

## Standard Parameters

**Use** If two MDTs are invalid in immediate succession, the error "F4002 Double MDT failure shutdown" is generated and the drive is switched back to communication phase 0.

The maximum countable number of invalid MDTs is  $2^{16} - 1$  (65535). If parameter S-0-0029 has high values, this implies frequent communication failures.



The content of S-0-0029 is reset to zero in the transition command "S-0-0127, C0100 Communication phase 3 transition check".

## S-0-0029 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.29 S-0-0030, Manufacturer version

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains the drive firmware version in the form of a text (ASCII format).

See also Functional Description "System Overview"

**Structure** Interpret the content of the parameter as follows:

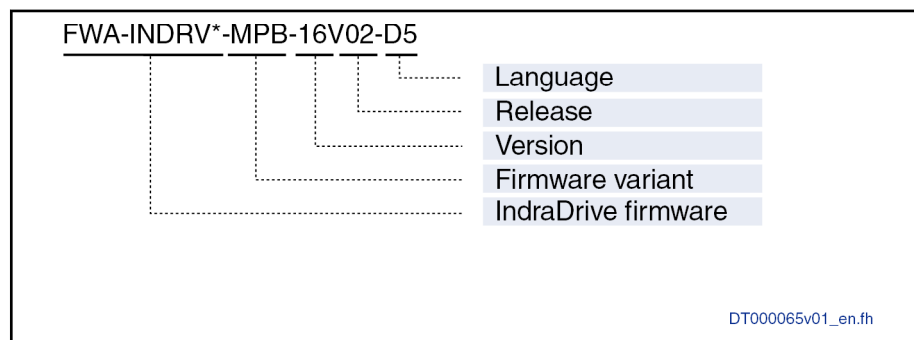


Fig.4-8: Structure of S-0-0030, Manufacturer version

## S-0-0030 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.30 S-0-0032, Primary operation mode

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Standard Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** With the different communication buses, the operation modes are controlled by means of the relevant control word.

- SERCOS III and EtherCAT: S-0-0134, Master control word
- Field buses: P-0-4077, Field bus: Control word
- Easy startup mode: P-0-0120, Control word easy startup

The operation mode determined in this parameter is activated in the drive if:

- The primary mode of operation is selected in the control word and
- Control and power section are ready and
- The drive enable "RF" is set.

See also Functional Description "Mode selection"

**Use** The operation mode is determined by entering a binary value in this parameter.

Possible operation modes include:

- Velocity control
- Torque control
- Cyclic position control
- Drive-internal interpolation
- ...



The operation modes that can actually be selected depend on the firmware used, the set functional package (P-0-2003) and the field bus profile type (P-0-4085).

In case of operation modes with position control, this parameter determines the following options:

- Without lag distance/with lag distance
- Motor encoder/external encoder
- Control of the position control in interaction with/without parameter "S-0-0520"

The operation modes supported by the relevant firmware are stored in parameter "S-0-0292, List of supported operation modes" and are displayed upon read-out in a hexadecimally coded form.



The binary values assigned to the operation modes are listed in the table "Overview of the operation modes" in the description of parameter "S-0-0292".

### S-0-0032 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0x2
<b>MPC:</b>	--- / ---	0x2
<b>MPE:</b>	--- / ---	0x2
<b>MPM:</b>	--- / ---	0x2

## Standard Parameters

## 4.1.31 S-0-0033, Secondary operation mode 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In the various communication buses, operation modes are activated via the respective control word.

- SERCOS III and EtherCAT: S-0-0134, Master control word
- Field buses: P-0-4077, Field bus: Control word
- Easy Startup mode: P-0-0120, Control word easy startup

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 1 is selected in the control word, and
- control and power sections are ready for operation and
- drive enable "RF" was set.

See also Functional Description "Selecting the Operating Mode"

**Use** The operation mode is set by entering a binary value in this parameter.

Selectable operation modes are:

- Velocity control
- Torque control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag error
- Motor encoder / external encoder
- Activation of position control in cooperation with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

## S-0-0033 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x2
MPC:	--- / ---	0x2
MPE:	--- / ---	0x2
MPM:	--- / ---	0x2

## 4.1.32 S-0-0034, Secondary operation mode 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Standard Parameters

<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	---			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

**Function** In the various communication buses, operation modes are activated via the respective control word.

- SERCOS III and EtherCAT: S-0-0134, Master control word
- Field buses: P-0-4077, Field bus: Control word
- Easy Startup mode: P-0-0120, Control word easy startup

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 2 is selected in the control word, and
- control and power sections are ready for operation and
- drive enable "RF" was set.

See also Functional Description "Selecting the Operating Mode"

**Use** The operation mode is set by entering a binary value in this parameter.

Selectable operation modes are:

- Velocity control
- Torque control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag error
- Motor encoder / external encoder
- Activation of position control in cooperation with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

### S-0-0034 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0x2
MPC:	--- / ---	0x2
MPE:	--- / ---	0x2
MPM:	--- / ---	0x2

## 4.1.33 S-0-0035, Secondary operation mode 3

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	---			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

## Standard Parameters

**Function** In the various communication buses, operation modes are activated via the respective control word.

- SERCOS III and EtherCAT: S-0-0134, Master control word
- Field buses: P-0-4077, Field bus: Control word
- Easy Startup mode: P-0-0120, Control word easy startup

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 3 is selected in the control word, and
- control and power sections are ready for operation and
- drive enable "RF" was set.

See also Functional Description "Selecting the Operating Mode"

**Use** The operation mode is set by entering a binary value in this parameter.

Selectable operation modes are:

- Velocity control
- Torque control
- Cyclic position control
- Drive-internal interpolation
- ...

For operation modes with position control, this parameter defines the following options:

- Lagless / with lag error
- Motor encoder / external encoder
- Activation of position control in cooperation with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in table "Overview of Operation Modes" in the description of parameter "S-0-0292".

## S-0-0035 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0x2
<b>MPC:</b>	--- / ---	0x2
<b>MPE:</b>	--- / ---	0x2
<b>MPM:</b>	--- / ---	0x2

## 4.1.34 S-0-0036, Velocity command value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The control unit cyclically enters the command value during the operation mode "Velocity control" into this parameter.

## Standard Parameters



The real effective velocity command value (addition of all velocity command value forming parts) is shown on the input of the velocity control unit in the parameter "P-0-0048".

See also Functional Description "Velocity Control"

### S-0-0036 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	---
MPC:	S-0-0044 / S-0-0044	---
MPE:	S-0-0044 / S-0-0044	---
MPM:	S-0-0044 / S-0-0044	---

## 4.1.35 S-0-0037, Additive velocity command value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The control unit cyclically enters an additive command value in speed and position controlled operation modes into this parameter, if the control unit provides a corresponding value.



The real effective velocity command value (addition of all velocity command value forming parts) is shown on the input of the velocity control unit in the parameter "P0-0048".

See also Functional Description "Velocity Control"

### S-0-0037 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	---
MPC:	S-0-0044 / S-0-0044	---
MPE:	S-0-0044 / S-0-0044	---
MPM:	S-0-0044 / S-0-0044	---

## 4.1.36 S-0-0038, Positive velocity limit value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Depending on the application, this parameter indicates the value for the maximum allowed positive velocity command value of the motor.

See also Functional Description "Velocity Limitation"

- Use**
- The maximum value for "S-0-0038" is the value of "S-0-0113", Maximum motor speed in positive direction. This value also is the maximum value for all other velocity parameters.
  - If "S-0-0091, Bipolar velocity limit value" is smaller than "S-0-0038, Positive velocity limit value", the limit value from S-0-0091 takes effect.

## Standard Parameters

- The default value for S-0-0038 is "0" (switched off), the value from S-0-0091 therefore acts as limit for positive velocities.

S-0-0038 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
	Input	min./max.		Default value		
	MPB:	S-0-0044 / S-0-0044		s. Text		
	MPC:	S-0-0044 / S-0-0044		s. Text		
	MPE:	S-0-0044 / S-0-0044		s. Text		
	MPM:	S-0-0044 / S-0-0044		s. Text		

## 4.1.37 S-0-0039, Negative velocity limit value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Depending on the application, this parameter indicates the value for the maximum allowed negative velocity command value of the motor.

See also Functional Description "Velocity Limitation"

- Use**
- The maximum value for S-0-0039 is the value of "S-0-0113, Maximum motor speed" in negative direction. This value also is the maximum value for all other velocity parameters.
  - If the absolute value of "S-0-0091, Bipolar velocity limit value" is smaller than "S-0-0039, Negative velocity limit value", the limit value from S-0-0091 takes effect.
  - The default value for S-0-0039 is "0" (switched off), the value from S-0-0091 therefore acts as limit for negative velocities.

S-0-0039 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
	Input	min./max.		Default value		
	MPB:	S-0-0044 / S-0-0044		s. Text		
	MPC:	S-0-0044 / S-0-0044		s. Text		
	MPE:	S-0-0044 / S-0-0044		s. Text		
	MPM:	S-0-0044 / S-0-0044		s. Text		

## 4.1.38 S-0-0040, Velocity feedback value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The actual velocity value of the motor encoder can be transmitted by the drive controller to the control unit either cyclically or via the service channel.



In open-loop operation, parameter S-0-0040 contains the actual velocity value estimated by means of a motor model.

See also Functional Description "Velocity Control"

S-0-0040 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV


## Standard Parameters

Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

### 4.1.39 S-0-0041, Homing velocity

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	The product from "S-0-0041, Homing velocity" and "S-0-0108, Feedrate override" defines the maximum velocity of the axis during "S-0-0148, C0600 Drive-controlled homing procedure command".  See also Functional Description "Establishing of the Position Data Reference"					
S-0-0041 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 3
	Input	min./max.		Default value		
	MPB:	S-0-0044 / S-0-0044		100,0000		
	MPC:	S-0-0044 / S-0-0044		100,0000		
	MPE:	S-0-0044 / S-0-0044		100,0000		
	MPM:	S-0-0044 / S-0-0044		100,0000		

### 4.1.40 S-0-0042, Homing acceleration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	The value for acceleration is entered in this parameter. With this value, the drive changes the internally generated velocity command value during the execution of "S-0-0148, C0600 Drive-controlled homing procedure command".					
<hr/>						
<div> The acceleration is limited to the value of "S-0-0138, Bipolar acceleration limit value". The value of parameter "S-0-0042, Homing acceleration" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter "S-0-0138" will take effect.</div>						
<hr/>						
See also Functional Description "Establishing the Position Data Reference"						
S-0-0042 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 3
	Input	min./max.			Default value	
	MPB:	S-0-0160 / S-0-0160			1000,000	
	MPC:	S-0-0160 / S-0-0160			1000,000	

## Standard Parameters

MPE:	S-0-0160 / S-0-0160	1000,000
MPM:	S-0-0160 / S-0-0160	1000,000

## 4.1.41 S-0-0043, Velocity polarity parameter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In this parameter it is possible to change, related to the application, the polarities of the velocity data. The polarities aren't changed inside but outside (at the input and output) of the controlled system.

See also Functional Description "Scaling of Physical Data"

**Structure**

Bit	Designation/function	Comment
0	<b>velocity command value</b> 0: positive polarity 1: negative polarity	
1	<b>velocity command value, additive</b> 0: positive polarity 1: negative polarity	
2	<b>actual velocity value</b> 0: positive polarity 1: negative polarity	

Tab.4-9: S-0-0043, Velocity polarity parameter



Bits 1 and 2 are copies of bit 0. Only changes in bit 0 are effective. It is impossible to have different settings for the individual bits!

- Use**
- **The following applies to rotary motors:** A clockwise turn of the motor output shaft results in a positive actual velocity value (positive polarity).
  - **The following applies to linear motors:** A move of the primary part in the direction of the cable connection side results in a positive actual velocity value (positive polarity).

S-0-0043 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0x7	0x0
MPC:	0x0 / 0x7	0x0
MPE:	0x0 / 0x7	0x0
MPM:	0x0 / 0x7	0x0

## 4.1.42 S-0-0044, Velocity data scaling type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Standard Parameters

**Function** The scaling type of the velocity data defines the format and the relationship in which the velocity data are exchanged between the drive and the control or interface.



Any change in the parameter setting has an effect on the scaling. Such a change therefore has an effect on the display and processing of velocity, position or acceleration data in the drive.

See also Functional Description "Scaling of Physical Data"

### Structure

Bit	Designation/function	Comment
2-0	<b>Scaling type</b> 001: Linear scaling 010: Rotary scaling	
3	0: Preferred scaling 1: Parameter scaling	
4	<b>Unit for linear scaling</b> 0: Millimeter [mm] 1: Inch [in] <b>Unit for rotary scaling</b> 0: Revolution 1: Reserved	
5	<b>unit of time</b> 0: Minute [min] 1: Second [s]	
6	<b>Data reference</b> 0: With respect to motor shaft 1: With respect to load	
15-7	Reserved	

Tab.4-10: S-0-0044, Velocity data scaling type

**Use** The drive represents the values of the velocity data parameters (e.g. S-0-0040, Velocity feedback value) with the set scaling. The setting of the scaling is specified by the control.

If the preferred scaling is selected (bit 3 = 0), the following parameters are preset and cannot be changed:

- S-0-0045, Velocity data scaling factor
- S-0-0046, Velocity data scaling exponent

If parameter scaling is selected, the desired parameter values must be entered for scaling.

### S-0-0044 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0x2
MPC:	--- / ---	0x2
MPE:	--- / ---	0x2
MPM:	--- / ---	0x2

## Standard Parameters

## 4.1.43 S-0-0045, Velocity data scaling factor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	In the case of parameter scaling (see S-0-0044), the scaling factor and the decimal format (the decimal place) of the velocity data are determined via the following parameters.					
	<ul style="list-style-type: none"><li>• S-0-0045, Velocity data scaling factor and</li><li>• S-0-0046, Velocity data scaling exponent</li></ul>					
	See also Functional Description "Scaling of Physical Data"					
Use	If preferred scaling is selected in <b>S-0-0044, Velocity data scaling type</b> , the values in S-0-0045 and S-0-0046 are set automatically by the drive.					
S-0-0045 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	1 / 65535		1		
	MPC:	1 / 65535		1		
	MPE:	1 / 65535		1		
	MPM:	1 / 65535		1		


## 4.1.44 S-0-0046, Velocity data scaling exponent

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	In the case of parameter scaling (see S-0-0044), the scaling factor and the decimal format (the decimal place) of the velocity data are determined via the following parameters.					
	<ul style="list-style-type: none"><li>• "S-0-0046, Velocity data scaling exponent" and</li><li>• "S-0-0045, Velocity data scaling factor"</li></ul>					
	See also Functional Description "Scaling of Physical Data"					
Use	If preferred scaling is selected in "S-0-0044, Velocity data scaling type", the values in "S-0-0045" and "S-0-0046" are set automatically by the drive.					
S-0-0046 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	-15 / 0		---		
	MPC:	-15 / 0		---		
	MPE:	-15 / 0		---		
	MPM:	-15 / 0		---		

## 4.1.45 S-0-0047, Position command value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			


## Standard Parameters

**Function**  The content and significance of S-0-0047 are different for read and write access!

### Write Access


In the "position control" mode the control unit by means of "S-0-0047" and in the clock of its interpolation cycle time writes the cyclic position command values to the drive.

If required, these position command values coming directly from the control unit can be read via "P-0-0047, Position command value control"!

 The interpolation cycle time of the control unit (cf. **S-0-0001**) can be a multiple of the communication cycle time (cf. **S-0-0002**) so that **P-0-0047** is updated on the same time base, too!

### Read Access

When S-0-0047 is read, the effective position command value input at the input of the position loop is displayed in the parameter, this value can also be displayed via "P-0-0434, Position command value of controller". The effective position command values in the "position control" mode are the position command values of the control unit, fine-interpolated, possibly filtered and jerk-limited by the drive! Parameter S-0-0047 is therefore updated on the time base of the position loop cycle time (Advanced: 250µs, Basic: 500µs)!

 S-0-0047 is only updated in the "cyclic position control" mode and P-0-0434 in all operation modes in which the position control loop is closed in the drive!

See also Functional Description "Position Control With Cyclic Command Value Input"

#### S-0-0047 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		---		
<b>MPC:</b>	S-0-0076 / S-0-0076		---		
<b>MPE:</b>	S-0-0076 / S-0-0076		---		
<b>MPM:</b>	S-0-0076 / S-0-0076		---		

## 4.1.46 S-0-0048, Additive position command value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** The additive position command value is add up to the parameter "P-0-0434, Position command value of controller" within the drive, if a synchronous operation mode with outer position control loop is selected. This is for establishing the position delay between the position feedback value of the slave axis and the synchronous position command value, which is derived from the master axis position.

See also Functional Description "Phase Synchronization With Real/Virtual Master Axis"

**Use** When activating the synchronous operation mode, a synchronization is done first, considering the parameters "P-0-0142, Synchronization acceleration"

## Standard Parameters

and "P-0-0143, Synchronization velocity". Alternatively, the single-step synchronization can be used.

Then is switched to the following parameters:

- P-0-0686, Additive position command value, positioning velocity
- P-0-0687, Additive position command value, positioning acceleration

The parameters "P-0-0142" and "P-0-0143" become ineffective.

The following changes of the parameter "S-0-0048" are then proceed via an interpolator 2nd order with defined velocity (P-0-0686) and acceleration (P-0-0687).

Prerequisite is not using "S-0-0048" as process controller parameter (due to bit 0 of "P-0-0155, Synchronization mode"). When adjusting as process controller parameter, the changes are sent through a filter 1st order, whose time constant is defined by the parameter "P-0-060, Filter time constant additive position cmd value".

**S-0-0048 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			S-0-0076 / S-0-0076	---	
<b>MPE:</b>			S-0-0076 / S-0-0076	---	
<b>MPM:</b>			S-0-0076 / S-0-0076	---	

**4.1.47 S-0-0049, Positive position limit value**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** The allowed travel range of an axis can be defined by position limit values. The greatest allowed actual position value (positive travel direction) is entered in this parameter.

If an external encoder is used in addition to the motor encoder, the position limit values either refer to

- the encoder in reference
- or, if both encoders are in reference, -
- to the encoder that has been selected by bit 3 of "S-0-0147, Homing parameter".

See also Functional Description "Position Limit Values (Software Limit Switch)"

**Use Activation**

The position limit value monitor is only active when the actual position values of the motor encoder or, if available, the external encoder are referred to the axis zero point, i.e. when an encoder has been homed. (Bit 1 or bit 2 in parameter "S-0-0403, Position feedback value status" must be 1).

Via bit 4 in "S-0-0055, Position polarities" it is possible to switch off the position limit value monitor.

**Warning**

If a "S-0-0258, Target position" beyond the positive position limit value is preset for the drive, it sets the warning bit 13 in "S-0-0012, Class 2 diagnostics" and generates the "E2053 Target position out of travel range" warning.

## Standard Parameters

If the positive position limit value is exceeded, the drive sets the error bit 13 in "S-0-0011, Class 1 diagnostics".

<b>S-0-0049 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000	

### 4.1.48 S-0-0050, Negative position limit value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The allowed travel range of an axis can be defined by position limit values. The smallest allowed actual position value (negative travel direction) is entered in this parameter.

If an external encoder is used in addition to the motor encoder, the position limit values either refer to

- the encoder in reference
- or, if both encoders are in reference, -
- to the encoder that has been selected by bit 3 of "S-0-0147, Homing parameter".

See also Functional Description "Position Limit Values (Software Limit Switch)"

#### Use Activation

The position limit value monitor is only active when the actual position values of the motor encoder or, if available, the external encoder are referred to the axis zero point, i.e. when an encoder has been homed. (Bit 1 or bit 2 in parameter "S-0-0403, Position feedback value status" must be 1).

Via bit 4 in "S-0-0055, Position polarities" it is possible to switch off the position limit value monitor.

#### Warning

If a "S-0-0258, Target position" beyond the negative position limit value is preset for the drive, it sets the warning bit 13 in "S-0-0012, Class 2 diagnostics" and generates the "E2053 Target position out of travel range" warning.

If the negative position limit value is exceeded, the drive sets the error bit 13 in "S-0-0011, Class 1 diagnostics".

<b>S-0-0050 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000	

## Standard Parameters

## 4.1.49 S-0-0051, Position feedback value 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The actual position value of encoder 1 shows the current position of the motor encoder. After the drive is switched on, the actual position value is initialized, i.e. set to an initial value, by the command "S-0-0128, C0200 Communication phase 4 transition check" during the communication phase sequence.

See also Functional Description "Measuring Systems"

**Use** If the motor encoder is an absolute measuring system, the value in "S-0-0051, Position feedback value 1" displays

- the position referring to the machine zero point, if the command "S-0-0447, C0300 Set absolute position procedure command" was executed once during initial commissioning for the motor encoder.
- first of all the current absolute position of the motor encoder during initial commissioning. The absolute position does not have any reference to the machine zero point until "S-0-0447, C0300 Set absolute position procedure command" is executed for the first time.

If the motor encoder is an incremental measuring system, the value in "S-0-0051, Position feedback value 1" displays

- first of all the actual position value that has not been homed. It refers to the value of "P-0-0019, Initial position value", unless an absolute optional measuring system is available. The initial position value is then assigned to the initial encoder position (default value of P-0-0019 is zero).
- the position related to the machine zero point, if the command "S-0-0148, C0600 Drive-controlled homing procedure command" was executed after drive enable and if, at the same time, the motor encoder had been selected with bit 3 in "S-0-00147, Homing parameter".

S-0-0051 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 4.1.50 S-0-0052, Reference distance 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The required position feedback value regarding a specified axis position (reference position) is entered into this parameter. Via the commands "S-0-0148, C0600 Drive-controlled homing procedure command" or "S-0-0447, C0300 Set absolute position procedure command" is the registered value within the parameter "S-0-0052" valid as position feedback value on the reference position. Thereby, a certain position reference system can be established for an axis or can change an existing reference system to a new.

## Standard Parameters

See also Functional Description "Establishing the Position Data Reference"

### Use Incremental measuring systems

For incremental measuring systems, is due to the command "Drive-controlled homing procedure command", on a mechanically fixed reference position of the axis, the so-called reference point, the reference of the position feedback value to the axis zero point established. The position feedback value 1 on the reference point is according to the value of parameter "S-0-0052" after homing procedure. It is the distance of the reference point to the axis zero point.

### Absolute measuring systems

For absolute measuring systems, the command "Set absolute position procedure command" switches the previously used reference system of the position feedback value to a new on a reference position of the axis.

The reference position can

- have a defined distance to the axis zero point and
- be specified as position feedback value of the previous reference system (before reference system switch).

#### S-0-0052 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 3
Input	min./max.		Default value		
MPB:	S-0-0076 / S-0-0076		0,0000		
MPC:	S-0-0076 / S-0-0076		0,0000		
MPE:	S-0-0076 / S-0-0076		0,0000		
MPM:	S-0-0076 / S-0-0076		0,0000		

## 4.1.51 S-0-0053, Position feedback value 2

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	closed loop				
Device parameter:	axis-specific				

**Function** The position feedback value of encoder 2 shows the current position of the external encoder. After the drive is switched on, the actual position feedback value is initialized, i.e. set to an initial value, by the command "S-0-0128, C5200 Communication phase 4 transition check" during the communication phase sequence.

See also Functional Description "Measuring Systems"

**Use** If the external encoder is an absolute measuring system, the value in "S-0-0053, Position feedback value 2" displays

- the position referring to the machine zero point, if the command "S0-0447, C0300 Set absolute position procedure command" was executed once during initial commissioning for the optional encoder.
- first of all the current absolute position of the external encoder during initial commissioning. The absolute position does not have any reference to the machine zero point until "S0-0447, C0300 Set absolute position procedure command" is executed for the first time.

If the external encoder is an incremental measuring system, the value in "S-0-0053, Position feedback value 2" displays

- first of all the actual position value that has not been homed. It refers to the value of "P-0-0019, Initial position value", unless an absolute motor encoder is available. The initial position value is then assigned to the initial encoder position (default value of P-0-0019 is zero).

## Standard Parameters

- the position referring to the machine zero point, if the command "S-0-0148, C0600 Drive-controlled homing procedure command" was executed after drive enable and if, at the same time, the external encoder had been selected with bit 3 in "S-0-0147, Homing parameter".

S-0-0053 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 4.1.52 S-0-0054, Reference distance 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The required position feedback value regarding a specified axis position (reference position) is entered into this parameter. Via the commands "S-0-0148, C0600 Drive-controlled homing procedure command" or "S-0-0447, C0300 Set absolute position procedure command" is the registered value within the parameter "S-0-0054" valid as position feedback value on the reference position.

Thereby, a certain position reference system can be established for an axis or can change an existing reference system to a new.

See also Functional Description "Establishing of the Position Data Reference"

**Use Incremental measuring systems**

For incremental measuring systems, is due to the command "Drive-controlled homing procedure command", on a mechanically fixed reference position of the axis, the so-called reference point, the reference of the position feedback value to the axis zero point established. The position feedback value 2 on the reference point is according to the value of parameter "S-0-0054" after homing procedure. It is the distance of the reference point to the axis zero point.

**Absolute measuring systems**

For absolute measuring systems, the command "Set absolute position procedure command" switches the previously used reference system of the position feedback value to a new on a reference position of the axis.

The reference position can

- have a defined distance to the axis zero point and
- be specified as position feedback value of the previous reference system (before reference system switch).

S-0-0054 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	S-0-0076 / S-0-0076			0,0000	
	MPC:	S-0-0076 / S-0-0076			0,0000	
	MPE:	S-0-0076 / S-0-0076			0,0000	
	MPM:	S-0-0076 / S-0-0076			0,0000	

## 4.1.53 S-0-0055, Position polarities

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** By means of this parameter it is possible to invert the polarities of the indicated position data. The polarities are changed outside of the controlled system, i.e. at the input and output of the controlled system.



The position polarity must be determined with the initial commissioning of an axis before establishing the machine zero point for the measuring systems, because a change in the polarity causes different actual position values.

### The following applies to rotary motors:

A clockwise turn of the motor output shaft in the case of positive position command value difference and positive polarity.

### The following applies to linear motors:

A move of the primary part in the direction of the cable connection side in the case of positive command value difference and positive polarity.

With bit 4 software position limit values are activated or deactivated.

### Structure

Bit	Designation/function	Comment
0	<b>position command val.</b> 0: positive polarity 1: negative polarity	
1	<b>position command value, additive</b> 0: positive polarity 1: negative polarity	
2	<b>actual position value 1</b> 0: positive polarity 1: negative polarity	
3	<b>actual pos. value 2</b> 0: positive polarity 1: negative polarity	
4	<b>position limit values</b> 0: not active 1: active	

Tab.4-11: S-0-0055, Position polarities



Bits 1, 2 and 3 are copies of bit 0. Only changes in bit 0 are effective. It is impossible to have different settings for the individual bits!

### S-0-0055 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Standard Parameters

Input	min./max.	Default value
MPB:	0x0 / 0x1F	0x0
MPC:	0x0 / 0x1F	0x0
MPE:	0x0 / 0x1F	0x0
MPM:	0x0 / 0x1F	0x0

## 4.1.54 S-0-0057, Position window

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** If an operation mode with internal position control is activated in the drive, several status messages are generated with regard to the positioning behavior of the drive.

See also Functional Description "Positioning Block Mode"

**Use** For this purpose, parameter "S-0-0057, Position window", among others, is used as a "window" for the following status messages and functionalities:

- **In position:** "S-0-0336, Status "In position"" and "S-0-0013, Class 3 diagnostics"; bit 6 = 1  
|Lag error (S-0-0189)| < position window (S-0-0057)
- **IN\_TARGET POSITION** S-0-0437, positioning status; bit 1  
(S-0-0258 – S-0-0386) < S-0-0057
- **IZP:** "S-0-0338, Status "In target position"" and "S-0-0437, Positioning status"; bit 2  
(S-0-0430 - S-0-0386) < S-0-0057  
&& In position (S-0-0036)  
&& n\_feedback = 0 (S-0-0331)
- During execution of command "S-0-0148, C0600 Drive-controlled homing procedure command", the drive signals completion of the command, when the internal position command value generator has reached its target value and the difference between this final value and the actual position value is smaller than the position window.
- As a hysteresis window for the position limit value monitor. This means that, if the drive has passed the position limit value, the travel range is additionally limited by the position window.
- If the position limit values are active, positioning to the position limit value position windows is implemented in "jog" mode.
- For the "position spindle" command in order to show that the spindle is in position.

See also Parameter Description "P-0-0555, Status Word of Axis Controller"

S-0-0057 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 1
	Input	min./max.		Default value		
	MPB:	S-0-0076 / S-0-0076		0,1000		
	MPC:	S-0-0076 / S-0-0076		0,1000		
	MPE:	S-0-0076 / S-0-0076		0,1000		
	MPM:	S-0-0076 / S-0-0076		0,1000		

## 4.1.55 S-0-0058, Reversal clearance

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The reversal clearance describes the absolute measure of backlash between drive and load in the case of a reversal of direction, referring to the position data.

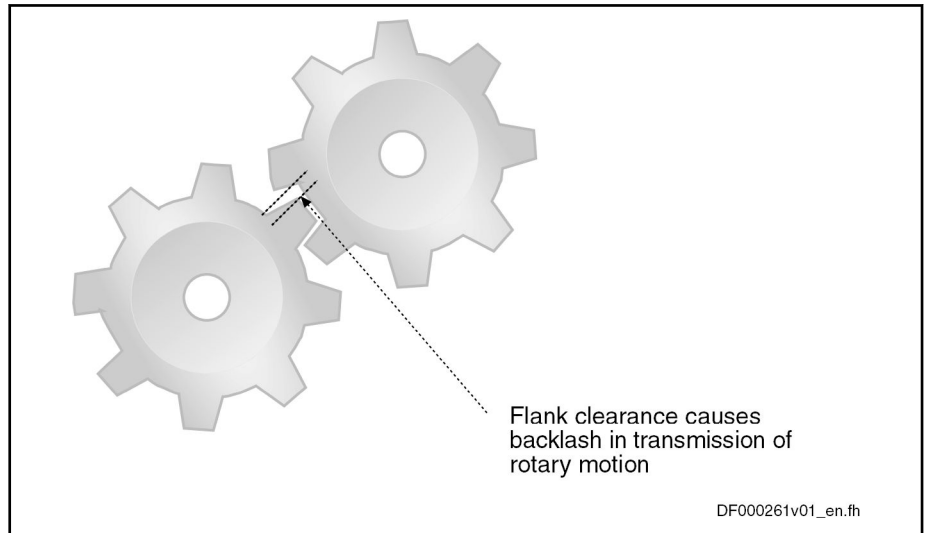


Fig.4-12: Graphical Representation of the Reversal Clearance in the Case of Reversal of Direction

See also Functional Description "Axis Error Correction"

**Use** When using the function, observe the following aspects:

- By means of the backlash on reversal correction, it is easily possible to correct backlash in the mechanical axis system.
- The function is activated by inputting the backlash in parameter "S-0-0058, Reversal clearance".
- The processing of the reversal clearance depends on:
  - Direction of motion in the case of position-controlled operation modes
  - Velocity command value (S-0-0036) and standstill window (S-0-0124) in the case of velocity control

S-0-0058 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	S-0-0076 / S-0-0076		0,0000		
	MPC:	S-0-0076 / S-0-0076		0,0000		
	MPE:	S-0-0076 / S-0-0076		0,0000		
	MPM:	S-0-0076 / S-0-0076		0,0000		

## 4.1.56 S-0-0059, Position switch flag parameter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Standard Parameters

	Hardware	--						
	Funct. package(s):	closed loop						
	Device parameter:	axis-specific						
Function	Bit 0 of this parameter displays the switch status of a "virtual", position-dependent switch. The switch positions are preset in "S-0-0060/S-0-0460, Position switch point 1 "On"/"Off"" (cf. adjusting the switch-on/switch-off edge of a mechanical switch cam).							
Structure	<table border="1"> <thead> <tr> <th>Bit</th><th>Designation/function</th><th>Comment</th></tr> </thead> <tbody> <tr> <td>0</td><td>Switch status of virtual switch 0: Open 1: Closed</td><td></td></tr> </tbody> </table>		Bit	Designation/function	Comment	0	Switch status of virtual switch 0: Open 1: Closed	
Bit	Designation/function	Comment						
0	Switch status of virtual switch 0: Open 1: Closed							

Tab. 4-13: S-0-0059, Position switch flag parameter

S-0-0059 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.1.57 S-0-0060, Position switch point 1 "On"

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	This parameter is used to define the activation position for a virtual position-dependent switch (cf. Adjusting the activation position by mechanical cams). If the position feedback value (S-0-0051) is lower than the activation position, the appropriate bit of "S-0-0059, Position switch flag parameter" indicates zero. Otherwise, it indicates "1" provided the position feedback value has not exceeded the value of "S-0-0460, Position switch point 1 "Off"".					
S-0-0060 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	S-0-0076 / S-0-0076			0,0000	
	MPC:	S-0-0076 / S-0-0076			0,0000	
	MPE:	S-0-0076 / S-0-0076			0,0000	
	MPM:	S-0-0076 / S-0-0076			0,0000	

## 4.1.58 S-0-0076, Position data scaling type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	The scaling type of the position data determines in which format and which reference the position data are exchanged between the drive and the control unit or user interface. The values of the position data parameters (e.g. "S-0-0051, Position feedback 1 value") are displayed by the drive with the				

## Standard Parameters

scaling that has been set. The scaling setting is normally preset by the control unit.



Any change in the parameter setting has an effect on the scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

See also Functional Description "Scaling of Physical Data"

### Structure

Bit	Designation/function	Comment
2-0	<b>scaling type</b> 0 0 1: linear scaling 0 1 0: rotary scaling	
3	0: preferred scaling 1: parameter scaling	
4	<b>unit for linear scaling</b> 0: meter [m] 1: inch [in] <b>unit for rotary scaling</b> 0: angular degrees 1: reserved	
5	reserved	
6	<b>data reference</b> 0: with respect to motor shaft 1: with respect to load	
7	<b>processing format</b> 0: absolute format 1: modulo format	
15-8	reserved	

Tab.4-14: S-0-0076, Position data scaling type

### Use

In the case of preferred scaling (bit 3 = "0"), the following parameters are pre-defined and cannot be changed:

- S-0-0077, Linear position data scaling factor
- S-0-0078, Linear position data scaling exponent
- S-0-0079, Rotational position resolution

In the case of parameter scaling (bit 3 = "1"), the scaling is realized by inputting the desired values in the mentioned parameters.



See also example in description of "S-0-0077, Linear position data scaling factor".

### S-0-0076 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	0x2
MPC:	--- / ---	0x2
MPE:	--- / ---	0x2
MPM:	--- / ---	0x2

## 4.1.59 S-0-0077, Linear position data scaling factor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the case of linear parameter scaling (see S-0-0076), the scaling factor and the decimal format (the decimal place) of the position data parameters are determined with this parameter and with "S-0-0078, Linear position data scaling exponent".

If preferred scaling is selected in "S-0-0076, Position data scaling type", the values in S-0-0077 and S-0-0078 are set automatically by the drive.



Any change in the parameter setting has an effect on the scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

See also Functional Description "Scaling of Physical Data"

**Use** Example for position data display in the case of linear scaling:

Physical actual position value of the motor encoder equals 0.12 m (meters).

A) Selected scaling = linear preferred scaling (S-0-0077 = 1, S-0-0078 = 7). The result of this is the numeric value 1200000 for "S-0-0051, Position feedback 1 value" (with unit mm and 4 decimal places).

B) Selected scaling = linear parameter scaling (S-0-0077 = 3, S-0-0078 = 7). The result of this is the numeric value 400000 for "S-0-0051, Position feedback 1 value" (with unit mm and 4 decimal places).

## S-0-0077 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	1 / 65535	1
MPM:	1 / 65535	1

## 4.1.60 S-0-0078, Linear position data scaling exponent

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the case of linear parameter scaling (see S-0-0076), the scaling factor and the decimal format (the decimal place) of the position data parameters are determined with this parameter and with "S-0-0077, Linear position data scaling factor".

## Standard Parameters



Any change in the parameter setting has an effect on the scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

See also Functional Description "Scaling of Physical Data"

### Use

If preferred scaling is selected in "S-0-0076, Position data scaling type", the values in S-0-0077 and S-0-0078 are set automatically by the drive.



See also example in description of "S-0-0077, Linear position data scaling factor".

### S-0-0078 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-15 / 0	---
MPC:	-15 / 0	---
MPE:	-15 / 0	---
MPM:	-15 / 0	---

## 4.1.61 S-0-0079, Rotational position resolution

### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	closed loop			
Device parameter:	axis-specific			

### Function

In the case of rotary parameter scaling (see S-0-0076), the smallest angle value is determined with this parameter for the rotary position data parameters.

$$\text{smallest angle} = \frac{360 \text{ degr}}{\text{Rotational position resolution}}$$

Fig. 4-15: Smallest angle value for the rotary position data parameters

See also Functional Description "Scaling of Physical Data"

### Use

The smallest angle value can refer to the motor or the load (see S-0-0076). If rotary preferred scaling is set (see S-0-0076), the value in "S-0-0079, Rotational position resolution" is fixed to 3.600.000. The smallest angle value is therefore fixed to 0,0001 degree of angle for all rotary position data.

### S-0-0079 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 4294967295	3600000
MPC:	1 / 4294967295	3600000
MPE:	1 / 4294967295	3600000
MPM:	1 / 4294967295	3600000

## 4.1.62 S-0-0080, Torque/force command value

### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			

## Standard Parameters

<b>Funct. package(s):</b>	closed loop
<b>Device parameter:</b>	axis-specific

**Function** In the "torque/force control" mode, the command value is generated directly by the control unit and entered in this parameter.

In all other operation modes, the torque/force command value is generated by the velocity loop and optionally by a torque/force lookahead.



The torque/force command value generated by higher-level control loops is contained in the parameter "P-0-0049, Effective torque/force command value" and can be cyclically transmitted to the control unit for diagnosis or process purposes and/or be visualized via the analog output.

See also Functional Description "Torque/Force Control"

**Use** Another value ("S-0-0081, Additive torque/force command value") can be added to the torque/force command value (S-0-0080). Several limit values act on the sum of both values (P-0-0049) before it is transmitted to the current controller. The resulting limit values can be queried via parameters:

- P-0-0442, Actual value torque limit positive (stationary)
- P-0-0443, Actual value torque limit negative (stationary)
- P-0-0444, Actual value peak torque limit

The unit of the parameter depends on the settings in the parameters "S-0-0086, Torque/force data scaling type" and "P-0-0640, Cooling type".

**S-0-0080 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	min./max. S-0-0086 / S-0-0086			<b>Default value</b>	
<b>MPC:</b>	S-0-0086 / S-0-0086			---	
<b>MPE:</b>	S-0-0086 / S-0-0086			---	
<b>MPM:</b>	S-0-0086 / S-0-0086			---	

## 4.1.63 S-0-0081, Additive torque/force command value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** By means of this parameter, the master can have a torque/force feedforward value added in the controller, depending on the process.

See also Functional Description "Torque/Force Control"

**Use** Several limit values act on the sum of both values (P-0-0049) before it is transmitted to the current loop. The resulting limit values can be queried via the following parameters:

- P-0-0442, Actual value torque limit positive (stationary)
- P-0-0443, Actual value torque limit negative (stationary)
- P-0-0444, Actual value peak torque limit

The unit of the parameter depends on the settings in parameters "S-0-0086, Torque/force data scaling type" and "P-0-0640, Cooling type".

## Standard Parameters



In order to prevent falsifying the error reaction, "0" is written to the additive command values of S-0-0037, S-0-0081 and P-0-0059 in case there is a drive-internal error reaction.



In "torque/force control" mode, it generally does not make sense to use this parameter, because the control unit should only preset one command value (S-0-0080, Torque/force command value)! Feedforward values should already be contained in the value of "S-0-0080", if required.

### S-0-0081 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	S-0-0086 / S-0-0086	---
<b>MPC:</b>	S-0-0086 / S-0-0086	---
<b>MPE:</b>	S-0-0086 / S-0-0086	---
<b>MPM:</b>	S-0-0086 / S-0-0086	---

## 4.1.64 S-0-0082, Torque/force limit value positive

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter allows setting a torque/force limit value for positive torque/force command values. This limit value affects only on the torque command value of the velocity loop (P-0-0049), not on the command values from the acceleration feedforward (S-0-0348, P-0-1126).

Positive torque acts for:

- motor operation with positive velocity
- generator operation with negative velocity

See also Functional Description "Torque/Force Limitation"

**Use** The unit for the values of this parameter depends on the scaling that has been set ("S--0-0086, Torque/force data scaling type").

## Standard Parameters



- Changes from firmware version MPx16V16:  
This limit value does not act during a drive-controlled deceleration. It is switched to the "P-0-0109, Torque/force peak limit" parameter, during the drive-controlled deceleration
- This limit value acts unipolar. Furthermore, this bipolar acting limit values exist "S-0-0092, Bipolar torque/force limit value" and "P-0-0109, Torque/force peak limit". The lowest value in the mentioned parameters is the active limit value.
- The effectively positive limit value will be displayed in the parameter "P-0-0442, Actual value torque limit positive (stationary)" (including load-dependend limitations due to motor and controller).
- Should a higher torque or a higher force be available for the drive in acceleration processes, than it is in stationary operation (constant velocity command value), a higher value can be reached in "S-0-0092" in opposite to "S-0-0082", if the acceleration feedforward is activated. "S-0-0082" limits to maximum positive load torque/maximum load force and "S-0-0092" to the sum of acceleration torque and load torque/force.
- Extensions from firmware version MPx16V14:  
Should the torque limit "S-0-0082" effect to the total torque ((S-0-0092), then configure this in bit 14 of "P-0-0556".

## S-0-0082 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			S-0-0086 / S-0-0086	400,0	
<b>MPC:</b>			S-0-0086 / S-0-0086	400,0	
<b>MPE:</b>			S-0-0086 / S-0-0086	400,0	
<b>MPM:</b>			S-0-0086 / S-0-0086	400,0	

## 4.1.65 S-0-0083, Torque/force limit value negative

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter allows setting a torque/force limit value for negative torque/force command values. This limit value affects only on the torque command value of the velocity loop (P-0-0049), not on the command values from the acceleration feedforward (S-0-0348, P-0-1126).

Negative torque acts for:

- Motor operation with negative velocity
- Generator operation with positive velocity

See also Functional Description "Current and Torque/Force Limitation"

**Use** The unit for the values of this parameter depends on the scaling that has been set (S-0-0086, Torque/force data scaling type).

## Standard Parameters



- Changes from firmware version MPx16V16:  
This limit value does not act during a drive-controlled deceleration. It is switched to the P-0-0109, Torque/force peak limit parameter, during the drive-controlled deceleration
- This limit value acts unipolar. Furthermore, this bipolar acting limit values exist S-0-0092, Bipolar torque/force limit value and P-0-0109, Torque/force peak limit. The lowest value in the mentioned parameters is the active limit value.
- The effectively negative limit value will be displayed in the parameter P-0-0442, Actual value torque limit negative (stationary) (including load-dependend limitations due to motor and controller).
- Should a higher torque or a higher force be available for the drive in acceleration processes, than it is in stationary operation (constant velocity command value), a higher value can be reached in S-0-0092 in opposite to S-0-0083, if the acceleration feedforward is activated. "S-0-0083" limits to maximum positive load torque/maximum load force and "S-0-0092" to the sum of acceleration torque and load torque/force.
- Extensions from firmware version MPx16V14:  
Should the torque limit S-0-0083 effect to the total torque (S-0-0092), then configure this in bit 14 of P-0-0556.

### S-0-0083 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	Grp. 1
Input		min./max.		Default value	
MPB:		S-0-0086 / S-0-0086		---	
MPC:		S-0-0086 / S-0-0086		---	
MPE:		S-0-0086 / S-0-0086		---	
MPM:		S-0-0086 / S-0-0086		---	

## 4.1.66 S-0-0084, Torque/force feedback value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** Parameter displaying the currently effective actual torque/force value.

### Calculation of the actual torque/force value

$$\text{actual torque/force value} = \text{torque-generating current, actual value} \\ (\text{P } 0 \text{ } 0043) \cdot \text{torque factor}$$

Fig. 4-16: Relation for calculating the actual torque/force value



The value shown in "S-0-0084" is only an approximation of the actually generated torque or force of the motor!

See also Functional Description "Current and Torque/Force Limitation"

**Use** Torque factor

## Standard Parameters

The torque factor mentioned in the calculation formula depends on the functional principle of the motor and the motor type:

- Synchronous motor: The torque factor corresponds to the torque/force constant (P-0-0051) irrespective of whether or not the motor is in field weakening mode.
- Asynchronous motor: In the basic speed range, the torque factor corresponds to the torque/force constant (P-0-0051); in the field weakening range, it is calculated in the firmware based on "P-0-0051" and depending on the speed.

The unit for the values of this parameter depends on the scaling that has been set (S-0-0086, Torque/force data scaling type).

S-0-0084 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.1.67 S-0-0085, Torque/force polarity parameter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--	--	--
	Funct. package(s):	"open loop", "closed loop"		
Device parameter:		axis-specific		

**Function** In this parameter it is possible to invert the polarities of the indicated torque/force data with regard to the application. The polarities are changed outside of the controlled system, i.e. at the input and output of the controlled system.

**The following applies to rotary motors:**

A clockwise turn of the motor output shaft in the case of positive torque and positive polarity.

**The following applies to linear motors:**

A move of the primary part in the direction of the cable connection side in the case of positive force and positive polarity.

See also Functional Description "Scaling of Physical Data"

**Structure**

Bit	Designation/function	Comment
0	<b>torque command value</b> 0: positive polarity 1: negative polarity	
1	<b>torque command value additive</b> 0: positive polarity 1: negative polarity	
2	<b>actual torque value</b> 0: positive polarity 1: negative polarity	

Tab.4-17: S-0-0085, Torque/force polarity parameter

## Standard Parameters



Bits 1 and 2 are copies of bit 0. Only changes in bit 0 are effective. It is impossible to have different settings for the individual bits!

### S-0-0085 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			0x0 / 0x7	0x0	
<b>MPE:</b>			0x0 / 0x7	0x0	
<b>MPM:</b>			0x0 / 0x7	0x0	

## 4.1.68 S-0-0086, Torque/force data scaling type

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter can be used to set the unit and the reference of the torque/force data of a drive.



Any change in the parameter setting has an effect on the scaling. Such a change therefore has an effect on the display and processing of torque/force data in the drive.

See also Functional Description "Scaling of Physical Data"

### Structure

Bit	Designation/function	Comment
2-0	<b>Scaling type</b> 000: Percentage-based scaling (% of reference value) 001: Linear scaling (force in N, lbf) 010: Rotary scaling (torque in Nm, inlbf)	
3	0: Preferred scaling 1: Parameter scaling	As of MP*17VRS
4	<b>Force measurement unit</b> 0: Newton [N] 1: Pound-force [lbf] <b>Torque measurement unit</b> 0: Newton meter [Nm] 1: Inch pound-force [lbf]	
6	<b>Data reference</b> 0: With respect to motor shaft 1: With respect to load	
15-7	Reserved	

Tab.4-18: S-0-0086, Torque/force data scaling type

**Use** The following settings can be made:

If the preferred scaling is selected (bit 3 = "0"), the following parameters are preset and cannot be changed:

## Standard Parameters

- S-0-0093, Torque/force data scaling factor
- S-0-0094, Torque/force data scaling exponent

If parameter scaling is selected, the desired parameter values must be entered for scaling. If percentage-based scaling is selected, parameter scaling is not allowed.

**Calculating the reference value**

If percentage-based scaling is selected, a reference value (100% value) is required for torque/force data.

$$\text{Reference value} = \text{S-0-0111} * \text{P-0-0051} * \text{cooling type factor (dep. on P-0-0640)}$$

S-0-0111 Motor current at standstill

P-0-0051 Torque/force constant

Fig. 4-19: Calculating the reference value for torque/force data



- In case of MHD, MKD and MKE motors, the reference value corresponds to the continuous torque at standstill (depending on the cooling type factor).
- In case of 2AD, MAD, ADF and MAF motors as well as rotary and linear kit motors, the reference value also corresponds to the continuous torque at standstill or the continuous force at standstill. In this case, the cooling factor is "1.0" because the cooling type is invariable (P-0-0640 is inactive).

**S-0-0086 - Attributes**

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

**4.1.69 S-0-0087, Transmit to transmit recovery time (TATAT)**

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional master communication card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** The "transmit to transmit recovery time (TATAT)" is the time required between two drive telegrams when they are sent by the same slave (double-axis device). For slaves with one drive only this parameter is not available. The "transmit to transmit recovery time" is read by the master in communication phase 2, in order to correctly calculate the transmission starting times of the drive telegrams T1 (S-0-0006).

See also Functional Description "Communication with SIS Protocol"

**S-0-0087 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

Standard Parameters

## 4.1.70 S-0-0088, Receive to receive recovery time (TMTSY)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional master communication card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	The time the slave needs to be ready to receive the next master synchronization telegram after having received a master data telegram is defined in this parameter. The parameter is read by the control unit in phase 2 in order to calculate the time slot parameters.					
	See also Functional Description "Communication with SIS Protocol"					
S-0-0088 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 4.1.71 S-0-0089, MDT Transmit starting time (T2)

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	Start of transmission of the master data telegram after the end of the master synchronization telegram. The master transmits this value to the slave in communication phase 2. The value is activated in phase 3.					
This parameter is not used with EtherCAT.						
S-0-0089 - Attributes	Function:	Par	Editable:	P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		0 / 65000		600	
	MPC:		0 / 65000		600	
	MPE:		0 / 65000		600	
	MPM:		0 / 65000		600	

## 4.1.72 S-0-0090, Command value proceeding time (TMTSG)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional master communication card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	Time required in the slave to provide the command values for the drive after having received the master data telegram.					
	In communication phase 2 the master reads the time in order to calculate the "Command valid time (T3)" (S-0-0008).					
	See also Functional Description "Communication with SIS Protocol"					
S-0-0090 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.73 S-0-0091, Bipolar velocity limit value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Depending on the application, this parameter indicates the value for the maximum allowed velocity command value of the motor, independent of the rotational direction.

The maximum value for "S-0-0091" is the value of "S-0-0113, Maximum motor speed". This value is also the maximum value for all following velocity parameters.

The maximum velocity limitation can, depending from the rotational direction, be influenced by the parameters "S-0-0038, Positive velocity limit value" and "S-0-0039, Negative velocity limit value". Both parameters have the default value "0" and are therewith switched-off. Only "S-0-0091" acts.

See also Functional Description "Velocity Limitation"

S-0-0091 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 /
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	S-0-0046
						Grp. 1

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	1000,0000
MPC:	S-0-0044 / S-0-0044	1000,0000
MPE:	S-0-0044 / S-0-0044	1000,0000
MPM:	S-0-0044 / S-0-0044	1000,0000

## 4.1.74 S-0-0092, Bipolar torque/force limit value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter can be used to limit the torque/force command value to allowed maximum values in order to protect mechanical components in the mechanical drive system.

See also Functional Description "Torque/Force Control"

**Use** The parameter has a bipolar effect, i.e., positive and negative command values are limited to the entered value. The limitation acts on the sum of all torque command values, i.e., on the sum of the command value components of the velocity loop output and the command value components from acceleration-dependent feedforward controls (S0-0348, Acceleration feedforward gain; P01126, Velocity control loop: acceleration feedforward).

The unit of "S-0-0092" depends on the scaling that has been set.

## Standard Parameters



- The effective limit value is displayed in "P-0-0444, Actual value peak torque limit". As compared with "S-0-0092", this value may be limited for the following reasons:
  - Smaller value in "P-0-0109, Torque/force peak limit"
  - Current limitation by a corresponding load of amplifier or motor
- If the torque available to the drive in stationary operation mode (constant velocity) is to be lower than during acceleration processes, this can be achieved by setting the appropriate values in "S-0-0082, Torque/force limit value positive" and "S-0-0083, Torque/force limit value negative" in conjunction with acceleration feedforward control (S-0-0348 or P-0-1126).

The bipolar torque/force limit value also has an effect on "C1300 Positive stop drive procedure command". The value of "S-0-0092" is a criterion for acknowledging "C1300".

See also Parameter Description "S-0-0086, Torque/Force Data Scaling Type"

### S-0-0092 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input min./max. Default value</b>					
<b>MPB:</b>	S-0-0086 / S-0-0086		400,0		
<b>MPC:</b>	S-0-0086 / S-0-0086		400,0		
<b>MPE:</b>	S-0-0086 / S-0-0086		400,0		
<b>MPM:</b>	S-0-0086 / S-0-0086		400,0		

## 4.1.75 S-0-0093, Torque/force data scaling factor

### Allocation

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

### Function

This parameter and parameter "S-0-0094, Torque/force data scaling exponent" are used to define the scaling factor and the decimal format (decimal place) of the torque/force data parameters in the drive when parameter scaling is used ("S-0-0086").



Any change in the parameter setting has an effect on the scaling. Such a change therefore has an effect on the display and processing of torque/force data in the drive.

If preferred scaling is selected in "S-0-0086, Torque/force data scaling type", the drive sets the values in "S-0-0093" and "S-0-0094" automatically.

See also Functional Description "Scaling of Physical Data"

### S-0-0093 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input min./max. Default value</b>					
<b>MPB:</b>	1 / 65535		1		
<b>MPC:</b>	1 / 65535		1		
<b>MPE:</b>	1 / 65535		1		
<b>MPM:</b>	1 / 65535		1		

## Standard Parameters

## 4.1.76 S-0-0094, Torque/force data scaling exponent

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter and parameter "S-0-0093, Torque/force data scaling factor" are used to define the scaling factor and the decimal format (decimal place) of the torque/force data parameters when parameter scaling is used (S-0-0086).



Any change in the parameter setting has an effect on the scaling. Such a change therefore has an effect on the display and processing of torque/force data in the drive.

See also Functional Description "Scaling of Physical Data"

**Use** If preferred scaling is selected in "S-0-0086, Torque/force data scaling type", the drive sets the values in "S-0-0093" and "S-0-0094" automatically.

S-0-0094 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	-15 / 6		---		
	MPC:	-15 / 6		---		
	MPE:	-15 / 6		---		
	MPM:	-15 / 6		---		

## 4.1.77 S-0-0095, Diagnostic message

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains the operating status of the drive at present relevant in the form of a **text**.

Preceding the text is the respective content of parameter "S-0-0390, Diagnostic message number".

**Example:** "A0010 Drive HALT"

See also Functional Description "Coded Diagnostic Drive Messages"

S-0-0095 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.1.78 S-0-0096, Slave arrangement (SLKN)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Standard Parameters

**Function** During initialization, the master has to know which drives are available under which slave number so that it is able to make an optimal automatic time slot calculation.

See also Functional Description "Master Communication"

- Structure**
- **High byte:** This is where the drive enters its own drive address (S-0-1040).
  - **Low byte:** This is where the slave enters in ascending order the next higher drive address which it serves.
  - If the current drive is the drive with the highest address at the physical slave, the slave enters here the lowest drive address it serves.
  - If the slave serves only one drive, the drive's "own address" is entered here.

**Use** Based on the particular entry, the master recognizes the drive address assigned to the addressed slave. During initialization, the assignments of physical slaves to the drives they serve must be known to enable the master to make an optimum automatic time slot calculation. In phase 2, the master can request this information from the drive. Based on the particular entry, the master detects whether there are more drives at the same physical slave.

**Example for address 3:**

	High byte	Low byte
Content of S-0-0096	03	03

See also Parameter Description "P-0-4031, Overview of device addresses"

### S-0-0096 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.1.79 S-0-0097, Mask class 2 diagnostics

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** With this parameter it is possible to adjust the change bit of class 2 diagnostics in the drive status to the requirements of the machine control unit.

Due to the default setting in parameter S-0-0097 (all bits are "1") every change of a bit in the "S-0-0012, Class 2 diagnostics" parameter is displayed by the change bit of class 2 diagnostics in the drive status word.



The S-0-0012 parameter is a message parameter that displays different shutdown pre-warnings of the drive by means of the individual bits.

See also Functional Description "Status Classes, Status Displays, Control Parameters"

**Use** If only the change of specific shutdown pre-warnings of the drive is to be queried on the control-side by means of the change bit of class 2 diagnostics

## Standard Parameters

in the drive status word, the display of irrelevant pre-warning changes can be suppressed ("masked") by this parameter (S-0-0097).

The irrelevant bits of the "S-0-0012, Class 2 diagnostics" parameter are masked by the value "0" at the same position of the bit list of this parameter (S-0-0097).

**S-0-0097 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0xFFFF
<b>MPC:</b>	--- / ---	0xFFFF
<b>MPE:</b>	--- / ---	0xFFFF
<b>MPM:</b>	--- / ---	0xFFFF

**4.1.80 S-0-0098, Mask class 3 diagnostics**

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** With this parameter it is possible to adjust the change bit of class 3 diagnostics in the drive status to the requirements of the machine control unit.

Due to the default setting in parameter S-0-0098 (all bits are "1") every change of a bit in the "S-0-0013, Class 3 diagnostics" parameter is displayed by the change bit of class 3 diagnostics in the drive status word.



The S-0-0013 parameter is a message parameter that displays different operating states of the drive by means of the individual bits.

See also Functional Description "Status Classes, Status Displays, Control Parameters"

**Use** If only the change of specific operating states of the drive is to be queried on the control-side by means of the change bit of class 3 diagnostics in the drive status word, the display of irrelevant operating state changes can be suppressed ("masked") by this parameter (S-0-0098).

The irrelevant bits of the "S-0-0013, Class 3 diagnostics" parameter are masked by the value "0" at the same position of the bit list of this parameter (S-0-0098).

**S-0-0098 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0xFFFF
<b>MPC:</b>	--- / ---	0xFFFF
<b>MPE:</b>	--- / ---	0xFFFF
<b>MPM:</b>	--- / ---	0xFFFF

**4.1.81 S-0-0099, C0500 Reset class 1 diagnostics**

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Standard Parameters

**Function** By means of this parameter it is possible to start the command for resetting error messages. When the causes of the errors are removed, all present error messages are reset and the drive goes to its regular status.



As an alternative you can activate the command for resetting error messages by pressing the "Esc" key on the control panel of the drive controller!

### CAUTION

**Damage to the internal memory (flash) caused by too many write accesses**

⇒During the execution of this parameter command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

See also Functional Description "Error"

#### S-0-0099 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			---	---	
<b>MPC:</b>			---	---	
<b>MPE:</b>			---	---	
<b>MPM:</b>			---	---	

## 4.1.82 S-0-0100, Velocity loop proportional gain

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The velocity control loop calculates the torque/force command value (P-0-0049) from the difference between the velocity command value and the velocity feedback value (S-0-0347, Velocity error).

See also Functional Description "Control Loop Structure"

See also Functional Description "Velocity Control"

**Use** This torque/force command value consists of:

- a proportional part

$$Kp = S-0-0100 \cdot S-0-0347$$

Fig.4-20: Torque/force command value (proportional component)

- an integral part

$$Ki = t \cdot \frac{S-0-0100}{S-0-0101} \cdot S-0-0347$$


Fig.4-21: Torque/force command value (integral component)

This results in the following transfer function for the PI controller:

Standard Parameters

$$P-0-0049(t) = S-0-0100 \cdot \left[ 1 + \frac{t}{S-0-0101} \right] \cdot S-0-0347(t)$$

Fig.4-22:            Transfer function for the PI loop

 Parameter "S-0-0100" contains the value for the proportional gain of the velocity loop. The output value at the velocity loop is scaled to Newton (N) or Newton meter (Nm).

Unit, decimal places

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor (rotary or linear) entered in "P-0-4014, Type of construction of motor":

Unit for type of constr. of motor (P-0-4014)		Decimal places for type of constr. of motor (P-0-4014)	
Rotary	Linear	Rotary	Linear
Nm/(rad/s)	N/(mm/min)	3	3

Tab.4-23:            Unit and Decimal Places of S-0-0100, Depending on P-0-4014

Use            Input values are calculated as follows:  
Rotary motors:

$$S-0-0100_{Indractive} = S-0-0100_{Eco\_DIAX} \times P-0-0051_{Eco\_DIAX}$$

Fig.4-24:            New input values for S-0-0100

Linear motors:

$$S-0-0100_{Indractive} = (S-0-0100_{Eco\_DIAX} \times P-0-0051_{Eco\_DIAX}) / (10^3 \text{mm/m})$$

Fig.4-25:            New input values for S-0-0100

Command "C0700 Load defaults procedure command (motor-spec. controller values)" can be used to load a default value for this parameter provided the motor available features a motor encoder data memory (P-0-4014, Type of construction of motor).

S-0-0100 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Nm/(rad/s)	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2
	Input	min./max.			Default value	
	MPB:	0,000 / 2147483,647			0,050	
	MPC:	0,000 / 2147483,647			0,050	
	MPE:	0,000 / 2147483,647			0,050	
	MPM:	0,000 / 2147483,647			0,050	

4.2            S-0-0101 to S-0-0200 Standard Parameters

4.2.1        S-0-0101, Velocity loop integral action time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»    «MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»    «MPC»

## Standard Parameters

Hardware --  
Funct. package(s): "open loop", "closed loop"  
Device parameter: axis-specific

**Function** The speed controller generates a torque/force command value (P-0-0049) from the difference of velocity command value and actual velocity value (=S-0-0347, Speed deviation).

**Use** This torque/force command value consists of:

$$K_p = S-0-0100 \cdot S-0-0347$$

Fig.4-26: Torque/force command value (proportional component)

$$K_I = t \cdot \frac{S-0-0100}{S-0-0101} \cdot S-0-0347$$

Fig.4-27: Torque/force command value (integral component)

The transfer function for the PI loop is the following:

$$P-0-0049(t) = S-0-0100 \cdot \left[ 1 + \frac{t}{S-0-0101} \right] \cdot S-0-0347(t)$$

Fig.4-28: Transfer function for the PI loop

See also Functional Description "Velocity Control"

### Definition of the Integral Action Time



The integral action time (S-0-0101) is the value on the time axis at which the integral component equals the proportional component. This means that it is the time a mere I-controller would need until the controller output value  $y$  would equal the output value of a P-controller at the time  $t = 0$ .

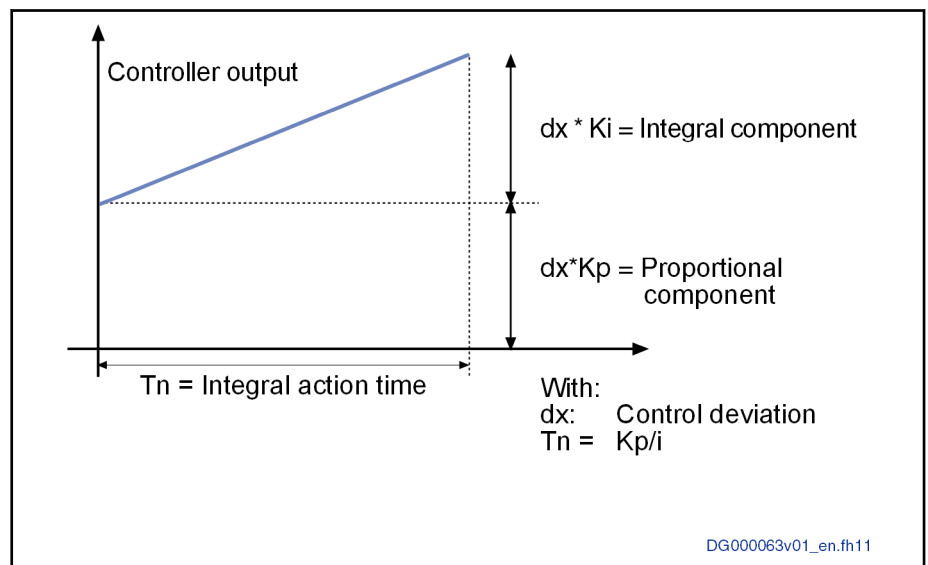


Fig.4-29: Explanation integral action time (TN) and proportional gain Kp with the PI loop

## Standard Parameters



The integral component is switched off with the input value S-0-0101 = 0 ms.

## S-0-0101 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPC:</b>	0,0 / 6553,5			100,0	
<b>MPE:</b>	0,0 / 6553,5			100,0	
<b>MPM:</b>	0,0 / 6553,5			100,0	

## 4.2.2 S-0-0103, Modulo value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** When modulo format is set (S-0-0076, Position data scaling type, bit 7), the modulo value defines the numerical value at which the position data overflows to "0".

See also Parameter Description "S-0-0393, Command value mode"

See also Functional Description "Notes on Commissioning"

**Use** Observe the following facts for setting "P-0-0103":

- The value in "S-0-0103" must be less than the value of "S-0-0278, Maximum travel range"; otherwise, the drive signals "C0123, Modulo value for motor encoder cannot be displayed".
- The modulo value also has an effect on bit 6 of "S-0-0277, Position feedback 1 type" and "S-0-0115, Position feedback 2 type". This bit indicates the possibility of absolute evaluation of the encoder.

## S-0-0103 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPC:</b>	S-0-0076 / S-0-0076			360,0000	
<b>MPE:</b>	S-0-0076 / S-0-0076			360,0000	
<b>MPM:</b>	S-0-0076 / S-0-0076			360,0000	

## 4.2.3 S-0-0104, Position loop Kv-factor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** The drive controller has a cascade structure, i.e., the velocity loop is superimposed on the current loop, and the position loop is superimposed on the velocity loop.

Parameter "S-0-0104" contains the value for the proportional gain of the position loop.

See also Functional Description "Closed-Loop Axis Control (Closed-Loop Operation)"

## Standard Parameters

### Use



The unit of "S-0-0104, Position loop Kv-factor" is "1000 1/min".

Example conversion

$$S-0-0104 = 1,0 \frac{1000}{\text{min}} = 1,0 \cdot \frac{1000}{60} \frac{1}{\text{s}} = 16,67 \frac{1}{\text{s}}$$

Fig.4-30: S-0-0104, Position loop Kv-factor



Writing the correct value to this parameter:

- Automatically on initial commissioning of Rexroth motors with encoder data memory, or by executing command "C0700 Load defaults procedure command (motor-spec. controller values)".
- For Rexroth motors without encoder data memory, by loading the motor parameters with the commissioning tool
- In case of other motors: default value or manual input.

### S-0-0104 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	1000/min	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
MPB:	0,00 / 655,35	1,00
MPC:	0,00 / 655,35	1,00
MPE:	0,01 / 655,35	1,00
MPM:	0,00 / 655,35	1,00

## 4.2.4 S-0-0106, Current loop proportional gain 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter serves to define the P gain für the current controller ( $I_d$  and  $I_q$  control loops). Parameterization of the current controller proportional gain depends on the control performance (current controller cycle  $T_{A,i}$ ) and on the switching frequency selected (see P-0-0001).

### Use Instructions on use of BRC motors

The value relating to "P-0-0001, Switching frequency of the power output stage" = 4 kHz is provided for "S-0-0106" for each Rexroth motor.

- In case of motors with data memory in the motor encoder (MSK, MHD, MKD, MKE and, where applicable, MAD, MAF), this is achieved via the value of "P-0-2106, Current loop proportional gain 1, encoder memory" which is stored there.
- In case of motors without encoder data memory (2AD, ADF, MAD where applicable, and MAF, as well as kit motors 1MB, MBS, MBT, LSF, MLF), this is achieved via the commissioning software or the Intranet output of the manufacturer's database "DriveBase".

The value of "S-0-0106" is adjusted to the selected PWM frequency "P-0-0001, Switching frequency of the power output stage" and the performance "P-0-0556, Control word of axis controller" as follows:

## Standard Parameters

- In case of motors with encoder data memory (see above), independently on "loading of controller parameters" (C0700 Load defaults proced. command (motor-spec. controller val.)), provided the switching frequency and the control performance have already been set.
- In case of motors without encoder data memory (see above), manually by commissioning staff.
- In case of third-party motors, automatically by starting the command or manually by commissioning staff (see below).

When the adjustment of the value of "S-0-0106" to the set switching frequency (P-0-0001) and the performance (P-0-0556) is made manually, the value relating to P-0-0001 = 4 kHz is to be converted as follows:

$$\begin{aligned}
 S-0-0106_{(2 \text{ kHz})} &= 0,5 * S-0-0106_{(4 \text{ kHz})} \\
 S-0-0106_{(8 \text{ kHz, bas})} &= 1,5 * S-0-0106_{(4 \text{ kHz})} \text{ BASIC Perf.} \\
 S-0-0106_{(8 \text{ kHz, adv})} &= 2,0 * S-0-0106_{(4 \text{ kHz})} \text{ ADVANCED Perf.} \\
 S-0-0106_{(12 \text{ kHz})} &= 2,25 * S-0-0106_{(4 \text{ kHz})} \\
 S-0-0106_{(16 \text{ kHz})} &= 3,0 * S-0-0106_{(4 \text{ kHz})}
 \end{aligned}$$

S-0-0106 (4 kHz) Value of current controller P gain 1 with P-0-0001 = 4 kHz

Fig.4-31: *Determining the Value of S-0-0106 in Relation to P-0001, Switching frequency of the power output stage*

#### Instructions on use of third-party motors

In case of third-party motors, the value of "S-0-0106" is automatically set such that it matches the set PWM frequency and performance. This is achieved as follows:

- In case of asynchronous motors, by commands C3200 and C3600
- In case of synchronous motors, by command C4600

The value of S-0-0106<sub>(4 kHz)</sub> can also be calculated manually:

$$S-0-0106_{(4 \text{ kHz})} = k_{\text{Winding\_4kHz}} * (L_{12} + 2 * L_{\text{Dr}})$$

S-0-0106 (4 kHz) Current controller proportional gain 1, in relation to P-0-0001 = 4 kHz

k<sub>Winding\_4kHz</sub>: Factor for winding type and winding body material, in relation to P-0-0001 = 4 kHz, see below

L<sub>12</sub>: Winding inductance between motor terminals in mH

L<sub>Dr</sub>: Inductance of a three-phase reactor in motor feed wire in mH

Fig.4-32: *Calculating the Value for S-0-0106 (in Relation to 4 kHz) for Third-Party Motors*

## Standard Parameters

Functional principle of motor	Winding design	Winding body material	k <sub>Winding_4 kHz</sub>	Example motor types
Synchronous motor	Toothed winding	Ironless	1,33	--
		With iron	1,67	(MBT; MBSxx2; MLF)
	Distributed winding	Ironless	1,87	Trilogy110; 210; 310
		With iron	1,76	(LSF, MBS)
Asynchronous motor	Distributed winding	With iron	1,33	(1MB)

Tab.4-33: k<sub>Winding\_4 kHz</sub> in Relation to Functional Principle of Motor, Winding Design and Winding Body Material



If necessary, saturation effects of the material at maximum allowed current must be taken into account in the value for the winding inductance between the motor terminals (L<sub>12</sub>)!



Where motors without encoder memory and third-party motors are concerned, no other settings than those recommended should be used for "S-0-0106".

### S-0-0106 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	V/A	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
Input	min./max.		Default value		
MPB:	0,00 / 42949672,95		8,00		
MPC:	0,00 / 42949672,95		8,00		
MPE:	0,00 / 200,00		8,00		
MPM:	0,00 / 42949672,95		8,00		

## 4.2.5 S-0-0107, Current loop integral action time 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The value for the "Current loop integral action time 1" is motor-specific and is defined for each individual motor type.



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

## Standard Parameters

Use



The factory-set values of the current loop should not be changed!

**In case of third-party motors:**

Where third-party motors are concerned, the value for "S-0-0107" is determined automatically, by

- commands C3200 and C3600 in case of asynchronous motors,
- command C4600 in case of synchronous motors.

The value of "S-0-0107" can be calculated as follows:

$$S-0-0107 = k_{Tn\_Winding} \cdot \frac{(L_{12} + 2 \cdot L_{Dr})}{(R_{12} + 2 \cdot R_{Dr})}$$

$k_{Tn\_Winding}$ : Factor for winding type and winding body material for integral action time calculation

$L_{12}$ : Winding inductance between motor terminals in mH

$L_{Dr}$ : Inductance of a three-phase choke in motor feed wire in mH

$R_{12}$ : Winding resistance between motor terminals in ohm

$R_{Dr}$ : Resistance of a three-phase choke in motor feed wire in ohm

Fig. 4-34: Calculating S-0-0107

Factor  $k_{Tn\_windings}$  for the integral action time depends on the winding type and the winding former material.

Motor principle	Winding type	Winding former material	$k_{Tn\_Windings}$	Example motors
Synchronous motor	Toothed winding	Ironless	1,0	--
		Iron	1,25	(MBT; MBSxx2; MLF)
	Distributed winding	Ironless	1,4	Trilogy110; 210; 310
		Iron	1,33	(LSF, MBS)
Asynchronous motor	Distributed winding	Iron	1,0	(1MB)

Tab.4-35:  $k_{Tn\_windings}$



If necessary, saturation effects of the material at maximum allowed current must be taken into account in the value for the winding inductance between the motor terminals ( $L_{12}$ )!

**S-0-0107 - Attributes**

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

Input	min./max.	Default value
MPB:	0,0 / 6553,5	2,0
MPC:	0,0 / 6553,5	2,0
MPE:	0,0 / 6553,5	2,0
MPM:	0,0 / 6553,5	2,0

## 4.2.6 S-0-0108, Feedrate override

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0108" is used for variable adjustment of a predefined command velocity.

To achieve this, the effective interpolation velocity

- S-0-0041, Homing velocity
- S-0-0259, Positioning Velocity
- P-0-4007, Positioning block velocity

is calculated by multiplying it by the value of "S-0-0108, Feedrate override".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

**Use** The feedrate override is effective in all interpolating operation modes and/or commands, such as:

- Drive-internal interpolation
- Drive-controlled positioning (jog)
- Positioning block mode
- Commands initiating interpolating movements of the drive (S-0-0148, C0600 Drive-controlled homing procedure command)



Parameter "S-0-0108" can be configured cyclically and also be assigned to an analog input so that it can be perfectly used for what is called setting-up mode.

### S-0-0108 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,00 / 600,00	100,00
MPC:	0,00 / 600,00	100,00
MPE:	0,00 / 600,00	100,00
MPM:	0,00 / 600,00	100,00

## 4.2.7 S-0-0109, Motor peak current

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Maximum allowed current that may temporarily flow in the motor.

See also Functional Description "Limitations"

## Standard Parameters



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

## S-0-0109 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	A	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			0,000 / 1000,000	5,000	
<b>MPE:</b>			0,000 / 1000,000	5,000	
<b>MPM:</b>			0,000 / s. Text	5,000	
<b>MPM:</b>			0,000 / 1000,000	5,000	

## 4.2.8 S-0-0110, Amplifier peak current

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Peak current of the controller. The value is set automatically by the device. This current is only available temporarily.

See also Functional Description "Limitations"

## S-0-0110 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	A	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			--- / ---	---	
<b>MPE:</b>			--- / ---	---	
<b>MPM:</b>			--- / ---	---	

## 4.2.9 S-0-0111, Motor current at standstill

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The value of this parameter is the torque-/force-generating component of the continuous motor current when the motor is loaded with the least allowed cooling type, with the continuous torque ensured at standstill or with the ensured continuous force (see motor data sheet).

See also Functional Description "Rexroth Motors"

## Standard Parameters

### Use



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.



If percentage-based scaling has been set in parameter "S-0-0086, Torque/force data scaling type", this parameter is included in the calculation of the reference value (100% value).

### S-0-0111 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	A	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
Input			min./max.	Default value	
MPB:			0,000 / 500,000	1,000	
MPC:			0,000 / 500,000	1,000	
MPE:			0,000 / s. Text	1,000	
MPM:			0,000 / 500,000	1,000	

## 4.2.10 S-0-0112, Amplifier nominal current

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter displays the maximum possible continuous current of the drive.



In the case of rotary field frequencies smaller than 3 Hz, the possible amplifier continuous current is reduced by means of a temperature model (see Technical Data in hardware Project Planning Manual!).

See also Functional Description "Limitations"

### S-0-0112 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	A	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input			min./max.	Default value	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 4.2.11 S-0-0113, Maximum motor speed

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Standard Parameters

	<b>Funct. package(s):</b>	"open loop", "closed loop"
	<b>Device parameter:</b>	axis-specific
<b>Function</b>	Value for the maximum allowed velocity command value of the motor. The velocity feedback value may be a maximum of 12.5% higher than the value of "S-0-0113". With higher actual values, the drive reacts with torque disable and generates error message "F8079".	
	See also Functional Description "Limitations"	

**Use**

The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

**Unit, decimal places**

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor (rotary or linear) entered in "P-0-4014, Type of construction of motor":

Type of constr. of motor (P-0-4014)		Decimal places for type of constr. of motor (P-0-4014)	
Rotary	Linear	Rotary	Linear
min <sup>-1</sup>	mm/min	4	2

Tab.4-36: Type of Construction of Motor and Decimal Places of S-0-0113, Depending on P-0-4014

S-0-0113 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	s. Text	Extr. val. ch.:	+	Decim. pl.:	s. Text
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
	Input		min./max.		Default value	
	MPB:		s. Text / s. Text		3000,0000	
	MPC:		s. Text / s. Text		3000,0000	
	MPE:		s. Text / s. Text		3000,0000	
	MPM:		s. Text / s. Text		3000,0000	

## 4.2.12 S-0-0115, Position feedback 2 type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	This parameter defines the essential properties of the external (optional) encoder.				
	See also Functional Description "Measuring Systems"				

Standard Parameters

Structure

Bit	Designation/function	Comment
0	<b>Kind of encoder</b> 0: Rotary 1: Linear	
1	<b>Distance-coded measuring system</b> 0: No distance-coded reference marks 1: Distance-coded reference marks (S-0-0165, S-0-0166)	
3	<b>Rotational direction</b> 0: Not inverted 1: Inverted	
5	<b>Design of distance-coded measuring system</b> 0: Positive direction of counting 1: Negative direction of counting	
6	<b>Absolute evaluation (display bit)</b> 0: Not possible (relative measuring system) 1: Possible (absolute measuring system) See also "S-0-0379, Absolute encoder range of optional encoder"	
8/7	<b>Absolute configuration evaluation</b> <b>Bit 6 = 0:</b> 0x: Relative evaluation of the relative measuring system. The measuring system must be re-homed on each re-start. 1x: Absolute evaluation of the relative measuring system is forced (only possible with single- and multi-turn encoders). <b>Bit 6 = 1:</b> x0: Absolute evaluation of the absolute measuring system (standard). x1: Relative evaluation of the absolute measuring system.	Not defined in sercos
9	<b>Cyclic marker evaluation</b> 0: Deactivated 1: Activated	
13	<b>Encoder replacement monitoring</b> 0: Activated - encoder replacement is detected (only for encoders with data memory) 1: Deactivated - no error (F2176) is signaled when the encoder is replaced and the reference is preserved if necessary; this does not affect position initialization <b>ATTENTION:</b> Only makes sense for mechanically adjusted encoders!	Not defined in sercos

## Standard Parameters

Bit	Designation/function	Comment
14	<b>Position initialization of encoders with absolute position</b> 0: Position initialization with absolute position and incr. track 1: Position initialization without incr. track <b>Attention: Reduced accuracy!</b> Position initialization without incr. track makes sense only if the absolute position was shifted deliberately. (Applies only to Hiperface encoders)	Not defined in sercos
15	<b>Cyclic absolute encoder monitoring</b> 0: Activated 1: Deactivated (EnDat and Hiperface encoders)	Not defined in sercos

Tab.4-37: S-0-0115, Position feedback 2 type

## S-0-0115 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 4.2.13 S-0-0116, Resolution of feedback 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter specifies the resolution of the motor encoder.

See also Functional Description "Measuring Systems"

**Use** The value means:

- In case of rotary motors, the number of division periods or cycles per revolution of the motor (DP/rev).
- In case of digital rotary encoders, the number of increments per revolution of the encoder shafts (incr/rev, e.g. 131072 incr/rev for a 17-bit encoder).
- In case of linear motors, the resolution in mm (mm/line count).
- In case of motors with resolver feedback, the number of pole pairs.

The significance of the value of "S-0-0116" is determined by "P-0-4014, Type of construction of motor" (rotary or linear motor).

## Standard Parameters



For most Rexroth housing motors, the value of "S-0-0116" is automatically loaded from the data memory of the motor encoder to the controller. For housing motors 2AD(ADF)...-xxxC-... as well as ...-xxxD-... and MAD (MAF)...-C0-..., the value must be loaded manually or via the commissioning software "IndraWorks Ds/D/MLD".

For kit motors 1MS, MSS, MST, LSP, and MLP (without motor encoder), the value must be entered manually.

### Unit, decimal places

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor (rotary or linear) entered in "P-0-4014, Type of construction of motor":

Unit for type of constr. of motor (P-0-4014)		Decimal places for type of constr. of motor (P-0-4014)	
Rotary	Linear	Rotary	Linear
DP/revolution (incr/rev)	mm	0	5... 7

Tab.4-38: Unit and Decimal Places of S-0-0116, Depending on P-0-4014

#### S-0-0116 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	DP/Rev	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5

Input	min./max.	Default value
MPB:	--- / ---	256
MPC:	--- / ---	256
MPE:	--- / ---	256
MPM:	--- / ---	256

## 4.2.14 S-0-0117, Resolution of feedback 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPM»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** The resolution of the external encoder is indicated in this parameter.  
See also Functional Description "Measuring Systems"

**Use** The value means:

- In the case of rotary encoders, the number of division periods or cycles per revolution of the encoder shaft (DP/rev).
- In the case of digital rotary encoders, the number of increments per revolution of the encoder shafts (incr/rev, e.g. 131072 incr/rev for a 17-bit encoder).
- In the case of linear encoders, the resolution in mm (mm/line count).
- In the case of resolvers, the number of pole pairs.

The significance of the value of S-0-0117 is determined by "S-0-0115, Position feedback 2 type" (rotary or linear encoder).

#### S-0-0117 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	DP/Rev	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 4.2.15 S-0-0121, Input revolutions of load gear

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** If a mechanical gear has been built in between motor and load, the gear ratio is input by means of S-0-0121 and "S-0-0122, Output revolutions of load gear".

See also Functional Description "Status Classes, Status Displays, Control Parameters"

**Use** In this parameter the number (integral) of motor revolutions (gear input) is entered that cause an integral number of gear output revolutions ("S-0-0122, Output revolutions of load gear").

The gear ratio is:

$$\frac{\text{S-0-0121, Input revolutions of load gear}}{\text{S-0-0122, Output revolutions of load gear}}$$

Fig.4-39: Calculating the gear ratio

Example:

5 motor revolutions result in 2 gear output revolutions.

→ S-0-0121: 5

→ S-0-0122: 2

## S-0-0121 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 3

Input	min./max.	Default value
MPB:	1 / 4294967295	1
MPC:	1 / 4294967295	1
MPE:	1 / 4294967295	1
MPM:	1 / 4294967295	1

## 4.2.16 S-0-0122, Output revolutions of load gear

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** If a mechanical gear has been built in between motor and load, the gear ratio is input by means of "S-0-0122" and "S-0-0121, Input revolutions of load gear".

See also Functional Description "Scaling of Physical Data"

**Use** In this parameter the number (integral) of gear output revolutions is entered that are caused by an integral number of motor revolutions ("S-0-0121, Input revolutions of load gear").

## Standard Parameters

The gear ratio is:

$$\frac{\text{S-0-0121, Input revolutions of load gear}}{\text{S-0-0122, Output revolutions of load gear}}$$

Fig.4-40: Calculating the gear ratio

Example:

5 motor revolutions result in 2 gear output revolutions.

→ S-0-0121: 5

→ S-0-0122: 2

### S-0-0122 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 3

Input	min./max.	Default value
MPB:	1 / 4294967295	1
MPC:	1 / 4294967295	1
MPE:	1 / 4294967295	1
MPM:	1 / 4294967295	1

## 4.2.17 S-0-0123, Feed constant

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is only relevant for linear axes that are driven by a rotary motor.

The feed constant is the distance covered by the axis when the gear output shaft or motor shaft moves by one revolution.

See also Functional Description "I/O Mode (Positioning and Preset Velocity)"

**Use** Determining the feed constant with different mechanical transmission elements:

Ballscrew	Toothed rack + gear pinion
Feed constant = spindle lead (typical value 10.00 mm)	Feed constant = effective diameter of the gear pinion • π = effective circumference of the gear pinion

Tab.4-41: Determining the Feed Constant



The unit depends on bit 4 of "S-0-0076, Position data scaling type".

### S-0-0123 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	10,0000
MPC:	S-0-0076 / S-0-0076	10,0000
MPE:	S-0-0076 / S-0-0076	10,0000
MPM:	S-0-0076 / S-0-0076	10,0000

## Standard Parameters

## 4.2.18 S-0-0124, Standstill window

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** To detect the motor or axis standstill, a threshold for the velocity is entered into this parameter. Is the value of the velocity feedback value fallen below this threshold, standstill is recognized by the controller. In the case of standstill, the bit 1 of "S-0-0013, Class 3 diagnostics" and the message "S-0-0331, Status "n\_feedback = 0"" is set.

See also Functional Description "Drive Halt"

**Use** The standstill window "acts" also at:

- an aborted or interrupted drive control command. The abortion or interruption is acknowledged, when the drive stopped.
- drive-controlled homing procedure. The actual value and the command value are then switched, when the drive stopped.
- command value processing. When the operation modes are switched, the command value processing is initialized to velocity = 0, when the drive stopped.
- "C1300 Positive stop drive procedure command". The value of "S-0-0124" is necessary to confirm "C1300".
- Axis Error Correction. This value is a criteria to detect the positive or negative direction of motion of the axis.

S-0-0124 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
	Input	min./max.		Default value		
	MPB:	S-0-0044 / S-0-0044		20,0000		
	MPC:	S-0-0044 / S-0-0044		20,0000		
	MPE:	S-0-0044 / S-0-0044		20,0000		
	MPM:	S-0-0044 / S-0-0044		20,0000		

## 4.2.19 S-0-0125, Velocity threshold nx

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Is the value of "S-0-0040, Velocity feedback value" fallen below the value of "S-0-0125, Velocity threshold nx", then:


- the drive displays the message "S-0-0332, Status n\_feedback < nx" and
- sets a bit into "S-0-0013, Class 3 diagnostics".

S-0-0125 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
	Input	min./max.		Default value		
	MPB:	S-0-0044 / S-0-0044		1000,0000		
	MPC:	S-0-0044 / S-0-0044		1000,0000		
	MPE:	S-0-0044 / S-0-0044		1000,0000		
	MPM:	S-0-0044 / S-0-0044		1000,0000		

## 4.2.20 S-0-0126, Torque threshold Tx

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	In this parameter the torque/force message threshold is entered. At a torque work load above this threshold the controller generates the message T >= Tx (S-0-0333).					
	See also Parameter Description "S-0-0013, Class 3 diagnostics"					
S-0-0126 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
	Input	min./max.			Default value	
	MPB:	S-0-0086 / S-0-0086			100,0	
	MPC:	S-0-0086 / S-0-0086			100,0	
	MPE:	S-0-0086 / S-0-0086			100,0	
	MPM:	S-0-0086 / S-0-0086			100,0	

## 4.2.21 S-0-0127, C0100 Communication phase 3 transition check

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	When command "S-0-0127" is executed, all interface parameters are checked for validity.				
	See also Functional Description "Device Control and State Machine"				
Use	If there are invalid interface parameters,				
	<ul style="list-style-type: none"><li>the drive will complete the command with an error message, and</li><li>the invalid parameters are entered in parameter "S-0-0021, IDN-list of invalid operation data for CP2".</li></ul>				
	In addition, the encoder data settings are checked and the scalings are calculated (see error messages C01xx).				
	The following commands allow switching from parameter mode to operation mode:				
	<ul style="list-style-type: none"><li>S-0-0127, C0100 Communication phase 3 transition check</li><li>S-0-0128, C5200 Communication phase 4 transition check</li></ul>				
		Execution of the command only triggers switching from parameter mode to operation mode if master communication is inactive (P-0-4086 = xx1b).			

S-0-0127 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Standard Parameters

## 4.2.22 S-0-0128, C5200 Communication phase 4 transition check

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** When setting the parameter "S-0-0128", all parameters are checked for validity and limit value violation.

See also Functional Description "Device Control and State Machine"

**Use** If invalid parameter or limit value violations exist, the drive ends the command with an error message and the invalid parameters are entered into "S-0-0022, IDN-list of invalid operation data for CP3". Furthermore, different drive functions are initialized.

With the commands

- S-0-0127, C0100 Communication phase 3 transition check and
- S-0-0128, C5200 Communication phase 4 transition check

it is possible to switch from parameter mode into operation mode.



Setting the parameter only results in switching from parameter mode into operation mode for inactive master communication (P-0-4086 = xx1b)!

## S-0-0128 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 4.2.23 S-0-0130, Probe value 1 positive edge

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** With a positive edge of the probe 1 input signal the drive stores the current value of the selected parameter ("S-0-0426, Signal select probe 1") in parameter S-0-0130.

See also Functional Description "Probe Function"

**Use** **Prerequisite for processing the content:**

- "S-0-0170, Probing cycle procedure command" must have been set and be executed.
- Probe 1 must have been enabled ("S-0-0405, Probe 1 enable").



The switch status of the probe 1 input signal is displayed in "S-0-0401, Probe 1" as long as the probing cycle procedure command is active!

## S-0-0130 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

### 4.2.24 S-0-0131, Probe value 1 negative edge

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			
Function	With a negative edge of the probe 1 input signal the drive stores the current value of the selected parameter ("S-0-0426, Signal select probe 1") in parameter S-0-0131.				
	See also Functional Description "Probe Function"				
Use	<b>Prerequisite for processing the content:</b> <ul style="list-style-type: none"><li>• "S-0-0170, Probing cycle procedure command" must have been set and be executed.</li><li>• Probe 1 must have been enabled (S-0-0405, Probe 1 enable).</li></ul>				



The switch status of the probe 1 input signal is displayed in "S-0-0401, Probe 1" as long as the probing cycle procedure command is active!

S-0-0131 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Hardware	--				
	Funct. package(s):	synchronisation (ELS)				
	Device parameter:	axis-specific				
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.2.25 S-0-0132, Probe value 2 positive edge

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			
Function	With a positive edge of the probe 2 input signal the drive stores the current value of the selected parameter (S-0-0427, Signal select probe 2) in parameter S-0-0132.				
	See also Functional Description "Probe Function"				
Use	<b>Prerequisite:</b> <ul style="list-style-type: none"><li>• "S-0-0170, Probing cycle procedure command" must have been set and be executed.</li><li>• Probe 2 must have been enabled (S-0-0406, Probe 2 enable).</li></ul>				



The switch status of the probe 2 input signal is displayed in "S-0-0402, Probe 2" as long as the probing cycle is active!

## Standard Parameters

<b>S-0-0132 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 4.2.26 S-0-0133, Probe value 2 negative edge

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** With a negative edge of the probe 2 input signal the drive stores the current value of the selected parameter (S-0-0427, Signal select probe 2) in parameter S-0-0133.

See also Functional Description "Probe Function"

**Use Prerequisite:**

- "S-0-0170, Probing cycle procedure command" must have been set and be executed.
- Probe 2 must have been enabled (S-0-0406, Probe 2 enable).



The switch status of the probe 2 input signal is displayed in "S-0-0402, Probe 2" as long as the probing cycle is active!

<b>S-0-0133 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 4.2.27 S-0-0134, Master control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In case of drives with sercos drive profile, the master control word is cyclically transmitted from master to drive.

The following control information is defined, e.g.,

- Drive enable
- Drive Halt
- Selection of command operation mode

The exact structure of the control word is illustrated below.

See also Functional Description "Device Control and State Machine"

See also Functional Description "SERCOS Interface"

See also Functional Description "Drive Halt"

Standard Parameters

Structure EtherCAT:

Bit	Designation/function	Comment
5-0	Control information for service channel	
7/6	Real-time control bits 1 and 2	
11/9/8	<b>Command operation mode:</b> 0x00: Primary operation mode 0x01: Secondary operation mode 1, etc. 1x11: Secondary operation mode 7	
10	IPOSYNC, interpolator clock, toggles when new command values are to be transmitted	
13	<b>Drive Halt, 1-0 change:</b> Deceleration of drive while maintaining maximum acceleration (S-0-0138) (only possible if bits 14 and 15 = 1)	
14	<b>Drive enable:</b> <b>1-0 change:</b> Torque disable without delay (independent of bit 15 or 13)	
15	<b>Drive ON:</b> <b>1-0 change:</b> Best possible deceleration (only possible if bit 14 = 1)	

Tab.4-42: Structure of Master Control Word EtherCAT (S-0-0134)

sercos

Bit	Designation/function	Comment
10-8	<b>Command operation mode</b> 000: Primary operation mode 001: Secondary operation mode 1, etc. 111: Secondary operation mode 7	
13	<b>Drive Halt, 1-0 change:</b> Deceleration of drive while maintaining maximum acceleration (S-0-0138) (only possible if bits 14 and 15 = 1)	
14	<b>Drive enable</b> <b>1-0 change:</b> Torque disable without delay (independent of bit 15 or 13)	
15	<b>Drive ON</b> <b>1-0 change:</b> Best possible deceleration (only possible if bit 14 = 1)	

Tab.4-43: Structure of Master Control Word sercos (S-0-0134)



With sercos, the real-time control bits reside in the control word of the connection (S-0-1050.x.8).

S-0-0134 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.2.28 S-0-0135, Drive status word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In case of drives with sercos drive profile, the drive status word is cyclically transmitted from drive to master. There is important status information contained in the drive status word, for example:

- Readiness for operation of control and power sections
- Drive errors
- Change bits class 2 and 3 diagnostics
- Current operation mode

See also Functional Description "Device Control (State Machine)"

See also Functional Description "SERCOS Interface"

See also Functional Description "Drive Halt"

**Structure** EtherCAT:

Bit	Designation/function	Comment
2-0	Control information for service channel	
3	Status of command value processing	
5	<b>Command change bit</b> 1: Changed command status 0: Unchanged command status	
7/6	Real-time status bits 1 and 2	
10-8	<b>Actual operation mode</b> 000: Primary operation mode active 001: Secondary operation mode 1 active 010: Secondary operation mode 2, etc.	
11	<b>Class 3 diagnostics message (cf. S-0-0013)</b> The bit is set if a class 3 diagnostics message is present.	
12	<b>Class 2 diagnostics warning (cf. S 0-0012)</b> The bit is set if a class 2 diagnostics warning is present.	

Standard Parameters

Bit	Designation/function	Comment
13	<b>Class 1 diagnostics drive error (cf. S-0-0011)</b> The bit is set if a class 1 diagnostics error is present (drive lock-out).	
15/14	<b>Ready for operation (P-0-0116, bit 15/14)</b> 00: Not ready for power on (e.g., P2) 01: Ready for power on (bb) 10: Control section and power section ready for op. (Ab) 11: In operation, with torque (e.g. AF)	

Tab.4-44: Structure of Drive Status Word EtherCAT

**sercos:**

Bit	Designation/function	Comment
3	<b>Status of command value processing</b> 0: Drive ignores command value input 1: Drive follows command value input	
4	<b>Status Drive Halt</b> 0: Not active, bit 13 in "S-0-0134" is 1 1: Active, bit 13 in "S-0-0134" was set to 0, actual velocity within "S-0-0124, Standstill window"	
5	<b>Position feedback value status (S-0-0403)</b>	
7	<b>Hardware enable (emergency stop)</b> 0: Not active (bits 15 and 14 of "S-0-0134" are ignored, emergency stop is active) 1: Active	
10-8	<b>Actual operation mode</b> 000: Primary operation mode active 001: Secondary operation mode 1 active 010: Secondary operation mode 2, etc.	
12	<b>Class 2 diagnostics warning (cf. S 0-0012)</b> The bit is set if a class 2 diagnostics warning is present.	
13	<b>Class 1 diagnostics drive error (cf. S-0-0011)</b> The bit is set if a class 1 diagnostics error is present (drive lock-out).	
15/14	<b>Ready for operation (P-0-0116, bit 15/14)</b> 00: Not ready for power on (e.g., P2) 01: Ready for power on (bb) 10: Control section and power section ready for op. (Ab) 11: In operation, with torque (e.g. AF)	

Tab.4-45: Structure of Drive Status Word Sercos (S-0-0135)



With sercos, the real-time status bits reside in the control word of the connection (S-0-1050.x.8).

## Standard Parameters



The command change bit and the bit for displaying the subdevice status are specified in S-0-1045, sercos III: Device Status (S-Dev)

## S-0-0135 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 4.2.29 S-0-0138, Bipolar acceleration limit value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter limits the command acceleration in all operation modes (not torque control). The parameter has to be parameterized according to the machine limits. It acts as the limit value in command value processing and in the velocity control loop.

Command value limitation of the following parameters:

- S-0-0260, Positioning acceleration
- S-0-0359, Positioning deceleration
- S-0-0372, Drive Halt acceleration bipolar
- S-0-0429, Emergency halt deceleration
- P-x-1201, Ramp 1 pitch
- P-x-1203, Ramp 2 pitch
- P-x-1211, Deceleration ramp 1
- P-x-1213, Deceleration ramp 2
- P-x-1461, PLC/setting-up mode Ramp pitch
- P-x-1463, PLC/setting-up mode Deceleration ramp

Limitation of the current acceleration in the velocity control loop to the value of "S-0-0138".



The value selected for "S-0-0138" always has to be a bit higher than the acceleration command values which take effect in the corresponding operation mode, because otherwise the warning "E2070 Acceleration limit active" and possibly the lag error monitor (F2028) will be falsely triggered due to control processes. With "S-0-0138" equal zero, acceleration limitation does not take place.



When "Best possible deceleration" (velocity command value reset, emergency stop with P-0-0119; bit 7... 0 = 0) is used, the velocity command value is reset without taking "S-0-0138" into account.

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Drive-Internal Interpolation"

## Standard Parameters

See also Functional Description "Position Control with Cyclic Command Value Input"

### S-0-0138 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		S-0-0160 / S-0-0160		0,000	
<b>MPC:</b>		S-0-0160 / S-0-0160		0,000	
<b>MPE:</b>		S-0-0160 / S-0-0160		0,000	
<b>MPM:</b>		S-0-0160 / S-0-0160		0,000	

## 4.2.30 S-0-0139, C1600 Parking axis procedure command

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** By starting this command, the drive is brought to the status "parking axis". The active status "parking axis" is signaled by "PA" on the display.

See also Functional Description "Parking Axis"

### Use Starting the command

The command can only be activated in the parameter mode. As long as the command is active, the following things happen when the parameterization level is exited (cf. "S-0-0422, C0200 Exit parameterization level procedure command"):

- No axis-specific calculations / checks / initializations take place.
- Encoder monitoring functions of the axis-related encoders are not activated.
- Reference bits of the axis-related encoders remain at "0" in "position feedback value status".
- Motor temperature monitoring remains switched off.
- It is impossible to set drive enable in the operating mode.
- Only such commands which can be executed in the parameter mode can be activated in the operating mode.

### Clearing the command

While the axis is in parameter mode, the command can be set and cleared at any time.

While the axis is in operating mode, the command cannot be cleared.

During the transition of the axis to parameter mode, the command is automatically cleared.



In order that the command change bit remains free for other commands, the command is not acknowledged as having been completed.

### S-0-0139 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		---	
<b>MPC:</b>		--- / ---		---	

## Standard Parameters

MPE:	---	---	---
MPM:	---	---	---

## 4.2.31 S-0-0140, Controller type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The power section type is contained in the operating data of this parameter in the form of a text (e.g. HCS02.1).

See also Functional Description "Controller Design"

S-0-0140 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	LT_SP	Validity ch.:	PM->OM	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	---	---
MPC:	---	---
MPE:	---	---
MPM:	---	---

## 4.2.32 S-0-0141, Motor type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The type designation of the motor is entered in this parameter.

See also Functional Description "Motor, Mechanical Axis System Measuring Systems"

**Use** The controller can recognize whether the connected motor type has changed. To achieve this, the contents of this parameter and "P-0-2141, Motor type, type plate" are compared. If a different connected motor is detected, the controller signals "F2008 RL The motor type has changed".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

S-0-0141 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

### 4.2.33 S-0-0142, Application type

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	"S-0-1302.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).					
S-0-0142 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

### 4.2.34 S-0-0143, sercos interface version

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»				
	Contained in 17VRS:	«-»	«-»	«-»	«-»			
	Contained in 18VRS:	«-»	«-»	«-»	«-»			
	Hardware	optional master communication card						
	Funct. package(s):	"open loop", "closed loop"						
	Device parameter:	device-specific						
Function	The operating data contains the version of the SERCOS interface specification.							
At present, the following applies:								
<table><tr><td>V01.03</td></tr><tr><td>SERCOS update German/English</td></tr><tr><td>release date</td></tr></table>						V01.03	SERCOS update German/English	release date
V01.03								
SERCOS update German/English								
release date								
Tab.4-46: S-0-0143, Sercos interface version								
See also Functional Description "SERCOS interface"								
S-0-0143 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.		
	Memory:	--	Validity ch.:	--	Format:	ASCII		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	Input	min./max.			Default value			
	MPB:	--- / ---			---			
	MPC:	--- / ---			---			
	MPE:	--- / ---			---			
	MPM:	--- / ---			---			

### 4.2.35 S-0-0144, Signal status word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Standard Parameters

**Function** By means of the signal status word, it is possible to transmit signals in real time from the drive to the control unit.



The "S-0-0144" only contains current values, if it is cyclically read. The oscilloscope function does not readout the value, but access onto the latest read value.

See also Functional Description "Configurable Signal Status Word"

**Use** For this purpose, the signal status word must be configured as a cyclic data to the actual value telegram or a producer connection.

- S-0-0016, Configuration list of AT
- S-0-1050.x.6, SIII-Connection: Configuration list
- P-0-4081, Field bus: Config. list of cyclic command value data ch.



When the parallel interface is used, parameter S-0-0144 contains the status bits.

The bits in the signal status word can be configured by means of the parameters

- S-0-0026, Configuration list signal status word and
- S-0-0328, Assign list signal status word

## S-0-0144 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.2.36 S-0-0145, Signal control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** By means of the signal control word, it is possible to transmit signals in real time from the control unit to the drive.

See also Functional Description "Configurable Signal Control Word"

**Use** For this purpose, the signal control word must be configured as a cyclic data to the command value telegram or a consumer connection.

- S-0-0024, Config. list of the master data telegram
- S-0-1050.x.6, SIII-Connection: Configuration list
- P-0-4080, Field bus: Config. list of cyclic actual value data ch.



When the parallel interface is used, parameter "S-0-0145" contains the status bits.

The bits in the signal control word can be configured by means of the parameters

- S-0-0027, Configuration list signal control word and
- S-0-0329, Assign list signal control word

Standard Parameters

<b>S-0-0145 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>	<b>Default value</b>		
		MPB:	--- / ---	---		
		MPC:	--- / ---	---		
		MPE:	--- / ---	---		
		MPM:	--- / ---	---		

## 4.2.37 S-0-0146, C4300 NC-controlled homing procedure command

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
		<b>Device parameter:</b>	axis-specific		

**Function** The procedure for which the master, to establish the position data reference, uses the travel motion for searching the dedicated point is called "NC-controlled homing procedure".

See also Functional Description "NC-Controlled Homing"

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

**Structure**

Bit	Designation/function	Comment
1/0	00: clear	
	11: set	
	01: interrupt	

Tab.4-47: S-0-0146, C4300 NC-controlled homing procedure command

**Use** On the drive side the entire procedure is supported via three commands:

- NC-controlled homing procedure command ( S-0-0146)
- Calculate displacement procedure command (S-0-0171)
- Displacement to referenced system procedure command (S-0-0172)

After the master has started "C4300", it has to input command values for the search for the dedicated point. When the drive has identified the dedicated point, this is signaled in **S-0-0408, Reference marker pulse registered** and the command execution is acknowledged. The master then shuts down the axis and clears the command.

<b>S-0-0146 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>	<b>Default value</b>		
		MPB:	--- / ---	---		
		MPC:	--- / ---	---		
		MPE:	--- / ---	---		
		MPM:	--- / ---	---		

## 4.2.38 S-0-0147, Homing parameter

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
		<b>Device parameter:</b>	axis-specific		

**Function** This parameter serves to make settings made for the following commands:

## Standard Parameters

- S-0-0146, C4300 NC-controlled homing procedure command
- S-0-0148, C0600 Drive-controlled homing procedure command
- S-0-0171, C4400 Calculate displacement procedure command
- S-0-0172, C4500 Displacement to referenced system procedure command

The settings are based on the facility, NC and drive installations.

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

## Structure

Bit	Designation/function	Comment
0	<b>Reference travel direction (*1)</b> 0: Positive = motion in the direction of increasing actual position values (to positive travel range limit) 1: Negative = motion in the direction of decreasing actual position values (to negative travel range limit)	
1	<b>Home switch edge selection</b> 0: Positive edge ("activated" at high signal) 1: Negative edge ("activated" at low signal)	
2	<b>Home switch (*2)</b> 0: Connected to master (NC) 1: Connected to drive	
3	<b>Encoder selection</b> 0: Motor encoder 1: Optional encoder (external encoder)	
4	<b>Evaluation in the drive (*2)</b> 0: Home switch and homing enable (only when bit 2 = "1") 1: Only homing enable	
5	<b>Evaluation of home switch (*1)</b> 0: Yes 1: No	
6	<b>Evaluation of reference mark</b> 0: Yes 1: No	

Standard Parameters

Bit	Designation/function	Comment
8/7	<b>Stop/positioning/run path - only drive-controlled homing</b> <b>00: Stop:</b> Once C0600 has been started, the drive stops after position data reference has been established for the measuring system, if this is a relative measuring system (if the measuring system is an absolute one, the drive stops after position data reference has been established and C0300 is inactive). <b>01: Positioning:</b> Once C0600 has been started, the drive moves to the reference point, if the measuring system is a relative one (if the measuring system is an absolute one, the drive moves to the position of "S-0-0052/54", provided C0300 is inactive). <b>10: Run path - applies only for measuring systems with distance-coded reference marks:</b> For drive-controlled establishing of the position data reference, the drive always moves over a distance that corresponds to the double reference mark distance. This supports the commissioning of Gantry axes! <b>11: Not allowed!</b> <b>Note:</b> If a positive stop is used as dedicated point, "Stop" is inappropriate for signaling completion of the homing command. → Select "Positioning". The homing point must be within the travel range of the axis.	
9	<b>Evaluation travel range limit switch as home switch (*1)</b> 0: No 1: Yes	
10	<b>Evaluation axis blocking (positive stop) for homing (*1)</b> 0: No 1: Yes	

(\*1 Drive-controlled homing only)

(\*2 NC-controlled homing only)

Tab.4-48: Relevant Bits of S-0-0147, Homing parameter



It is only possible to evaluate a measuring system with distance-coded reference marks as a motor encoder or external encoder!

S-0-0147 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x24
MPC:	--- / ---	0x24
MPE:	--- / ---	0x24
MPM:	--- / ---	0x24

## 4.2.39 S-0-0148, C0600 Drive-controlled homing procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware		--			

## Standard Parameters

<b>Funct. package(s):</b>	closed loop
<b>Device parameter:</b>	axis-specific

**Function** When setting and enabling this command, drive enable generally must be present. The drive now goes to internal position control and accelerates with "S-0-0042, Homing acceleration" to "S-0-0041, Homing velocity".

**As of version MPx16v04**

In the special case "homing without drive enable", an incremental encoder is homed without motion. For this purpose, the control bits "homing without home switch" and "homing without reference mark" must have been set in the homing parameter (S-0-0147, bit5/6). The reference then relates to the current actual position value.

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

**Use** The following steps are processed:

- In parameter "S-0-0403, Position feedback value status", the bit of the corresponding encoder (motor encoder or external encoder, depending on bit 3 of "S-0-0147, Homing parameter") is first set to zero.
- As long as the command is active, the cyclic command value of the control unit are ignored.
- Upon correct execution of the command (drive has stopped and actual position value is related to axis zero point), the drive sets the corresponding bit in parameter "S-0-0403, Position feedback value status" to "1".



The sequence of the homing procedure is set via S-0-0147, too.



With regard to the respective encoder, the bit corresponds to the signal "in reference".

**S-0-0148 - Attributes**

<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

**4.2.40 S-0-0149, C1300 Positive stop drive procedure command**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** By setting and enabling this command all monitors are switched off which would otherwise, when the drive is blocked by positive stop, cause a class 1 diagnostics error message.

See also Functional Description "Positive Stop Drive Procedure"

## Standard Parameters

Structure	Bit	Designation/function	Comment
	1/0	00: clear 11: set 01: interrupt	

Tab.4-49: S-0-0149, C1300 Positive stop drive procedure command

**Use** The following error messages are inactive when the command C1300 is active:

- "F2028 Excessive deviation"
- "F2037 Excessive position command difference"
- "F2039 Maximum acceleration exceeded"
- "F8078 Speed loop error"

When the command is cleared again, the monitors are reset to their original status.

### S-0-0149 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 4.2.41 S-0-0150, Reference offset 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The value of this parameter is the position difference between the dedicated point (first reference mark of the motor encoder after activation of home switch) and the home point determined on the axis-side.

$$x_{\text{Home Point}} = x_{\text{Dedicated Point}} + (S-0-0150)$$

$x_{\text{Home Point}}$ :	actual position value*) of the axis-side home point
$x_{\text{Dedicated Point}}$ :	actual position value*) of the dedicated point determined by a motor encoder reference mark
S-0-0150:	Reference offset 1 (with sign!)
*):	Both actual position values have to have the same position data reference!

Fig.4-50: Operating principle of S-0-0150

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

**Use** This parameter allows compensating the position difference between the position of the motor encoder reference mark (dedicated point) depending on the motor arrangement and the position of the home point determined on the axis-side.

## Standard Parameters



If the sign of S-0-0150 is positive (alternative: negative), the actual position value of the home point is more positive (alternative: more negative) than the one of the dedicated point. The homing direction does not have any influence!

## S-0-0150 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 3
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 4.2.42 S-0-0151, Reference offset 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The value of this parameter is the position difference between the dedicated point (first reference mark of the external encoder after activation of home switch) and the home point determined on the axis-side.

$$x_{\text{HomePoint}} = x_{\text{DedicatedPoint}} + (S-0-0151)$$

$x_{\text{HomePoint}}$	actual position value*) of the axis-side home point
$x_{\text{DedicatedPoint}}$	actual position value*) of the dedicated point determined by a reference mark of the external encoder
S-0-0151	Reference offset 2 (with sign!)
*)	Both actual position values have to have the same position data reference!

Fig.4-51: Operating principle of S-0-0151

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

**Use** This parameter allows compensating the position difference between the position of the reference mark of the external encoder (dedicated point) depending on the encoder arrangement and the position of the home point determined on the axis-side.



If the sign of S-0-0151 is positive (alternative: negative), the actual position value of the home point is more positive (alternative: more negative) than the one of the dedicated point. The homing direction does not have any influence!

## S-0-0151 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 4.2.43 S-0-0152, C0900 Position spindle procedure command

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** When setting and enabling this command the "Position spindle" function is activated in the drive, if it is in drive enable.

See also Functional Description "Spindle Positioning"

**Use** We distinguish between:

- Absolute positioning: This means that the drive moves to the target position entered in "S-0-0153, Spindle angle position".
- Relative positioning: This means that the drive travels the travel distance entered in "S-0-0180, Spindle relative offset".

In both cases the cyclic command values are ignored and the drive positions at the effective target position taking the parameters into account:

- S-0-0372, Drive Halt acceleration bipolar
- S-0-0154, Spindle position parameter
- S-0-0222, Spindle positioning speed
- S-0-0349, Jerk limit bipolar

After the spindle positioning process is over the "S-0-0336, Message In position" message is set, the command, in the command acknowledgment, is not acknowledged as being completed.



- If the drive is not in reference ("S-0-0403, Position feedback value status", bit 0 = 0), a homing procedure is automatically started before positioning.
- For homing and positioning the encoder selected in "S-0-0147, Homing parameter", bit 3 is used.

### S-0-0152 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.2.44 S-0-0153, Spindle angle position

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains the absolute target position (in the case of absolute positioning) for the command "S-0-0152, C0900 Position spindle command".

See also Functional Description "Spindle Positioning"

See also Parameter Description "S-0-0180, Spindle relative offset"

### S-0-0153 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV

## Standard Parameters

Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0076 / S-0-0076		0,0000		
MPC:	S-0-0076 / S-0-0076		0,0000		
MPE:	S-0-0076 / S-0-0076		0,0000		
MPM:	S-0-0076 / S-0-0076		0,0000		

## 4.2.45 S-0-0154, Spindle positioning parameter

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The options of the "position spindle" function are determined in this parameter.

The following options can be selected:

- spindle clockwise
- spindle counter-clockwise
- shortest distance
- absolute positioning
- relative positioning

**Prerequisite:** The position data format must be "modulo" ("S-0-0076, Position data scaling type")!

See also Functional Description "Spindle Positioning"

**Structure**

Bit	Designation/function	Comment
1/0	<b>spindle motion</b> 0 0: positive direction 0 1: negative direction 1 0: shortest distance	
2	<b>positioning</b> 0: absolute 1: relative	

Tab.4-52: Relevant bits of S-0-0154, Spindle position parameter

**Use** The selection whether to position with motor encoder or spindle encoder is made in bit 3 of "S-0-0147, Homing parameter".

- By means of "S-0-0417, Velocity threshold for positioning in modulo format" it is possible to define a threshold value for the actual velocity above which the drive moves to a target position without reversing even if the specification in S-0-0154 should cause reversing! S-0-0417 is deactivated with the value "0", very small values can cause unpredictable drive behavior!
- By means of "S-0-0418, Target position window in modulo format" it is possible to determine a symmetrical position range relative to the current position ("target position window"). Within this range the drive always moves to a target position over the shortest distance even if only one direction of movement has been determined for positioning in S-0-0154! S-0-0418 is deactivated with the value "0".

## Standard Parameters

<b>S-0-0154 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0x2	
		MPC:	--- / ---		0x2	
		MPE:	--- / ---		0x2	
		MPM:	--- / ---		0x2	

### 4.2.46 S-0-0155, Friction compensation

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** The content of "S-0-0155, Friction compensation" acts as an additive torque/force command value and is used for compensating (lookahead) a possibly existing static friction.

See also Functional Description "Friction Torque Compensation"

- Use**
- The preceding sign of the compensation value is determined by the preceding sign of the velocity command value.
  - A change of preceding signs only takes place if the absolute value of the velocity command value is greater than the velocity set in "S-0-0124, Standstill window".



: By activating the friction compensation it is possible to compensate the static friction when accelerating out of standstill and when inverting the direction.

<b>S-0-0155 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	S-0-0086 / S-0-0086		0,0	
		MPC:	S-0-0086 / S-0-0086		0,0	
		MPE:	S-0-0086 / S-0-0086		0,0	
		MPM:	S-0-0086 / S-0-0086		0,0	

### 4.2.47 S-0-0156, Velocity feedback value 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The parameter "S-0-0156, Velocity feedback value 2" contains the actual velocity of the optional encoder.

See also Parameter Description "S-0-0053, Position feedback 2 value"

<b>S-0-0156 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	

## Standard Parameters

MPE:	---	---	---
MPM:	---	---	---

## 4.2.48 S-0-0157, Velocity window

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The velocity window is an absolute threshold value. This value is the tolerance window or a part thereof, if the percentage-based threshold is also used at the same time.

Type of threshold	Parameter	Threshold value	Explanation
Absolute threshold	S-0-0157	Value of S-0-0157	Fixed value

S-0-0157 Velocity window

Tab.4-53: Thresholds for Status " $n_{feedback} = n_{command}$ "

See also Functional Description "Status Classes"

**Use** If the velocity feedback value is within the tolerance window determined by the firmware, the drive outputs status " $n_{feedback} = n_{command}$ ".

Message	Criterion	Firmware	Explanation
S-0-0330 = "1"	$n_{command, res} - n_{feedback} < \pm$ S-0-0157	MPx-16VRS	Absolute tolerance window
(Bit in S-0-0013)	$n_{command, res} - n_{feedback} < \pm$ (S-0-0157 +  S-0-0036 + S-0-0037 + P-0-0690  * S-0-0272)	As of MPx-17VRS	Absolute plus command-value-percentage-based tolerance windows

S-0-0157 Velocity window

S-0-0272 Velocity window as percentage

S-0-0036 Velocity command value

S-0-0037 Additive velocity command value

S-0-0013 Class 3 diagnostics

$n_{feedback}$  S-0-0040, Velocity feedback value

$n_{command, res}$  S-0-0036 + S-0-0037

Tab.4-54: Criteria for Status " $n_{feedback} = n_{command}$ "

The percentage-based threshold (P-0-0272) has been available as of MPx-17VRS!

## S-0-0157 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	100,0000
MPC:	S-0-0044 / S-0-0044	100,0000
MPE:	S-0-0044 / S-0-0044	100,0000
MPM:	S-0-0044 / S-0-0044	100,0000


## 4.2.49 S-0-0158, Power threshold Px

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Standard Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		axis-specific			
<b>Function</b>	The power message threshold is entered in this parameter. At a power work load above this threshold, the drive generates the message P >= Px (S-0-0337).					
	See also Functional Description "Status Classes"					
<b>S-0-0158 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	W	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
	<b>Input</b>				<b>min./max.</b>	<b>Default value</b>
	<b>MPB:</b>				0 / 2147483647	0
	<b>MPC:</b>				0 / 2147483647	0
	<b>MPE:</b>				0 / 14000	0
	<b>MPM:</b>				0 / 2147483647	0

### 4.2.50 S-0-0159, Monitoring window

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	If an operation mode with drive-internal position control has been activated in the drive, the position control loop is monitored. To do this an "actual model position value" is calculated and compared to the real actual position value.					
<div> The maximum occurring deviation is always stored in parameter "P-0-0098, Max. model deviation".</div>						
See also Troubleshooting Guide for "F2028 Excessive deviation"						
Use	By means of the parameter "S-0-0159, Monitoring window" it is possible to set the maximum tolerated deviation between measured and calculated "actual model position value". If the position deviation exceeds the value set in "S-0-0159, Monitoring window", the drive evidently cannot follow the preset command value and the error "F2028 Excessive deviation" is generated in class 1 diagnostics.					
S-0-0159 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	S-0-0076 / S-0-0076		100,0000		
	MPC:	S-0-0076 / S-0-0076		100,0000		
	MPE:	S-0-0076 / S-0-0076		100,0000		
	MPM:	S-0-0076 / S-0-0076		100,0000		

### 4.2.51 S-0-0160, Acceleration data scaling type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	As described below, it is possible to set different scaling types for the acceleration data in the drive.				
	The scaling type of the acceleration data determines in which format and which reference the acceleration data are exchanged between the drive and				

## Standard Parameters

the control unit or user interface. The values of the acceleration data parameters (e.g. S-0-0138, Bipolar acceleration limit value) are displayed by the drive with the scaling that has been set. The scaling setting is normally preset by the control unit.



Any change in the parameter setting has an effect on the scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

## Structure

See also Functional Description "Scaling of Physical Data"

Bit	Designation/function	Comment
2-0	<b>scaling type</b> 001: linear scaling 010: rotary scaling 011: ramp time	
3	0: preferred scaling 1: parameter scaling	
4	<b>unit for linear scaling</b> 0: meter [m] 1: inch [in] <b>unit for rotary scaling</b> 0: radian [rad] 1: reserved	
5	<b>unit of time</b> 0: second [s <sup>2</sup> ] 1: reserved	
6	<b>data reference</b> 0: with respect to motor shaft 1: with respect to load	
15-7	reserved	

Tab.4-55: S-0-0160, Acceleration data scaling type

**Use** The following settings can be made:

In the case of preferred scaling (bit 3 = 0), the following parameters are pre-defined and cannot be changed:

- S-0-0161, Acceleration data scaling factor
- S-0-0162, Acceleration data scaling exponent

In the case of parameter scaling, the scaling is realized by inputting the desired parameter values.

## S-0-0160 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>	--- / ---	0x2
<b>MPC:</b>	--- / ---	0x2

Standard Parameters

MPE:	---	/	---	0x2
MPM:	---	/	---	0x2

## 4.2.52 S-0-0161, Acceleration data scaling factor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In the case of parameter scaling (see S-0-0160), the scaling factor and the decimal format (the decimal place) of the acceleration data parameters are determined with this parameter and with "S-0-0162, Acceleration data scaling exponent".



Any change in the parameter setting has an effect on the scaling. This means that changes in the parameter setting have effects on the display and processing of velocity, position and acceleration data in the drive!

See also Functional Description "Scaling of Physical Data"

**Use** If preferred scaling is selected in "S-0-0160, Acceleration data scaling type", the values in S-0-0161 and S-0-0162 are set automatically by the drive.

### S-0-0161 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	1 / 65535	1
MPM:	1 / 65535	1

## 4.2.53 S-0-0162, Acceleration data scaling exponent

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In the case of parameter scaling (see S-0-0160) the scaling factor and the decimal format (the decimal place) of the acceleration data parameters are determined with this parameter and with "S-0-0161, Acceleration data scaling factor".

See also Functional Description "Scaling of Physical Data"

**Use** If preferred scaling is selected in "S-0-0160, Acceleration data scaling type", the values in S-0-0161 and S-0-0162 are set automatically by the drive.

### S-0-0162 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-15 / 0	---
MPC:	-15 / 0	---
MPE:	-15 / 0	---
MPM:	-15 / 0	---

## Standard Parameters

## 4.2.54 S-0-0163, Weight counterbalance

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** For vertical axes, parameter "S-0-0163" can be used to avoid momentary dropping of vertical axes while drive enable is being set.

**Use** In parameter S-0-0163, enter the torque / the force (cf. S-0-0084) which the axis has to bring up to hold the load. For this purpose, read out the content of "S-0-0084" in controlled operation at axis standstill and transfer it to "S-0-0163".

Or use the automatic determination (activated in parameter "P-0-0556, Config word of axis controller", bit 12) of the load due to weight. In doing so, the drive measures the current torque when drive enable is switched off and transfers it to this parameter. The determined value is not stored in the flash! After the control voltage has been switched on and the operating mode has been entered, the value parameterized by the user is used rather than the one that is automatically determined.



In conjunction with the avoidance of dropping vertical axes the brake delay time is relevant, too!

S-0-0163 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0086 / S-0-0086		0,0		
	MPC:	S-0-0086 / S-0-0086		0,0		
	MPE:	S-0-0086 / S-0-0086		0,0		
	MPM:	S-0-0086 / S-0-0086		0,0		

## 4.2.55 S-0-0164, Acceleration feedback value 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The actual acceleration value of the motor encoder is displayed in parameter S-0-0164. The "S-0-0164, Acceleration feedback value 1" is an actual velocity value of the motor encoder that is differentiated and filtered during 4 ms.

S-0-0164 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0160 / S-0-0160		---		
	MPC:	S-0-0160 / S-0-0160		---		
	MPE:	S-0-0160 / S-0-0160		---		
	MPM:	S-0-0160 / S-0-0160		---		

## 4.2.56 S-0-0165, Distance-coded reference offset A

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Standard Parameters

	Contained in 18VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware			
	--			
	Funct. package(s):			
	closed loop			
	Device parameter:			
	axis-specific			
Function	When using a distance-coded incremental encoder the greater distance (division period) of the distance-coded reference marks is entered in this parameter.			
	See also Functional Description "Establishing the Position Data Reference"			
S-0-0165 - Attributes	Function:	Par	Editable:	PM
	Memory:	PARAM_SP	Validity ch.:	PM->OM
	Unit:	DP	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Data length:		4Byte	
	Format:		DEC_OV	
	Decim. pl.:		0	
	Set-depend.:		--	
	Input		min./max.	
	MPB:		0 / 2147483647	
	MPC:		0 / 2147483647	
	MPE:		0 / 2147483647	
	MPM:		0 / 2147483647	
	Default value		1001	
			1001	

### 4.2.57 S-0-0166, Distance-coded reference offset B

Allocation	Contained in 16VRS:			
	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware			
	--			
	Funct. package(s):			
	closed loop			
	Device parameter:			
	axis-specific			
Function	When using a distance-coded incremental encoder the smaller distance (division period) of the distance-coded reference marks is entered in this parameter.			
	See also Functional Description "Establishing the Position Data Reference"			
S-0-0166 - Attributes	Function:	Par	Editable:	PM
	Memory:	PARAM_SP	Validity ch.:	PM->OM
	Unit:	DP	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Data length:		4Byte	
	Format:		DEC_OV	
	Decim. pl.:		0	
	Set-depend.:		--	
	Input		min./max.	
	MPB:		0 / 2147483647	
	MPC:		0 / 2147483647	
	MPE:		0 / 2147483647	
	MPM:		0 / 2147483647	
	Default value		1000	
			1000	

### 4.2.58 S-0-0169, Probe control parameter

Allocation	Contained in 16VRS:			
	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware			
	--			
	Funct. package(s):			
	synchronisation (ELS)			
	Device parameter:			
	axis-specific			
Function	Via this parameter, you can configure the features of the probe function specified in "SERCOS interface".			



Extended probe functions can be configured via "P0-0226, Probe, extended control word"!

See also Functional Description "Probe Function"

## Standard Parameters

## Structure

Bit	Designation/function	Comment
0	<b>Activation pos. edge probe 1</b> 0: Pos. edge is not evaluated 1: Pos. edge is evaluated	
1	<b>Activation neg. edge probe 1</b> 0: Neg. edge is not evaluated 1: Neg. edge is evaluated	
2	<b>Activation pos. edge probe 2</b> 0: Pos. edge is not evaluated 1: Pos. edge is evaluated	
3	<b>Activation neg. edge probe 2</b> 0: Neg. edge is not evaluated 1: Neg. edge is evaluated	
5	<b>Enable mode probe 1</b> 0: Single measurement: After every measurement a new measurement has to be activated by a 0-1 change of the enable signal 1: Continuous measurement: The measurement is carried out as long as the enable signal remains at "1"	
6	<b>Enable mode probe 2</b> 0: Single measurement: After every measurement a new measurement has to be activated by a 0-1 change of the enable signal 1: Continuous measurement: The measurement is carried out as long as the enable signal remains at "1"	
8	<b>Activation of probe function</b> 0: Auto-activation deactivated 1: Auto-activation activated	

Tab.4-56: Relevant Bits of S-0-0169, Probe control parameter

**Use Bit 8: Activation of probe function**

When this bit has been set to "1", the command "S-0-0170, Probing cycle procedure command" is automatically activated when changing from the parameter mode (PM, P2) to the operating mode (OM, P4, bb, Ab). After the change to the operating mode, this bit does not have any other significance, which means that resetting and repeated setting of the bit won't have any effect.

However, the probe function can be deactivated and, if necessary, activated again via "S-0-0170"

**S-0-0169 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0x0
<b>MPC:</b>	--- / ---	0x0
<b>MPE:</b>	--- / ---	0x0
<b>MPM:</b>	--- / ---	0x0

## 4.2.59 S-0-0170, Probing cycle procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** By means of setting and enabling the command "Probing cycle procedure", the drive reacts to the following parameters.

- S-0-0405, Probe 1 enable/S-0-0406, Probe 2 enable
- S-0-0401, Probe 1/S-0-0402, Probe 2

This can be determined in "S-0-0169, Probe control parameter".



Is bit 8 set in the parameter "S-0-0169, Probe control parameter", the command "Probing cycle procedure" is set when changing from parameter mode (PM) to operation mode (OM).

See also Functional Description "Probe Function"

### Structure

Bit	Designation/function	Comment
0	<b>Command during drive</b> 0: Clear 1: Set	
1	<b>Command execution</b> 0: Interrupt 1: Execute	

Tab.4-57: S-0-0170, Probing cycle procedure command

**Use** During the active command, the control unit can do several measures. If no new measures are needed, the control unit clears the command.

S-0-0170 - Attributes	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		0x0 / 0x3		---	
	MPC:		0x0 / 0x3		---	
	MPE:		0x0 / 0x3		---	
	MPM:		0x0 / 0x3		---	

## 4.2.60 S-0-0171, C4400 Calculate displacement procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The procedure for which the master, to establish the position data reference, uses the travel motion for searching the dedicated point is called "NC-controlled homing procedure". On the drive side the entire procedure is supported via three commands:

- NC-controlled homing procedure command (S-0-0146)
- Calculate displacement procedure command (S-0-0171)
- Displacement to referenced system procedure command (S-0-0172)

## Standard Parameters

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

## Structure

Bit	Designation/function	Comment
0	Command in drive 0: Clear 1: Set	
1	Command execution 0: Interrupt 1: Execute	

Tab.4-58: S-0-0171, C4400 Calculate displacement procedure command

## Use

The master can start the command "C4400 Calculate displacement procedure command" after the drive has successfully completed the command "C4300 NC-controlled homing procedure command" for searching the reference point. By means of command C4400 the drive calculates the required actual position value displacement, in order to establish the axis zero point reference of the actual position values.

The displacement value is displayed in

- " S-0-0175, Offset parameter 1" (motor encoder) or
- " S-0-0176, Offset parameter 2" (external encoder)

and the drive then acknowledges the command execution. After that the master clears the command.

## S-0-0171 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

#### 4.2.61 S-0-0172, C4500 Displacement to referenced system procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

## Function

When this command is started, the drive switches to the referenced actual value system, enters the referenced actual position value 1 (S-0-0051) or actual position value 2 (S-0-0053) and signals this in parameter "S-0-0403, Position feedback value status". In order to inform the master of this switching action in real time, bit 0 from S-0-0403 can be assigned to a real-time status bit.

See also Functional Description "Establishing the Position Data Reference"

## Standard Parameters

Structure	Bit	Designation/function	Comment
	0	<b>Command in drive</b> 0: Clear 1: Set	
	1	<b>Command execution</b> 0: Interrupt 1: Execute	

Tab.4-59: S-0-0172, C4500 Displacement to referenced system procedure command

- Use**
- During the active command the master switches to the referenced position command value system and signals this with "S-0-0404, Position command value status".
  - In order that the drive is informed of the switching process in a chronologically consistent way with the switching of the cyclic command values, bit 0 from "S-0-0404, Position command value status" must have been assigned to a real-time control bit.
  - The drive completes the command correctly when the bits "S-0-0403, Position feedback value status" and "S-0-0404, Position command value status" have been set.
  - The bit "position command value status" must be set by the control unit independent of the operation mode.

### S-0-0172 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 4.2.62 S-0-0173, Marker position A

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** In the case of a drive with an incremental measuring system, the actual position value of the reference mark (zero pulse) is stored in this parameter during the drive-controlled homing procedure. This actual position value still refers to the "old" coordinate system (before switching the coordinate system when executing the homing procedure).

See also Functional Description "Detecting the Marker Position"

**Use** In addition, it is possible to activate the reference mark detection by the "P-0-0014, C1400 Command Get marker position" command. In this case, the respective actual position value is stored in this parameter at the next reference mark pulse of the encoder and the command is positively acknowledged.

In case the drive, apart from the motor encoder, is equipped with an external encoder, bit 3 of "S-0-0147, Homing parameter" determines by which encoder the position of the reference mark is stored!

## Standard Parameters



In the case of incremental encoders with distance-coded reference marks, the actual position value of the reference mark that has been detected first is stored in this parameter! The actual position value of the second reference mark is stored in "S-0-0174, Marker position B"!

## S-0-0173 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.2.63 S-0-0174, Marker position B

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the case of a drive with an incremental measuring system with distance-coded reference marks, the actual position value of the second reference mark that has been detected is stored in this parameter during the drive-controlled homing procedure (C0600). This actual position value still refers to the "old" coordinate system (before switching the coordinate system when executing the homing procedure).

See also Functional Description "Detecting the Marker Position"

**Use** In case the drive, apart from the motor encoder, is equipped with an optional encoder, bit 3 of "S-0-0147, Homing parameter" determines which encoder stores the position of the reference mark!



In the case of incremental encoders with distance-coded reference marks, the actual position value of the reference mark that has been detected first is stored in parameter "S-0-0173, Marker position A" by "C1400 Command Get marker position"! Afterwards, the command is reset; there aren't any data written to S-0-0174 when this is done!

## S-0-0174 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.2.64 S-0-0175, Offset parameter 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

## Standard Parameters

<b>Function</b>	Display parameter that displays the difference between the position reference system after and before homing or setting absolute measuring of the motor encoder.			
<b>S-0-0175 - Attributes</b>	<b>Function:</b> Par	<b>Editable:</b> ++	<b>Data length:</b> 4Byte	
	<b>Memory:</b> --	<b>Validity ch.:</b> PM->OM	<b>Format:</b> DEC_MV	
	<b>Unit:</b> S-0-0076	<b>Extr. val. ch.:</b> +	<b>Decim. pl.:</b> S-0-0077 / S-0-0078	
	<b>Cycl. tra.:</b> --	<b>Comb. check:</b> --	<b>Set-depend.:</b> --	
	<b>Input</b>	<b>min./max.</b>	<b>Default value</b>	
	MPB:	S-0-0076 / S-0-0076	---	
	MPC:	S-0-0076 / S-0-0076	---	
	MPE:	S-0-0076 / S-0-0076	---	
	MPM:	S-0-0076 / S-0-0076	---	

### 4.2.65 S-0-0176, Offset parameter 2

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	Display parameter that displays the difference between the position reference system after and before homing or setting absolute measuring of the external encoder.					
S-0-0176 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	S-0-0076 / S-0-0076			---	
	MPC:	S-0-0076 / S-0-0076			---	
	MPE:	S-0-0076 / S-0-0076			---	
	MPM:	S-0-0076 / S-0-0076			---	

### 4.2.66 S-0-0177, Absolute offset 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	This parameter is required for homing distance-coded motor encoders. It is the offset between the zero point of the motor encoder (position of the 1 <sup>st</sup> reference mark of the motor encoder) and the machine zero point. See also Functional Description "Establishing the Position Data Reference"				
Use	The correct value for this parameter is determined in two steps: <ul style="list-style-type: none"><li>First the value "0" is entered in S-0-0177 and the command "S-0-0148, C0600 Drive-controlled homing procedure command" is carried out. The actual position value 1 in S-0-0051 then displays the current position with regard to the zero point of the motor encoder.</li><li>If the axis is then moved to the machine zero point by means of jogging, the value displayed in S-0-0051 at the zero point has to be read and entered in S-0-0177 with inverted sign.</li></ul> After carrying out the homing command again the value in S-0-0051 then displays the position with regard to the machine zero point.				

## Standard Parameters



In case the drive, apart from the motor encoder, is equipped with an external encoder, bit 3 of "S-0-0147, Homing parameter" determines which encoder is homed!

## S-0-0177 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 4.2.67 S-0-0178, Absolute offset 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is required for homing distance-coded external encoders. It is the offset between the zero point of the encoder (position of the 1st reference mark of the external encoder) and the machine zero point.

See also Functional Description "Establishing the Position Data Reference"

**Use** The correct value for this parameter is determined in two steps:

- First the value "0" is entered in S-0-0178 and the command "S-0-0148, C0600 Drive-controlled homing procedure command" is executed. The actual position value 2 in S-0-0053 then displays the current position with regard to the zero point of the external encoder.
- If the axis is then moved to the machine zero point by means of jogging, the value displayed in S-0-0053 at the zero point has to be read and entered in S-0-0178 with inverted sign.

After the homing command has been carried out again, the value in S-0-0053 then displays the position with regard to the machine zero point.



In case the drive, apart from the motor encoder, is equipped with an external encoder, bit 3 of "S-0-0147, Homing parameter" determines which encoder is homed!

## S-0-0178 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 4.2.68 S-0-0179, Probe status

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

## Standard Parameters

**Function** When the drive stores one or several probe values, it simultaneously sets the corresponding bit in the probe status.



The probe evaluation must have been activated!

See also Functional Description "Probe Function"

### Structure

Bit	Designation/function	Comment
0	probe value 1 positive 0: not latched 1: latched	
1	probe value 1 negative 0: not latched 1: latched	
2	probe value 2 positive 0: not latched 1: latched	
3	probe value 2 negative 0: not latched 1: latched	
4	probe 1, marker failure status(cf. P-0-0224 and P-0-0206) 0: failures < max. value 1: failures >= max. value	
5	probe 2, marker failure status(cf. P-0-0225 and P-0-0207) 0: failures < max. value 1: failures >= max. value	
15-6	reserved	

Tab.4-60: Probe status

**Use** Clearing the measured value status bits:

- If the enable of probe 1 (S-0-0405) is cleared by the control unit, the drive clears bit 0, bit 1 and bit 4 in the probe status.
- If the enable of probe 2 (S-0-0406) is cleared by the control unit, the drive clears bit 2, bit 3 and bit 5 in the probe status.
- The drive clears all bits when the probing cycle procedure command (S-0-0170) is cleared by the control unit or when the bit for activation of probe evaluation is reset in "P-0-0226, Probe, extended control word".

### S-0-0179 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Standard Parameters

## 4.2.69 S-0-0180, Spindle relative offset

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains the travel distance (for relative positioning) for the command "S-0-0152, C0900 Position spindle procedure command".



The effective absolute target position is display in "S-0-0430, Effective target position" during active command "S-0-0152, C0900 Position spindle procedure command"!

See also Functional Description "Position Spindle"

S-0-0180 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000		
	<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
	<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
	<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 4.2.70 S-0-0183, Velocity synchronization window

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** Bit 8 is set in the parameter "P-0-0089, Status word synchronization modes", if during the operation mode "speed synchronization" the difference among velocity command and velocity feedback value is smaller than the synchronization window.

See also Functional Description "Velocity Synchronization With Real/Virtual Master Axis"

**Use** The following applies:

Bit 8 = 1, if  $|dX_{\text{Synch}} + dX_{\text{Additive}} + dX_{\text{Additive2}} - dX_{\text{act}}| < S-0-0183$

with  $dX_{\text{act}}$ : S-0-0040, Velocity feedback value

$dX_{\text{sync}}$ : Synchronous velocity command value, built from current master axis speed

$dX_{\text{additive}}$ : S-0-0037, Additive velocity command value

$dX_{\text{additive2}}$ : P-0-0690, Additive velocity command value, process loop

S-0-0183 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	S-0-0044 / S-0-0044		20,0000		
	<b>MPC:</b>	S-0-0044 / S-0-0044		20,0000		
	<b>MPE:</b>	S-0-0044 / S-0-0044		20,0000		
	<b>MPM:</b>	S-0-0044 / S-0-0044		20,0000		

Standard Parameters

## 4.2.71 S-0-0185, Length of the configurable data record in the AT

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	In the operating data of this parameter, the SERCOS drive indicates the maximum length in byte that it can process in the configurable data record of the drive data telegram.				
	The maximum length depends on the relation of position cycle time and SERCOS cycle time:				
	<ul style="list-style-type: none"><li>• SERCOS cycle time = position clock: Max. length 24 bytes</li><li>• SERCOS cycle time &gt; position clock: Max. length 48 bytes</li></ul>				
	See also Functional Description "Basic Functions of Master Communication"				
S-0-0185 - Attributes	Function:	Par	Editable:	--	Data length: 2Byte
	Memory:	--	Validity ch.:	--	Format: DEC_OV
	Unit:	Byte	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.: --
	Input	min./max.		Default value	
	MPB:	--- / ---		---	
	MPC:	--- / ---		---	
	MPE:	--- / ---		---	
	MPM:	--- / ---		---	

## 4.2.72 S-0-0186, Length of the configurable data record in the MDT

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	In the operating data of this parameter, the SERCOS drive indicates the maximum length in byte that it can process in the configurable data record of the master data telegram.					
	The maximum length depends on the relation of position cycle time and SERCOS cycle time:					
	<ul style="list-style-type: none"><li>SERCOS cycle time = position clock: Max. length 24 bytes</li><li>SERCOS cycle time &gt; position clock: Max. length 48 bytes</li></ul>					
	See also Functional Description "Basic Functions of Master Communication"					
	See also Functional Description "Performance Data"					
S-0-0186 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 4.2.73 S-0-0187, List of configurable data in the AT

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Standard Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		axis-specific			
<b>Function</b>	This list contains the IDNs of the parameters or operating data which can be configured in the actual value telegram.  See also Functional Description "Basic Functions of Master Communication", "Master Communication"  See also Parameter Description "S-0-0016, Config. list drive telegram", "S-0-1050.x.6, SIII-Connection: Configuration list", "P-0-4080, Field bus: Config. list of cyclic actual value data ch."					
<b>S-0-0187 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

## 4.2.74 S-0-0188, List of configurable data in the MDT

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	<p>This list contains the IDNs of the parameters or operating data which can be configured in the command value telegram.</p> <p>See also Functional Description "Basic Functions of Master Communication", "Master Communication"</p> <p>See also Parameter Description "S-0-0024, Configuration list of MDT", "S-0-1050.x.6, SIII-Connection: Configuration list", "P-0-4081, Field bus: Config. list of cyclic command value data ch."</p>					
S-0-0188 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 4.2.75 S-0-0189, Following distance

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	<p>If an operation mode with drive-internal position control is activated, the current difference between the position command value (P-0-0434) and the position feedback value (S-0-0051/S-0-0053) is displayed in parameter "S-0-0189, Following distance".</p> <p>See also Functional Description "Position Loop"</p>				

## Standard Parameters

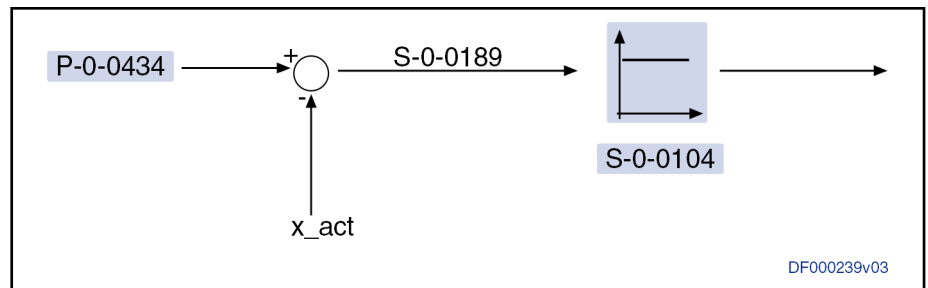


Fig. 4-61: S-0-0189, Position control loop standard deviation (following distance)

**Use** The content of "S-0-0189, Following distance" therefore corresponds to the standard deviation of a position controller which is reused for many status messages. If position control is not active, the value of the parameter is set to "0".

<b>S-0-0189 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 4.2.76 S-0-0190, C4200 Drive-controlled oscillation procedure command

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	main spindle			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter starts the function "drive-controlled oscillation". The command is processed via the drive-internal speed control loop. The drive automatically generates the speed command value characteristic for the oscillation motion.

See also Functional Description "Drive-Controlled Oscillation"

See also Functional Description "Command Processing"

<b>S-0-0190 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 4.2.77 S-0-0191, C1500 Cancel reference point procedure command

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** Setting and enabling the command "cancel reference point procedure" clears the reference of the encoder defined via "S-0-0147, Homing parameter". The actual position value status (bit 0 in S-0-0403) is cleared, too.

## Standard Parameters

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

See also Functional Description "Command Processing"

## Structure

Bit	Designation/function	Comment
0	<b>command in drive</b> 0: clear 1: set	
1	<b>command execution</b> 0: interrupt 1: execute	

Tab.4-62: S-0-0191, C1500 Cancel reference point procedure command

**Use** The drive completes the command correctly when the actual position value status bit is set to "0" and the actual position value of the active measuring system no longer refers to the machine zero point (= is no longer referenced).

## S-0-0191 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.2.78 S-0-0192, IDN-list of all backup operation data

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In this list, the IDNs of those parameters are stored the values of which are axis-specific and for regular operation have to be loaded to the drive of the respective axis.

See also Functional Description "Parameters, Basics"

**Use** Depending on the setting in "S-0-0269, Storage mode", these parameters are stored, continuously or in a command-controlled way, in the internal, non-volatile memory.



The control unit should use this parameter in order to make a backup copy of the drive parameters and the axis-specific values.

## S-0-0192 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.2.79 S-0-0193, Positioning jerk

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

- Function** The positioning jerk limits the change in acceleration per unit of time in the following operation modes
- Drive-internal interpolation and
  - Drive-controlled positioning



The value "0" switches the jerk filter off!

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

S-0-0193 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0160 / S-0-0160		0,000		
	MPC:	S-0-0160 / S-0-0160		0,000		
	MPE:	S-0-0160 / S-0-0160		0,000		
	MPM:	S-0-0160 / S-0-0160		0,000		

## 4.2.80 S-0-0195, Acceleration feedback value 2

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

- Function** "S-0-0195" displays the acceleration feedback value of the optional encoder. "S-0-0195" is a velocity feedback value of the optional encoder that is differentiated and filtered during 4 ms.

S-0-0195 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0160 / S-0-0160		---		
	MPC:	S-0-0160 / S-0-0160		---		
	MPE:	S-0-0160 / S-0-0160		---		
	MPM:	S-0-0160 / S-0-0160		---		

## 4.2.81 S-0-0197, C3300 Set coordinate system procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

- Function** With "S-0-0197, C3300 Set coordinate system procedure command", the drive disconnects from the control unit and goes to standstill in a drive-controlled way. As in the case of "Drive Halt", this takes place depending on the active operation mode, with a position ramp or a speed ramp. In standstill,

## Standard Parameters

the "S-0-0198, Initial coordinate value" is now entered in the position system display.

See also Functional Description "Command Processing"

<b>S-0-0197 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 4.2.82 S-0-0198, Initial coordinate value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** In standstill, the initial coordinate value is entered in the position system display.

<b>S-0-0198 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000		
	<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
	<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
	<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 4.2.83 S-0-0199, C3400 Shift coordinate system procedure command

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** With this command the master can set the actual value system of a moving axis to a different display reference. The position data reference of the axis is not influenced!

See also Functional Description "Command Processing"

**Use** The drive in this case becomes independent of the command values preset by the control unit, but maintains the active motion. The display of the actual position value changes abruptly by adding "S-0-0275, Coordinate offset value". With the command still active, the control unit accepts the current actual position value. After the command was cleared, the control unit presets the command values again.

The offset of the position display is displayed in "S-0-0283, Current coordinate offset".

<b>S-0-0199 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		

## Standard Parameters

MPE:	---	---	---
MPM:	---	---	---

### 4.3 S-0-0201 to S-0-0400 Standard Parameters

#### 4.3.1 S-0-0201, Motor warning temperature

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	If the motor temperature exceeds the motor warning temperature, the drive sets bit 2 (motor overtemperature warning) in "S-0-0012, Class 2 diagnostics" and the warning "E2051 Motor overtemp. prewarning" is output.  See also Functional Description "Motor Temperature Monitoring"					
S-0-0201 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0208	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
	Input	min./max.			Default value	
	MPB:	S-0-0208 / S-0-0208			145,0	
	MPC:	S-0-0208 / S-0-0208			145,0	
	MPE:	S-0-0208 / S-0-0208			145,0	
	MPM:	S-0-0208 / S-0-0208			145,0	

#### 4.3.2 S-0-0204, Motor shutdown temperature

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	If the motor temperature exceeds the motor shutdown temperature, the drive sets bit 2 (motor overtemperature shutdown) in "S-0-0011, Class 1 diagnostics" and the error "F2019 Motor overtemperature shutdown" is generated.  See also Functional Description "Motor Temperature Monitoring"					
S-0-0204 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0208	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
	Input	min./max.			Default value	
	MPB:	S-0-0208 / S-0-0208			155,0	
	MPC:	S-0-0208 / S-0-0208			155,0	
	MPE:	S-0-0208 / S-0-0208			155,0	
	MPM:	S-0-0208 / S-0-0208			155,0	

#### 4.3.3 S-0-0206, Drive on delay time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Parameter "S-0-0206" serves to delay the status message "Drive follows command values" (S-0-0135, Drive status word, bit 3 = 1) in a defined manner, since there is a certain delay between the activation and the actual release of the holding brake (inductive and mechanical behavior). See also Functional Description "Motor Holding Brake"				

## Standard Parameters

**Use** The following aspects have to be observed for use:

To avoid movement against the applied brake while drive enable is switched on, take the release delay of the holding brake into account for command value input, too.



- For Rexroth motors with feedback data memory, the content of "S-0-0206" is set automatically when controller default values are loaded.
- If the delay filed in the feedback value is too short, it can be increased.

Up to MPx-17VRS, bit 11 must be set to 1 in parameter "P-0-0525, Holding brake control word".

**S-0-0206 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
<b>MPB:</b>	s. Text / s. Text	100,0
<b>MPC:</b>	s. Text / s. Text	100,0
<b>MPE:</b>	s. Text / s. Text	100,0
<b>MPM:</b>	s. Text / s. Text	100,0

### 4.3.4 S-0-0207, Drive off delay time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** The value of this parameter is the time distance between the control for applying the holding brake and the torque/force disable of the motor (drive-internal switching off of drive enable).

See also Functional Description "Motor Holding Brake"

**Use** The value should be at least as high as the clamping delay of the holding brake to make sure that vertical axes which are not equilibrated do not move down when the drive enable is switched off.



- For Rexroth motors with feedback data memory, the content of "S-0-0207" is set automatically when "loading controller default values".
- If the delay stored in the feedback value is too short, it can be increased.

Up to MPx-17VRS, bit 11 must be set to 1 in parameter "P-0-0525, Holding brake control word".

**S-0-0207 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
<b>MPB:</b>	s. Text / s. Text	100,0
<b>MPC:</b>	s. Text / s. Text	100,0
<b>MPE:</b>	s. Text / s. Text	100,0
<b>MPM:</b>	s. Text / s. Text	100,0

Standard Parameters

### 4.3.5 S-0-0208, Temperature data scaling type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Via this parameter, the temperature data unit of the control is determined. The values are exactly displayed with the first decimal place.

**Structure**

Bit	Designation/function	Comment
0	Temperature data in 0:Degree Celsius (°C) 1:Fahrenheit (F)	
15...1	Reserved	

Tab.4-63: Settings for Temperature Data

S-0-0208 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		0x0		
	MPC:	--- / ---		0x0		
	MPE:	--- / ---		0x0		
	MPM:	--- / ---		0x0		

### 4.3.6 S-0-0213, Oscillation speed

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	main spindle			
	Device parameter:	axis-specific			

**Function** The oscillation speed is the amplitude of the speed oscillation around the "S-0-0214, Oscillation offset speed".

See also Functional Description "Drive-Controlled Oscillation"

S-0-0213 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	rpm	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0,0000 / 214748,3647		8,0000		
	MPC:	0,0000 / 214748,3647		8,0000		
	MPE:	0,0000 / 214748,3647		8,0000		
	MPM:	0,0000 / 214748,3647		8,0000		

### 4.3.7 S-0-0214, Oscillation offset speed

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	main spindle			
	Device parameter:	axis-specific			

**Function** The oscillation offset speed is the average value of speed oscillation.

See also Functional Description "Drive-Controlled Oscillation"

S-0-0214 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV



## Standard Parameters

Unit:	rpm	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	0,0000 / 214748,3647		1,0000		
MPC:	0,0000 / 214748,3647		1,0000		
MPE:	0,0000 / 214748,3647		1,0000		
MPM:	0,0000 / 214748,3647		1,0000		

## 4.3.8 S-0-0215, Oscillation cycle time

Allocation	Contained in 16VRS:		«MPB»	«-»	«MPM»	
	Contained in 17VRS:		«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		main spindle			
	Device parameter:		axis-specific			
Function	The oscillation cycle time is the periodic time of speed oscillation. See also Functional Description "Drive-Controlled Oscillation"					
S-0-0215 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			0,1 / 6553,5	400,0	
	MPC:			0,1 / 6553,5	400,0	
MPE:			0,1 / 6553,5	400,0		
MPM:			0,1 / 6553,5	400,0		

## 4.3.9 S-0-0216, C4100 Switch parameter set command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	Servo(compensation), synchronisation (ELS), main spindle				
	Device parameter:	axis-specific				
Function	Parameter sets are switched when this command is executed.					
<hr/>						
 If necessary, the system automatically switches to PM.						
<hr/>						
 The parameter set switching functions is included in the base package of MPE.						
<hr/>						
See also Functional Description "Parameter Set Switching"						
Use	<ul style="list-style-type: none"><li>• This requires that the settings made in "P-0-2216, Parameter set switching, configuration" and in "P-0-2217, Parameter set switching, preselection range" match the application.</li><li>• After switching, the active parameter set is that which was entered in "S-0-0217, Preselect parameter set command" at the time of switching.</li><li>• The parameter set active after switching is displayed in parameter "S-0-0254, Current parameter set".</li></ul>					
S-0-0216 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	<hr/>					
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	


## Standard Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

### 4.3.10 S-0-0217, Preselect parameter set command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	Servo(compensation), synchronisation (ELS), main spindle				
	Device parameter:	axis-specific				
Function	The value of this parameter determines the number of the parameter set which is activated by executing "S-0-0216, C4100 Switch parameter set command".					
	See also Functional Description "Command Processing"					
	See also Functional Description "Parameter Set Switching"					
Use	As a prerequisite the settings according to the application have to be made in "P-0-2216, Parameter set switching, group selection" and "P-0-2217, Parameter set switching, preselection range".					
S-0-0217 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0 / s. Text			---	
	MPC:	0 / s. Text			---	
	MPE:	0 / s. Text			---	
	MPM:	0 / s. Text			---	

### 4.3.11 S-0-0219, IDN-list of parameter set

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	Servo(compensation), synchronisation (ELS), main spindle				
	Device parameter:	axis-specific				
Function	All IDNs concerned by "S-0-0216, C4100 Switch parameter set command" are listed in this parameter.					
<hr/>						
 The number of parameters listed in S-0-0219 is determined by the setting in "P-0-2216, Parameter set switching, configuration" and "P-0-2217, Parameter set switching, preselection range".						
<hr/>						
See also Functional Description "Parameter Set Switching"						
S-0-0219 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	+
	<hr/>					
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 4.3.12 S-0-0222, Spindle positioning speed

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			

## Standard Parameters

	<b>Funct. package(s):</b>	"open loop", "closed loop"
	<b>Device parameter:</b>	axis-specific
<b>Function</b>	This parameter serves to enter the maximum speed that can be reached by the spindle while rotating during execution of the "S-0-0152, C0900 Position spindle procedure command". See also Functional Description "Command Processing" See also Functional Description "Spindle Positioning"	
<b>Use</b>	Based on "S-0-0372, Drive Halt acceleration bipolar", the motor accelerates to this speed in order to <ul style="list-style-type: none"> <li>move to the target position entered in "S-0-0153, Spindle angle position", or to</li> <li>travel the distance entered in "S-0-0180, Spindle relative offset".</li> </ul>	

## Record of Revisions

Version	Modification
Up to MPx-16	Set-depend.: Grp. 3 (load gear)

## S-0-0222 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0044 / S-0-0044		0,0000		
<b>MPC:</b>	S-0-0044 / S-0-0044		0,0000		
<b>MPE:</b>	S-0-0044 / S-0-0044		0,0000		
<b>MPM:</b>	S-0-0044 / S-0-0044		0,0000		

## 4.3.13 S-0-0228, Position synchronization window

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Is the difference between velocity command and velocity feedback value smaller than the synchronization window for parameterized synchronous operation mode with outer position control loop, bit 8 is set in the parameter "P-0-0089, Status word synchronization modes".

See also Functional Description: "Synchronization Modes"

**The following applies:**

Bit 8 = 1, if  $|X_{\text{synch}} + X_{\text{additive}} + X_{\text{additive 2}} - X_{\text{act}}| < \text{S-0-0228}$  with

$X_{\text{act}}$ : P-0-0753, Position actual value in actual value cycle

$X_{\text{synch}}$ : Synchr. additive position command value, built from current master axis position

$X_{\text{additive}}$ : S-0-0048, Additive position command value

$X_{\text{additive 2}}$ : P-0-0691, Additive position command value, process loop

## S-0-0228 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		10,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		10,0000		

Standard Parameters

MPE:	S-0-0076 / S-0-0076	10,0000
MPM:	S-0-0076 / S-0-0076	10,0000

#### 4.3.14 S-0-0254, Current parameter set

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS), main spindle			
	Device parameter:	axis-specific			

**Function** This parameter shows the number of the currently active parameter set.



The parameter set switching functions is included in the base package of MPE.

See also Functional Description "Parameter Set Switching"

S-0-0254 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

#### 4.3.15 S-0-0256, Multiplication 1 (motor encoder)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The parameter "S-0-0256, Multiplication 1 (motor encoder)" indicates with which factor the signals of the motor encoder are multiplied in the drive.

**Use** The multiplication 1 results depending on the parameters "S-0-0278, Maximum travel range" and "S-0-0116, Resolution of feedback 1". The internal encoder resolution for motor encoders is calculated as follows:

$$\text{S-0-0116, Resolution of feedback 1} * \text{S-0-0256, Multiplication 1}$$

Fig.4-64: Internal Encoder Resolution for the Motor Encoder

S-0-0256 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

#### 4.3.16 S-0-0257, Multiplication 2 (optional encoder)

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

## Standard Parameters

**Function** The "S-0-0257 Multiplication 2" parameter indicates with which factor the signals of the optional encoder are multiplied in the drive.

See also Functional Description "Basics on Measuring Systems, Resolution"

**Use** The multiplication 2 results subject to the "S-0-0278 Maximum travel range" and "S-0-0117 Feedback 2 Resolution" parameters.

The internal resolution for the optional encoder is calculated as follows:

$$\text{S-0-0117, Resolution of feedback 2} \cdot \text{S-0-0257, Multiplication 2}$$

Fig.4-65: Internal resolution for the optional encoder

<b>S-0-0257 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

### 4.3.17 S-0-0258, Target position

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** By this parameter the control unit presets the target position for the drive in the "Drive-internal interpolation" mode.

See also Functional Description "Drive-Internal Interpolation"

**Use** With the internally generated position command value sequence, the drive moves to the target position (S-0-0258) and, apart from the positioning velocity (S-0-0259), takes the maximum positioning acceleration (S-0-0260) or deceleration (S-0-0359), the maximum positioning jerk (S-0-0193) and the feedrate override (S-0-0108) into consideration.

<b>S-0-0258 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		S-0-0076 / S-0-0076		---		
<b>MPC:</b>		S-0-0076 / S-0-0076		---		
<b>MPE:</b>		S-0-0076 / S-0-0076		---		
<b>MPM:</b>		S-0-0076 / S-0-0076		---		

### 4.3.18 S-0-0259, Positioning velocity

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** Via this parameter, the maximum velocity is indicated to the drive in the operation modes "drive-internal interpolation" and "drive-controlled homing procedure", with which the drive should move to the target position ("S-0-0258, Target position" or "S-0-0282, Positioning command value").

See also Functional Description "Drive-Internal Interpolation"

## Standard Parameters

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

**Use** The drive-internal generated position command value characteristic considers the positioning velocity (S-0-0259) and the maximum positioning acceleration (S-0-0260) or positioning deceleration (S-0-0359), the maximum positioning jerk (S-0-0193) and the feedrate-override (S-0-0108).

<b>S-0-0259 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	S-0-0044 / S-0-0044		10,0000	
		<b>MPC:</b>	S-0-0044 / S-0-0044		10,0000	
		<b>MPE:</b>	S-0-0044 / S-0-0044		10,0000	
		<b>MPM:</b>	S-0-0044 / S-0-0044		10,0000	

### 4.3.19 S-0-0260, Positioning acceleration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** By this parameter the maximum acceleration at which to move to the target position ("S-0-0258, Target position" or "S-0-0282, Positioning command value") is preset for the drive in the "drive-internal interpolation" and "drive-controlled positioning" modes.

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

**Use** The internally generated position command value sequence, apart from the positioning acceleration (S-0-0260) or deceleration (S-0-0359), takes the maximum positioning velocity (S-0-0259), the maximum positioning jerk (S-0-0193) and the feedrate override (S-0-0108) into consideration.



The acceleration is limited to the value of "S-0-0138, Bipolar acceleration limit value". With the value "0", the parameter S-0-0138 will take effect. The value of parameter "S-0-0260, Positioning acceleration" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter "S-0-0138" will take effect.

<b>S-0-0260 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	S-0-0160 / S-0-0160		1000,000	
		<b>MPC:</b>	S-0-0160 / S-0-0160		1000,000	
		<b>MPE:</b>	S-0-0160 / S-0-0160		1000,000	
		<b>MPM:</b>	S-0-0160 / S-0-0160		1000,000	

### 4.3.20 S-0-0261, Coarse position window

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»

## Standard Parameters

	Contained in 18VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware			
	--			
	Funct. package(s):			
	closed loop			
	Device parameter:			
	axis-specific			
Function	The parameter "S-0-0261, Coarse position window" is used for the status message "In Position coarse" (S-0-0013, Class 3 diagnostics, bit 11 = 1)  lag error (S-0-0189)  < position window (S-0-0261).			
	See also Parameter Description "Status Classes, Status Displays, Control Parameters"			
S-0-0261 - Attributes	Function:	Par	Editable:	++
	Memory:	PARAM_SP	Validity ch.:	PM->OM
	Unit:	S-0-0076	Extr. val. ch.:	+
	Cycl. tra.:	MDT	Comb. check:	--
			Data length:	4Byte
			Format:	DEC_MV
			Decim. pl.:	S-0-0077 / S-0-0078
			Set-depend.:	Grp. 1
	Input	min./max.		Default value
	MPB:	S-0-0076 / S-0-0076		0,5000
	MPC:	S-0-0076 / S-0-0076		0,5000
	MPE:	S-0-0076 / S-0-0076		0,5000
	MPM:	S-0-0076 / S-0-0076		0,5000

## 4.3.21 S-0-0262, C07\_x Load defaults procedure command

Allocation	Contained in 16VRS:			
	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware			
	--			
	Funct. package(s):			
	"open loop", "closed loop"			
	Device parameter:			
	axis-specific			
Function	Parameter "C07_x Load defaults procedure command" can be used to load different default parameter values, depending on "P-0-4090, Configuration for loading default values"			
	See also Functional Description "Loading, Storing and Saving Parameters"			
Use	The following parameter values can be loaded:			
	<ul style="list-style-type: none"> <li> <b>Motor-specific controller values:</b> The motor-specific control loop parameter values (adjustment of controller to motor, default setting of P-0-4090) stored in the motor encoder are loaded. Possible in parameterization or operation mode. Parameters which are protected by the customer password remain unchanged. </li> <li> <b>Factory settings:</b> Default values stored in the firmware are loaded (firmware-specific default values for non-volatile parameters). "P-0-4090" can be used to hide selected parameter groups. As of MPx-17VRS, the configurable factory default values are set as well. Only possible in parameter mode. Not possible if the drive is disabled with a customer password (-&gt; C0752). </li> <li> <b>MLD parameters (as of MP-17VRS):</b> Parameters of the integrated control are set to their default values. The PLC is stopped and the boot project is deleted. Only possible in parameterization mode. Not possible if the drive is disabled with a customer password (-&gt; C0752). </li> <li> <b>SMO parameters (as of MPx-18VRS):</b> Parameters of the safety technology (SMO) are set to their default values. </li> </ul>			

## Standard Parameters

Only possible in parameter mode.

Not possible if the drive is disabled with a customer password (-> C0752).

- **Activate field bus profile settings:** Profile-dependent parameters are set to their default values.

Only possible in parameterization mode.

Not possible if the drive is disabled with a customer password (-> C0752).

### NOTICE

**Damage to the internal memory (flash) caused by too many write accesses!**

Execution of this parameter command requires writing to the internal memory (flash). Since each flash memory allows only a limited number of write accesses before its cells are destroyed, such write accesses should not be made too often.



When this command is executed, optimized axis-specific and/or safety-technology-specific parameter values might be overwritten!  
⇒ Execute this command only on initial commissioning.

#### S-0-0262 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.3.22 S-0-0263, C2300 Load working memory procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
Function	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This command copies the parameter sets from the active, non-volatile memory into the volatile memory of the drive-controller (RAM memory). The active non-volatile memory is the device-internal flash memory.

### NOTICE

**Damage of the internal memory (flash) due to excessive write accesses!**

This parameter command is recorded in the internal memory (flash), when executing it. As each flash only permits a limited number of write accesses before its cells are damaged, please heed that such write accesses are not overused.

#### S-0-0263 - Attributes

Function:	Cmd	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		

## Standard Parameters

MPC:	---	/	---	---
MPE:	---	/	---	---
MPM:	---	/	---	---

## 4.3.23 S-0-0264, C2200 Backup working memory procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This command copies the parameter sets from the volatile memory of the drive-controller (RAM memory) and saves it in the active non-volatile memory. The active non-volatile memory is the device-internal flash memory.

**NOTICE**

**Damage of the internal memory (flash) due to excessive write accesses!**

This parameter command is recorded in the internal memory (flash), when executing it. As each flash only permits a limited number of write accesses before its cells are damaged, please heed that such write accesses are not overused.

## S-0-0264 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.24 S-0-0265, Language selection

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** All parameter names, units and diagnostic/error messages are stored in the drive controller in several languages. This parameter determines the language of the texts to be output.

- 0: German
- 1: English
- 2: French
- 3: Spanish
- 4: Italian

See also Functional Description "Coded Diagnostic Messages of the Drive"


## S-0-0265 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--


Input	min./max.	Default value
MPB:	0 / s. Text	0
MPC:	0 / s. Text	0
MPE:	0 / s. Text	0
MPM:	0 / s. Text	0

## Standard Parameters

### 4.3.25 S-0-0267, Password

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	A customer password can be activated via this parameter. See also Functional Description "Using a Password"					
Use	This is to protect the values in the "S-0-0279, IDN-list of password-protected operation data" containing parameters against inadvertently or unauthorized changes. The password "007" is entered in default condition. Therewith, the parameters are writeable (original state).					
<hr/>						
 Bosch Rexroth reserves the right for the function of a master password. In this context, the parameter additionally serves for releasing the support functions (P-0-4064, Password level).						
<hr/>						
The following applies:						
<ul style="list-style-type: none"><li>• The parameter can be described with the UTF-8 character set.</li><li>• Size in number of bytes: 32</li><li>• An UTF-8 character set can have 1 up to 3 bytes.</li><li>• Depending on the used UTF-8 character, the number of the characters to be entered is reduced.</li></ul>						
S-0-0267 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	<hr/>					
Input		min./max.		Default value		
MPB:		--- / ---		s. Text		
MPC:		--- / ---		s. Text		
MPE:		--- / ---		s. Text		
MPM:		--- / ---		s. Text		

### 4.3.26 S-0-0269, Storage mode

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	It is stipulated due to bit 0 of this parameter, into which mode the parameter values are stored. Depending on the setting, there is the following behavior: <ul style="list-style-type: none"><li>• 0: Changes in the parameter are maintained, even if 24V voltage fails (non-volatile behavior).</li><li>• 1: Changes in the parameter get lost after 24V have been switched off (volatile behavior).</li></ul>				
Use	See Functional Description "Loading, Storing and Saving Parameters"				
		The number of writing cycles for the device memory is limited; therefore, set the storage mode to "1" for cyclic write accesses in order to avoid damage to the active memory!			

Observe the following aspects for use:

## Standard Parameters

- The "S-0-0269" is not stored in the drive. After switching-off the control voltage, it is always reset to "0" (non-volatile memory), so you must set it specifically to "1" (volatile memory) after boot-up, if required.
- For permanent MLD control, the memory mode S-0-0269 is set to non-volatile (S-0-0269 = 1) after every boot-up of the drive. If required, it can be set to volatile (S-0-0269 = 0) in the MLD program or execute the command "C2200 Backup working memory procedure command".
- To maintain the parameter settings in case voltage fails with the storage mode "1", previously execute the command "S0-0264, C2200 Backup working memory procedure command".

<b>S-0-0269 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		0x0 / 0x1			---	
<b>MPC:</b>		0x0 / 0x1			---	
<b>MPE:</b>		0x0 / 0x1			---	
<b>MPM:</b>		0x0 / 0x1			---	

## 4.3.27 S-0-0270, IDN-list of selected backup operation data

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The contents of all parameters the IDNs of which are listed in this parameter are saved from the working memory (volatile memory) to the active non-volatile memory by activating the parameter "S-0-0293, C2400 Selectively back-up working memory procedure command".

The active non-volatile memory is the device-internal flash memory.

See also Functional Description "Parameters, Basics"

<b>S-0-0270 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			s. Text	
<b>MPC:</b>		--- / ---			s. Text	
<b>MPE:</b>		--- / ---			s. Text	
<b>MPM:</b>		--- / ---			s. Text	

## 4.3.28 S-0-0272, Velocity window as percentage

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Based on the resulting velocity command value (S-0-0036 + S-0-0037), the "velocity window as percentage" defines a part of the active velocity window.

## Standard Parameters

Type of threshold	Parameter	Threshold value	Explanation
Percentage-based threshold	S-0-0272	Value of (S-0-0036 + S-0-0037 + P-0-690) * S-0-0272	Velocity command value percentage

S-0-0272 Velocity window as percentage

S-0-0036 Velocity command value

S-0-0037 Additive velocity command value

Tab.4-66: *Percentage-Based Threshold for Status "n<sub>feedback</sub> = n<sub>command</sub>"*

**Use** If the actual velocity value is within the calculated velocity window, the drive sets bit 0 of "S-0-0013, Class 3 diagnostics" (status "n<sub>feedback</sub> = n<sub>command</sub>").

See also Functional Description "Status Classes, Status Displays, Control Parameters"

### S-0-0272 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1

Input	min./max.	Default value
MPB:	0,00 / 100,00	0,00
MPC:	0,00 / 100,00	0,00
MPE:	0,00 / 100,00	0,00
MPM:	0,00 / 100,00	0,00

## 4.3.29 S-0-0273, Maximum drive off delay time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter serves to enter the determined time that the drive needs in order to stop the axis from maximum velocity at maximum inertia or inertial mass with maximum allowed braking torque or braking force. Do not forget to include a safety allowance in your calculation.

See also Functional Description "Motor Holding Brake"

**Use** After the time entered in this parameter has elapsed, the "F6024 Maximum braking time exceeded" error is output.



If the velocity of the axis or spindle falls below 10 min<sup>-1</sup> or 10 mm/min, respectively, before the time set in "S-0-0273" has elapsed, the brake will be applied. The drive enable is switched off after the delay set in "S-0-0207, Drive off delay time".

### S-0-0273 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	500,0 / s. Text	10000,0
MPC:	500,0 / s. Text	10000,0
MPE:	500,0 / s. Text	10000,0
MPM:	500,0 / s. Text	10000,0

## 4.3.30 S-0-0275, Coordinate offset value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Standard Parameters

<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	closed loop			
<b>Device parameter:</b>	axis-specific			

**Function** In this parameter the difference is entered by which the actual position value display changes (addition to current actual position value), when "S-0-0199, C3400 Shift coordinate system procedure command" is executed.

The unit of the value corresponds to the selected position scaling.

<b>S-0-0275 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPC:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPE:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPM:</b>	S-0-0076 / S-0-0076	0,0000

## 4.3.31 S-0-0277, Position feedback 1 type

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter defines the essential properties of the motor encoder.

See also Functional Description "Absolute Measuring Systems"

**Structure**

Bit	Designation/function	Comment
0	<b>Kind of encoder</b> 0: Rotary 1: Linear	
1	<b>Distance-coded measuring system</b> 0: No distance-coded reference marks 1: Distance-coded reference marks (S-0-0165, S-0-0166)	
3	<b>Rotational direction</b> 0: Not inverted 1: Inverted	
5	<b>Setup of distance-coded measuring system</b> 0: Positive direction of counting 1: Negative direction of counting	
6	<b>Absolute evaluation (display bit)</b> 0: Not possible (relative measuring system) 1: Possible (absolute measuring system) See also "S-0-0378, Absolute encoder range of motor encoder"	

Standard Parameters

Bit	Designation/function	Comment
8/7	<b>Absolute configuration evaluation</b> <b>Bit 6 = 0:</b> <b>0x:</b> Relative evaluation of the relative measuring system. The measuring system must be re-homed on each restart. <b>1x:</b> Absolute evaluation of the relative measuring system is forced (only possible with single- and multi-turn encoders). <b>Bit 6 = 1:</b> <b>x0:</b> Absolute evaluation of the absolute measuring system (standard). <b>x1:</b> Relative evaluation of the absolute measuring system.	Not defined in SERCOS
9	<b>Cyclic marker evaluation</b> <b>0:</b> Inactive <b>1:</b> Active	
10	<b>Positioning data</b> <b>0:</b> Position data is generated via analog signals (analog encoder 1 Vss, TTL) <b>1:</b> Position data is generated by the encoder already in digitized form and then transferred (digital encoder)	
13	<b>Encoder replacement monitoring</b> <b>0:</b> Activated, i.e., encoder replacement is detected (only for encoders with data memory) <b>1:</b> Deactivated, i.e., no error (F2174) is signaled when the encoder is replaced and the reference is preserved if necessary; this does not affect position initialization <b>ATTENTION:</b> Only makes sense for mechanically adjusted encoders!	Not defined in SERCOS
14	<b>Position initialization of encoders with absolute position</b> <b>0:</b> Position initialization with absolute position and incr. track <b>1:</b> Position initialization without incr. track <b>Attention: Reduced accuracy!</b> Position initialization without incr. track makes sense only if the absolute position was shifted deliberately. (Applies only to Hiperface encoders)	Not defined in SERCOS
15	<b>Cyclic absolute encoder monitoring</b> <b>0:</b> Activated <b>1:</b> Deactivated (EnDat and Hiperface encoders)	Not defined in SERCOS

Tab.4-67: S-0-0277, Position feedback 1 type

- Use**
- For Rexroth housing motors (MSK, MKE, 2AD, ADF, MAD, MAF), bits 0, 1, 3 are set to the value "0"!

## Standard Parameters

- If the connected motor is a linear motor, bit 0 is set to "1".
- Depending on the absolute encoder range and the maximum travel range or modulo value, bit 6 is either set or cleared.
- If absolute evaluation is possible (bit 6 = 1), absolute evaluation is automatically activated. However, the user can deactivate it by setting bit 7.
- Even if absolute evaluation is impossible (bit 6 = 0), the user can "force" (activate) it via bit 8.

**NOTICE**

**Property damage, if control on the master side takes place with regard to incorrect actual position values!**

The user has to ensure that, if absolute position feedback values are "forced" manually (bit 8), the powered off axis is never displaced by more than half the absolute encoder range in relation to the power-off position. Otherwise, collisions with machine parts and workpiece rejects may occur.

**S-0-0277 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 4.3.32 S-0-0278, Maximum travel range

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** With the parameter "S-0-0278", the maximum mechanical travel distance of the machine is defined.

See also Functional Description "Absolute Measuring Systems"

- Use**
- Depending from the scaling, modulo format or absolute format (see S-0-0076 Position data scaling type), the values are entered as unipolar (modulo format) or bipolar (absolute format).
  - The parameter "S-0-0278" influences the parameters "S-0-0256, Multiplication 1 (motor encoder)", "S-0-0257, Multiplication 2 (optional encoder)" and "P-0-0129, Internal position data format" and therewith the internal encoder and position resolution.
  - Furthermore, the limitation values for velocity and acceleration of the drive-internal position are influenced by the maximum travel range.
  - The maximum input value for "S-0-0259, Positioning velocity" and "S-0-0260, Positioning acceleration" depends from the value in "S-0-0278".
  - The higher the adjusted travel area, the smaller is the multiplication and the drive-internal position resolution and the higher are the limitation values of acceleration and velocity data.
  - The value for the maximum travel range also influences bit 6 of "S-0-0277, Position feedback 1 type 1" bzw. "S-0-0115, Position feed-

## Standard Parameters

back type 2". This bit displays the possibility of absolute evaluation of the encoder.

<b>S-0-0278 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	S-0-0076 / S-0-0076		36000,0000		
	<b>MPC:</b>	S-0-0076 / S-0-0076		36000,0000		
	<b>MPE:</b>	S-0-0076 / S-0-0076		36000,0000		
	<b>MPM:</b>	S-0-0076 / S-0-0076		36000,0000		

### 4.3.33 S-0-0279, IDN-list of password-protected operation data

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	By means of a customer password ("S-0-0267, Password"), the values of the parameters contained in this list can be protected against inadvertent or unauthorized changes. In its default status, this parameter contains an empty list. The user can enter IDNs in this list according to his requirements.					
	See also Functional Description "Using a Password"					
S-0-0279 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

### 4.3.34 S-0-0282, Positioning command value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** By this parameter the control unit presets the target position (absolute position) or a relative travel distance for the drive in the "Drive-controlled positioning" mode.



The effective target position at which the drive positions can be read at any time from "S-0-0430, Effective target position"!

See also Functional Description "Drive-Controlled Positioning"

**Use** Upon a change of the edge of bit 0 in "S-0-0346, Positioning control word", the drive, controlled by an internally generated position command value, moves to an axis position that corresponds to the positioning command value (S-0-0282).

In addition, the drive takes the following positioning data into account:

- S-0-0259, Positioning Velocity
- S-0-0260, Positioning acceleration or S-0-0359, Positioning deceleration
- S-0-0193, Positioning jerk

## Standard Parameters

S-0-0282 - Attributes	• S-0-0108, Feedrate override			
	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	S-0-0076	Extr. val. ch.:	+
	Cycl. tra.:	AT + MDT	Comb. check:	--
		Data length:		4Byte
		Format:		DEC_MV
		Decim. pl.:		S-0-0077 / S-0-0078
		Set-depend.:		--
		Input	min./max.	Default value
		MPB:	S-0-0076 / S-0-0076	---
		MPC:	S-0-0076 / S-0-0076	---
		MPE:	S-0-0076 / S-0-0076	---
		MPM:	S-0-0076 / S-0-0076	---

## 4.3.35 S-0-0283, Current coordinate offset

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
		Device parameter:		
		axis-specific		

**Function** This parameter displays by which value the actual position value was offset compared to the real actual position value, when S-0-0197, C3300 Set coordinate system procedure command or S-0-0199, C3400 Shift coordinate system procedure command was executed.



The unit of the value corresponds to the selected position scaling.

S-0-0283 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	S-0-0076	Extr. val. ch.:	--
	Cycl. tra.:	AT	Comb. check:	--
			Data length:	
		Format:		4Byte
		Decim. pl.:		DEC_MV
		Set-depend.:		S-0-0077 / S-0-0078
				--
		Input	min./max.	Default value
		MPB:	--- / ---	---
		MPC:	--- / ---	---
		MPE:	--- / ---	---
		MPM:	--- / ---	---

## 4.3.36 S-0-0284, Secondary operation mode 4

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
		Device parameter:		
		axis-specific		

**Function** The control of the operating modes for several communications buses is carried out by the respective control word.

- SERCOS III and EtherCAT: S-0-0134, Master control word
- Easy Startup Mode P-0-0120, Control word easy startup

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 4 is selected in the control word and
- control and power sections are ready for operation and
- drive enable "RF" was set.

See also Functional Description "Operation Mode Selection"

**Use** The operation mode is set by entering a binary value.

Possible operating modes are:

- Velocity control
- Torque control

## Standard Parameters

- Cyclic position control
- Drive-Internal interpolation
- ...

For operating modes with position control, this parameter sets the following options:

- without following error or with following error
- Motor encoder / external encoder
- Control the position control together with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in the table "Overview of Operation Modes" in the description of parameter "S-0-0292".

### S-0-0284 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0x2		
<b>MPC:</b>	--- / ---		0x2		
<b>MPE:</b>	--- / ---		0x2		
<b>MPM:</b>	--- / ---		0x2		

## 4.3.37 S-0-0285, Secondary operation mode 5

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The control of the operating modes for several communications buses is carried out by the respective control word.

- SERCOS III and EtherCAT: S-0-0134, Master control word
- Easy Startup Mode P-0-0120, Control word easy startup

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 5 is selected in the control word and
- control and power sections are ready for operation and
- drive enable "RF" was set.

See also Functional Description "Operation Mode Selection"

**Use** The operation mode is set by entering a binary value.

Possible operating modes are:

- Velocity control
- Torque control
- Cyclic position control
- Drive-Internal interpolation
- ...

For operating modes with position control, this parameter sets the following options:

## Standard Parameters

- without following error or with following error
- Motor encoder / external encoder
- Control the position control together with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in the table "Overview of Operation Modes" in the description of parameter "S-0-0292".

## S-0-0285 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0x2
MPC:	--- / ---	0x2
MPE:	--- / ---	0x2
MPM:	--- / ---	0x2

## 4.3.38 S-0-0286, Secondary operation mode 6

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The control of the operating modes for several communications buses is carried out by the respective control word.

- SERCOS III and EtherCAT: S-0-0134, Master control word
- Easy Startup Mode P-0-0120, Control word easy startup

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 6 is selected in the control word and
- control and power sections are ready for operation and
- drive enable "RF" was set.

See also Functional Description "Operation Mode Selection"

**Use** The operation mode is set by entering a binary value.

Possible operating modes are:

- Velocity control
- Torque control
- Cyclic position control
- Drive-Internal interpolation
- ...

For operating modes with position control, this parameter sets the following options:

- without following error or with following error
- Motor encoder / external encoder
- Control the position control together with/without parameter "S-0-0520"

## Standard Parameters

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.



The binary values assigned to the operation modes are listed in the table "Overview of Operation Modes" in the description of parameter "S-0-0292".

### S-0-0286 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPC:</b>	--- / ---			0x2	
<b>MPE:</b>	--- / ---			0x2	
<b>MPM:</b>	--- / ---			0x2	

## 4.3.39 S-0-0287, Secondary operation mode 7

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The control of the operating modes for several communications buses is carried out by the respective control word.

- SERCOS III and EtherCAT: S-0-0134, Master control word
- Easy Startup Mode P-0-0120, Control word easy startup

The operation mode determined in this parameter is activated in the drive, if:

- the secondary operation mode 7 is selected in the control word and
- control and power sections are ready for operation and
- drive enable "RF" was set.

See also Functional Description "Operation Mode Selection"

**Use** The operation mode is set by entering a binary value.

Possible operating modes are:

- Velocity control
- Torque control
- Cyclic position control
- Drive-Internal interpolation
- ...

For operating modes with position control, this parameter sets the following options:

- without following error or with following error
- Motor encoder / external encoder
- Control the position control together with/without parameter "S-0-0520"

The operation modes supported by the respective firmware are stored in parameter "S-0-0292, List of supported operation modes" and when being read are displayed in the form of a hexadecimal code.

## Standard Parameters



The binary values assigned to the operation modes are listed in the table "Overview of Operation Modes" in the description of parameter "S-0-0292".

## S-0-0287 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0x2
<b>MPC:</b>	--- / ---	0x2
<b>MPE:</b>	--- / ---	0x2
<b>MPM:</b>	--- / ---	0x2

## 4.3.40 S-0-0292, List of supported operation modes

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter lists all operation modes which are supported by the drive firmware used.

It displays the codes (hexadecimal) of the operation modes, which can be entered as binary values in parameters "S-0-0032"... "S-0-0035" and "S-0-0284"... "S-0-0287" (primary and secondary operation modes).

See also Functional Description "Operation Modes"

**Structure** The table below shows a reference list of all potential operation modes with allocated code.



Depending on the firmware, function package and hardware configuration used, list parameter "S-0-0292" contains only a part of the codes listed in this table.

The codes for MPx-16VRS and up to MPx-17V06 are still listed in MPx-17V08 and above, but should no longer be used.

Switchover of the control encoder and the position operation mode can be controlled via parameter S-0-0520 in the operation modes provided to this end ("with axis control word").

Operation mode	Code for MPx16 up to MPx-17V06	Code displayed in S-0-0292, as of MPx-17V08
Torque control	0x0001	0x0001
Velocity control	0x0002	0x0002
Position control, encoder 1	0x0003	0x0003
Position control, encoder 2	0x0004	0x0004
Position control lagless, encoder 1	0x000B	0x000B
Position control lagless, encoder 2	0x000C	0x000C
Position control drive-controlled, encoder 1	0x0103	0x0103
Position control drive-controlled, encoder 2	0x0104	0x0104

Standard Parameters

Operation mode	Code for MPx16 up to MPx-17V06	Code displayed in S-0-0292, as of MPx-17V08
Position control lagless, encoder 1 drive-controlled	0x010B	0x010B
Position control lagless, encoder 2 drive-controlled	0x010C	0x010C
Position control, drive-controlled, with axis control word	0x0305	0x0305
Position control with axis control word	Not available	0x0205
Drive-internal interpolation, encoder 1	0x0013	0x0113
Drive-internal interpolation, encoder 2	0x0014	0x0114
Drive-internal interpolation, lagless, encoder 1	0x001B	0x011B
Drive-internal interpolation, lagless, encoder 2	0x001C	0x011C
Drive-internal interpolation with axis control word	Not available	0x0315
Drive-controlled positioning, encoder 1	0x0213	0x0123
Drive-controlled positioning, encoder 2	0x0214	0x0124
Drive-controlled positioning, encoder 1, lagless	0x021B	0x012B
Drive-controlled positioning, encoder 2, lagless	0x021C	0x012C
Drive-controlled positioning with axis control word	0x0215	0x0325
Positioning block mode, encoder 1	0x0033	0x0133
Positioning block mode, encoder 2	0x0034	0x0134
Positioning block mode lagless, encoder 1	0x003B	0x013B
Positioning block mode lagless, encoder 2	0x003C	0x013C
Positioning block mode with axis control word	0x0235	0x0335
Cam, encoder 1, virtual master axis	0x8803	0x8803
Cam, encoder 2, virtual master axis	0x8804	0x8804
Cam, lagless, encoder 1, virt. master axis	0x880B	0x880B
Cam, lagless, encoder 2, virt. master axis	0x880C	0x880C
Cam, encoder 1, real master axis	0x8813	0x8813
Cam, encoder 2, real master axis	0x8814	0x8814
Cam, lagless, encoder 1, real master axis	0x881B	0x881B
Cam, lagless, encoder 2, real master axis	0x881C	0x881C
Phase synchronization, encoder 1, virtual master axis	0x9003	0x9003
Phase synchronization, encoder 2, virtual master axis	0x9004	0x9004
Phase synchr. lagless, encoder 1, virtual master axis	0x900B	0x900B

## Standard Parameters

Operation mode	Code for MPx16 up to MPx-17V06	Code displayed in S-0-0292, as of MPx-17V08
Phase synchr. lagless, encoder 2, virtual master axis	0x900C	0x900C
Phase synchronization, encoder 1, real master axis	0x9013	0x9013
Phase synchronization, encoder 2, real master axis	0x9014	0x9014
Phase synchr. lagless, encoder 1, real master axis	0x901B	0x901B
Phase synchr. lagless, encoder 2, real master axis	0x901C	0x901C
Velocity synchronization, virtual master axis	0xA002	0xA002
Velocity synchronization, real master axis	0xA012	0xA012
MotionProfile, encoder 1, virtual master axis	0x9803	0x9803
MotionProfile, encoder 2, virtual master axis	0x9804	0x9804
MotionProfile lagless, encoder 1, virtual master axis	0x980B	0x980B
MotionProfile lagless, encoder 2, virtual master axis	0x980C	0x980C
MotionProfile, encoder 1, real master axis	0x9813	0x9813
MotionProfile, encoder 2, real master axis	0x9814	0x9814
MotionProfile lagless, encoder 1, real master axis	0x981B	0x981B
MotionProfile lagless, encoder 2, real master axis	0x981C	0x981C
Velocity synchronization	0x0042	0x0142
Position synchronization	0x0245	0x0345

Tab.4-68: List of Operation Modes with Code

S-0-0292 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 4.3.41 S-0-0293, C2400 Selectively backup working memory procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Standard Parameters

**Function** With this command, the contents of all parameters whose IDN is listed in the parameter "S-0-0270, IDN-list of selected backup operation data" are saved by the working memory (volatile memory) into the internal flash memory.

See also Functional Description Command Processing

<b>S-0-0293 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>		<b>min./max.</b>	<b>Default value</b>	
		MPB:		--- / ---	---	
		MPC:		--- / ---	---	
		MPE:		--- / ---	---	
		MPM:		--- / ---	---	

### 4.3.42 S-0-0298, Reference cam shift

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays the distance by which the home switch (reference cam) is to be shifted in order to realize the optimum distance between home switch and selected reference mark of the encoder.

See also Functional Description "Establishing the Position Data Reference"

**Use** When homing an axis an actual position value referred to the axis zero point is assigned to a reference mark of the encoder. If the encoder has several reference marks over the travel range of the axis, it is necessary to select one and always the same reference mark for an unequivocal reference to the axis zero point. This is done with a home switch that is mounted at one end of the travel range. The switch is actuated by the axis during homing, the position reference to the axis zero point is established by the next reference mark of the encoder the axis passes. The distance between home switch and reference mark mustn't fall below a minimum value. Otherwise, depending on the situation, it may not be the next reference mark that is recognized after the home switch signal, but only the reference mark after the next. This would not allow establishing an unequivocally reproducible zero point reference to the axis; the distance between home switch and reference mark is therefore monitored by the drive.

#### Monitoring

- The optimum distance between home switch and reference mark is displayed in "S-0-0298, Reference cam shift".
- If the distance is outside of the allowed range, the command "S-0-0148, C0600 Drive-controlled homing procedure command" is terminated with the error "C0602 Distance home switch - reference mark erroneous".

#### Establishing the Regular Status

If the distance is outside of the allowed range, the distance is displayed in this parameter (S-0-0298). The regular status can be established by means of parameter or mechanically:

- Enter the value that is displayed in S-0-0298 in the parameter "S-0-0299, Home switch offset". This causes the effective home switch signal to be shifted with regard to the actually existing one. Or:
- Shift the position of the home switch by the value displayed in S-0-0298.

## Standard Parameters



The settings for home switch, reference mark, encoder and homing procedure are made in "S-0-0147, Homing parameter"!

## S-0-0298 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC. MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 4.3.43 S-0-0299, Home switch offset

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** By means of this parameter it is possible to virtually offset, by a certain distance, the point at which the home switch signal becomes effective with regard to the real switch point. This distance is entered in this parameter.

See also Functional Description "Establishing the Position Data Reference"

**Use** The value for the distance is displayed in "S-0-0298, Reference cam shift", when the "Drive-controlled homing procedure" command is terminated with the "C0602 Distance home switch - reference mark erroneous" error.



It is now only the reference mark after the next reference mark of the encoder that is detected after the home switch signal. This allows establishing an unequivocally reproducible zero point reference to the axis. Depending on the situation, this would not have been possible with the next reference mark!

## S-0-0299 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC. MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 3
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 4.3.44 S-0-0301, Allocation of real-time control bit 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The real-time control bits 1 and 2 can each be directly written to one bit of a parameter in the drive.

- The IDN of the parameter containing the bit to which the real-time control bit 1 is to be written is entered in parameter "S-0-0301".
- The bit number is entered in "S-0-0413, Bit number allocation of real-time control bit 1".

## Standard Parameters



The IDNs of the parameters that can be entered in "S-0-0301" are contained in "S-0-0399, IDN-list of configurable data in signal control word". Command parameters, however, are not possible!

See also Functional Description "Real-Time Control Bit and Real-Time Status Bit"

**Use** The real-time control bits are part of the parameter "S-0-0134, Master control word" and are cyclically ("in real time") sent to the drive, i.e. the real-time control bits can be written to one bit of the assigned parameter at the pulse frequency of SERCOC communication.



- If the respective parameter is not available, the drive reacts with the service channel error message "Invalid data".
- If the respective parameter is available but cannot be written to in phase 4, the drive reacts with the error message "Invalid data".

### S-0-0301 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>	--- / ---			0	
<b>MPC:</b>	--- / ---			0	
<b>MPE:</b>	--- / ---			0	
<b>MPM:</b>	--- / ---			0	

## 4.3.45 S-0-0303, Allocation of real-time control bit 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The real-time control bits 1 and 2 can each be directly written to one bit of a parameter in the drive.

- The IDN of the parameter containing the bit to which the real-time control bit 2 is to be written is entered in parameter S-0-0303.
- The bit number is entered in "S-0-0414, Bit number allocation of real-time control bit 2".



The IDNs of the parameters that can be entered in "S-0-0303" are contained in "S-0-0399, IDN-list of configurable data in signal control word". Command parameters, however, are not possible!

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

**Use** The real-time control bits are part of the parameter "S-0-0134, Master control word" and are cyclically ("in real time") sent to the drive, i.e. the real-time control bits can be written to one bit of the assigned parameter at the pulse frequency of SERCOC communication.

## Standard Parameters



- If the respective parameter is not available, the drive reacts with the service channel error message "Invalid data".
- If the respective parameter is available but cannot be written in phase 4, the drive reacts with the error message "Invalid data".

## S-0-0303 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 4.3.46 S-0-0305, Allocation of real-time status bit 1

## Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»
Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	axis-specific		

## Function

The real-time status bits 1 and 2 allow mapping one bit of a parameter to "S-0-0135, Drive status word" for direct access by a control unit.

- The IDN of the parameter containing the bit to be read by the real-time status bit 1 is entered in parameter "S-0-0305".
- The bit number is entered in "S-0-0415, Bit number allocation of real-time status bit 1".



The IDNs of the parameters that can be entered in "S-0-0305" are contained in "S-0-0398, IDN-list of configurable data in signal status word".

See also Functional Description "Real-Time Control Bit and Real-Time Status Bit"

## Use

The real-time status bits are part of the parameter "S-0-0135, Drive status word" and are cyclically ("in real time") sent by the drive to the master, i.e. one bit of the assigned parameter can be evaluated in the master at the pulse frequency of SERCOC communication.





- If the respective parameter is not available, the drive reacts with the service channel error message "Invalid data".
- If the respective parameter is available but cannot be written to in phase 4, the drive reacts with the error message "Invalid data".

## S-0-0305 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--


Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

#### 4.3.47 S-0-0307, Allocation of real-time status bit 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	The real-time status bits 1 and 2 allow mapping one bit of a parameter to "S-0-0135, Drive status word" for direct access by a control unit.					
	<ul style="list-style-type: none"><li>• The IDN of the parameter containing the bit to be read by the real-time status bit 2 is entered in parameter "S-0-0307".</li><li>• The bit number is entered in "S-0-0416, Bit number allocation of real-time status bit 2".</li></ul>					
	See also Functional Description "Real-Time Control Bit and Real-Time Status Bit"					
Use	<div> The IDNs of the parameters that can be entered in "S-0-0307" are contained in "S-0-0398, IDN-list of configurable data in signal status word".</div>					
	<p>The real-time status bits are part of the parameter "S-0-0135, Drive status word" and are cyclically ("in real time") sent by the drive to the master, i.e. one bit of the assigned parameter can be evaluated in the master at the pulse frequency of SERCOC communication.</p>					
	<div><div></div><ul style="list-style-type: none"><li>• If the respective parameter is not available, the drive reacts with the service channel error message "Invalid data".</li><li>• If the respective parameter is available but cannot be written to in phase 4, the drive reacts with the error message "Invalid data".</li></ul></div>					
S-0-0307 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			0	
	MPC:	--- / ---			0	
	MPE:	--- / ---			0	
	MPM:	--- / ---			0	

#### 4.3.48 S-0-0315, Positioning velocity > nLimit

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	When the positioning velocity with active positioning mode (interpolation, positioning or positioning block mode) has exceeded the limit value indicated in S-0-0091,				
	<ul style="list-style-type: none"><li>• limitation to the value in S-0-0091 takes place in the ramp generator and</li><li>• the message "Positioning velocity &gt; nLimit" is generated, i.e. bit 0 is set in S-0-0315.</li></ul>				



The message bit can be configured, for example, in the signal control word or as real-time status bit!

## Standard Parameters

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation "

See also Functional Description "Status Classes, Status Displays, Control Parameters"

## S-0-0315 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.49 S-0-0323, Target position outside of travel range

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	---				
Funct. package(s):	closed loop				
Device parameter:	axis-specific				

**Function** When the new target position with active positioning mode (interpolation, positioning or positioning block mode) is outside of the position limit values (cf. S-0-0049, S-0-0050) and the drive has been homed,

- the drive generates the warning E2053 Target position out of travel range and
- the message "target position outside of travel range" (i.e. bit 0 in S-0-0323) is generated.



The message bit can be configured, for example, in the signal control word or as real-time status bit!

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Status Classes, Status Displays, Control Parameters"

## S-0-0323 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.50 S-0-0326, Parameter checksum

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	---				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

## Standard Parameters

**Function** When reading this parameter the checksum is generated by all parameter values the IDNs of which are listed in parameter "S-0-0327, IDN list of checksum parameter".

See also Functional Description "Parameters, Basics"

<b>S-0-0326 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.3.51 S-0-0327, IDN list of checksum parameter

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The IDNs of those parameters the checksum of which is to be generated are entered in this parameter. The checksum generation is triggered with the reading of the parameter "S-0-0326, Parameter checksum". In the default status, there haven't any IDNs been entered in parameter S-0-0327.

See also Functional Description "Parameters, Basics"

<b>S-0-0327 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

### 4.3.52 S-0-0328, Assign list signal status word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In this list parameter, the assignment is made as to which bit of the respective parameter entered in "S-0-0026, Configuration list for signal status word" is to be mapped to "S-0-0144, Signal status word".

See also Functional Description "Configurable Signal Status Word"

**Use** The first line of the list contains the number of the bit of the first parameter from the list of S-0-0026 that is mapped in the LSB of S-0-0144. The other lines of the list correspond respectively with the other parameters from the list of S-0-0026 and the more significant bits of S-0-0144.

<b>S-0-0328 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	0 / 31		s. Text		
	MPC:	0 / 31		s. Text		

## Standard Parameters

MPE:	0 / 31	s. Text
MPM:	0 / 31	s. Text

## 4.3.53 S-0-0329, Assign list signal control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In this list parameter, the assignment is made as to which bit of the respective parameter entered in "S-0-0027, Configuration list for signal control word" is written via the signal control word (S-0-0145).

See also Functional Description "Configurable Signal Control Word"

**Use** The first line of the list contains the number of the bit of the first parameter from the list of S-0-0027 that is written with the LSB of S-0-0145. The other lines of the list correspond respectively with the other parameters from the list of S-0-0027 and the more significant bits of S-0-0145.

S-0-0329 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		0 / 31		s. Text	
	MPC:		0 / 31		s. Text	
	MPE:		0 / 31		s. Text	
	MPM:		0 / 31		s. Text	

## 4.3.54 S-0-0330, Status "n\_feedback = n\_command"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter displays whether the actual velocity value has reached the command value within a tolerance window (message "n\_feedback = n\_command"). The tolerance window is defined by threshold values:

Type of threshold	Parameter	Threshold value	Explanation
Absolute threshold	S-0-0157	Value of S-0-0157	Fixed value
Percentage threshold as of MPx-17VRS	S-0-0272	Value of (S-0-0036 + S-0-0037 + P-0-0690) * S-0-0272	Velocity command value percentage

S-0-0157 Velocity window  
 S-0-0272 Velocity window as percentage  
 S-0-0036 Velocity command value  
 S-0-0037 Additive velocity command value  
 P-0-0690 Additive velocity command value, process loop  
 Tab.4-69: *Thresholds for Status "n<sub>feedback</sub> = n<sub>command</sub>"*

**Use** Bit 0 of this parameter becomes "1" if the velocity feedback value n<sub>feedback</sub> (S-0-0040) within the tolerance window is around the resulting velocity command value n<sub>command,res</sub> (S-0-0036 + S-0-0037):

## Standard Parameters

Message	Criterion	Firmware	Explanation
S-0-0330 = "1" (Bit in S-0-0013)	$n_{\text{command, res}} - n_{\text{feedback}} < \pm \text{S-0-0157}$	MPx16VR S	Absolute tolerance window
	$n_{\text{command, res}} - n_{\text{feedback}} < \pm (\text{S-0-0157} +  \text{S-0-0036} + \text{S-0-0037}  * \text{S-0-0272})$	As of MPx17VR S	Absolute plus command-value-percentage tolerance windows

S-0-0157 Velocity window  
S-0-0272 Velocity window as percentage  
S-0-0036 Velocity command value  
S-0-0037 Additive velocity command value  
S-0-0013 Class 3 diagnostics  
 $n_{\text{feedback}}$  S-0-0040, Velocity feedback value  
 $n_{\text{command, res}}$  S-0-0036 + S-0-0037  
*Tab. 4-70: Criteria for Status " $n_{\text{feedback}} = n_{\text{command}}$ "*

See also Functional Description "Status Classes, Status Displays, Control Parameters"

### S-0-0330 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.55 S-0-0331, Status " $n_{\text{feedback}} = 0$ "

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter displays whether the actual velocity value has fallen below a threshold value that can be set, below which the controller recognizes motor or axis standstill (" $n_{\text{feedback}} = 0$ " message).

See also Functional Description "Status Classes, Status Displays, Control Parameters"

**Use** Bit 0 of this parameter becomes "1" when the absolute value of S-0-0040, Velocity feedback value is smaller than the value of S-0-0124, Standstill window. This message also appears in S-0-0013, Class 3 diagnostics.

### S-0-0331 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.56 S-0-0332, Status " $n_{\text{feedback}} < nx$ "

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Standard Parameters

	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		
<b>Function</b>	This parameter displays whether the actual velocity value has fallen below a threshold value that can be set ("n_actual = nx" message).  See also Functional Description "Status Classes, Status Displays, Control Parameters"			
<b>Use</b>	Bit 0 of this parameter becomes "1" when the absolute value of S-0-0040, Velocity feedback value is smaller than the value of S-0-0125, Velocity threshold nx. This message also appears in S-0-0013, Class 3 diagnostics.			
<b>S-0-0332 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
		<b>Format:</b>	BIN	
		<b>Decim. pl.:</b>	0	
		<b>Set-depend.:</b>	--	
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	--- / ---		---
	<b>MPC:</b>	--- / ---		---
	<b>MPE:</b>	--- / ---		---
	<b>MPM:</b>	--- / ---		---

## 4.3.57 S-0-0333, Status "T &gt;= Tx"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter indicates whether the actual torque or force value has exceeded a threshold value ("T >= Tx" message) that can be set.  See also Functional Description "Status Classes, Status Displays, Control Parameters"					
Use	Bit 0 of this parameter becomes "1" when the absolute value of S-0-0084, Torque/force feedback value is greater than or equal to the value of S-0-0126, Torque threshold Tx. This message also appears in S-0-0013, Class 3 diagnostics.					
S-0-0333 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
MPC:			--- / ---	---		
MPE:			--- / ---	---		
MPM:			--- / ---	---		

## 4.3.58 S-0-0334, Status "T &gt;= Tlimit"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter indicates whether the actual torque or force value has reached the limit value ("T >= Tlimit" message). The limit value is generated by the smallest value of <ul style="list-style-type: none"><li>● P-0-0109, Torque/force peak limit</li><li>● S-0-0092, Bipolar torque/force limit value</li><li>● S-0-0082, Torque/force limit value positive</li></ul>				

## Standard Parameters

- S-0-0083, Torque/force limit value negative
- work load-dependent limits by motor and controller.

See also Functional Description "Velocity Limitation"

**Use** Bit 0 of this parameter becomes "1" when the absolute value of S-0-0084, Torque/force feedback value is equal to or greater than the mentioned limit value. The current limit values can be called up via

- P-0-0444, Actual value peak torque limit
- P-0-0442, Actual value torque limit positive (stationary)
- P-0-0443, Actual value torque limit negative (stationary)

This message also appears in S-0-0013, Class 3 diagnostics.

S-0-0334 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.3.59 S-0-0335, Status "n\_command > n\_limit"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter displays when the absolute velocity command value is greater than the velocity limit value that can be set ("n command > n limit" message).

See also Functional Description "Velocity Limitation"

**Use** Bit 0 of this parameter becomes "1", when the absolute value of the resulting velocity command value (S-0-0036 + S-0-0037) is greater than the value of S-0-0091, Bipolar velocity limit value.

This message also appears in S-0-0013, Class 3 diagnostics.

S-0-0335 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.3.60 S-0-0336, Status "In position"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** If an operation mode with internal position control has been activated in the drive, this parameter is used to map the "In position" message to an individual IDN (bit 0). This allows assigning the status message to a real-time status bit in "S-0-0135, Drive status word".

## Standard Parameters

See also Functional Description "Status Classes, Status Displays, Control Parameters "

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

**Use** The "In position" message (S-0-0336 Bit 0 = 1) is also defined as a bit in class 3 diagnostics (S-0-0013 Bit 6) and is set when the following distance (S-0-0189) is smaller than the position window (S-0-0057).



When the command "position spindle" is executed, the message is set when the spindle is in target position.

**S-0-0336 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.61 S-0-0337, Status "P &gt;= Px"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter indicates whether the absolute value of the actual power value has exceeded a threshold value that can be set ("P >= Px" message). Bit 0 of this parameter becomes "1" when the absolute value of "S-0-0382, DC bus power" is greater than or equal to the value of "S-0-0158, Power threshold Px".

This message also appears in "S-0-0013, Class 3 diagnostics".

**S-0-0337 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.62 S-0-0338, Status "In target position"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** When the drive positions at the active target position S-0-0430, it generates this message if

- the actual position value of the axis is within the position window around the active target position (⇒ In position: "S-0-0336")

and

- the axis has stopped, i.e. the actual velocity is within the S-0-0124, Standstill window (⇒ In standstill: "S-0-0331").

## Standard Parameters



The message bit can be configured, for example, in the signal control word or as real-time status bit! The message is generated after initialization in any status, i.e. also with operation mode not activated!

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

### S-0-0338 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.63 S-0-0341, Status "In coarse position"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter was introduced for the 'In Position coarse' message in order to make the assignment to a real-time status bit (e.g. S-0-0303) possible. The 'In Position coarse' message (S-0-0341 Bit 0 = 1) is also defined as a bit in class 3 diagnostics (S-0-0013 Bit 11) and is set when S-0-0189, Following error is smaller than S-0-0261, Positioning window coarse.

See also Functional Description "Status Classes, Status Displays, Control Parameters "

### S-0-0341 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.64 S-0-0342, Status "Target position attained"

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter displays whether the internally generated position command value has reached the target position.

Bit 0 of this parameter becomes "1" when the command value of the interpolator (P-0-0434, Position command value controller), in the case of drive-controlled positioning processes, has reached the target position (P-0-0050, Effective target position).

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

## Standard Parameters

<b>S-0-0342 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.3.65 S-0-0343, Status "Interpolator halted"

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** Message parameter that, with the value "1", displays the following interpolator (command value generator) states in the "Drive-internal interpolation" and "Drive-controlled positioning" modes:

- velocity command value (P-0-0048) is zero and
- drive-internal position command value (P-0-0434) has not yet reached the target position (S-0-0258 or P-0-0050).



This message signals that the value "0" is written to "S-0-0259, Positioning Velocity" during a positioning process, for example.

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

<b>S-0-0343 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.3.66 S-0-0346, Positioning control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used as control word in all drive-internal positioning modes to control the positioning operation.

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

**Structure** The parameter has the following structure:

Standard Parameters

Bit	Designation/function	Comment
0	<b>Acceptance of positioning command value</b> Applied by toggling	
2/1	<b>Activation of positioning</b> 00: Positioning active, started by toggling of bit 0 <b>Positioning aborted by:</b> 01: Infinite travel in positive direction (jog+) 10: Infinite travel in negative direction (jog-) 11: Stopping the axis (positioning stop)	
3	<b>Kind of positioning command value</b> 0: Absolute 1: Relative (depending on bit 4)	Has no effect in positioning block mode
4	<b>Dedicated point for positioning command values</b> 0: Last effective target position (S-0-0430) 1: Active position feedback value (S-0-0386)	Has no effect in positioning block mode
5	<b>Immediate block change</b> 0: Drive moves to current target position, before positioning at new target position 1: Immediate block change, i.e., drive immediately moves to new target position	Has no effect in positioning block mode
7/6	<b>Behavior for sequential block (bit 5=0)</b> 00: Halt at target position of start block 01: Overrunning target position of start block (mode 1) 10: Overrunning target position of start block (mode 2)	Has no effect in positioning block mode

Tab.4-71: Relevant Bits of S-0-0346, Positioning control word

**Use Bit 0:** Command values or block applied by toggling

- "S-0-0282, Positioning command value during drive-controlled positioning (absolute position)
- ""P-0-4026, Positioning block selection" in positioning block mode, wherein actual application is initiated by 0 → 1 edge of "P-0-4060", bit 0.



Thereafter, "S-0-0419, Positioning command acknowledge" confirms that the command value has been applied.

**Bit 4: Dedicated point for positioning command values**

- **Bit 4 = 0:** Incremental dimension reference is maintained
- Reference for positioning is the previous target position (S-0-0430). Any possibly existing residual path is taken into account in relative positioning (residual path of 20 mm + 100 mm relative target position result in a travel motion of 120 mm).  
⇒ Incremental dimension is maintained in case of successive positioning procedures.
- **Bit 4 = 1:** Incremental dimension reference gets lost.  
Reference for positioning is the current position feedback value (cf. S-0-0386), with the result that any possibly existing residual path is not

## Standard Parameters

traveled (e.g., residual path of 20 mm + 100 mm relative target position result in a travel motion of 100 mm).

⇒ Incremental dimension reference gets lost in case of successive rel. travel blocks!



In the context of absolute positioning procedures, bit 4 only makes sense in connection with special cases, i.e., with command "positive stop drive procedure" or in "modulo mode", and only has to be taken into account in these cases!

### Bit 7/6: Bit 7/6: Behavior in sequential block mode (S-0-0134, bit 5 = 0)

- **00: Intermediate stop** - Block transition with halt at target position of start block
- **01: Mode 1** - Block transition with velocity of start block (target position of the start block is overrun with the velocity of the start block).
- **10: Mode 2** - Block transition with velocity of sequential block (target position of the start block is overrun with the velocity of the sequential block). If required, changes in velocity are carried out as early as during the start block. Switching to the next target position does not occur until the previous target position is overrun.



For field bus drives, some of the bits are already contained in the field bus control word (cf. P-0-4077).

### S-0-0346 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.67 S-0-0347, Velocity error

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The S-0-0347 parameter indicates the difference between velocity command value and actual velocity value in the velocity control loop.

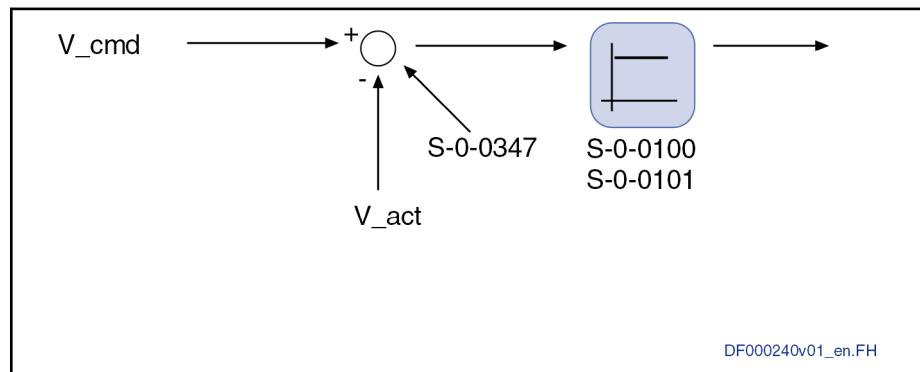


Fig.4-72: S-0-0347, Speed deviation

See also Functional Description "Velocity Loop"

## Standard Parameters

<b>S-0-0347 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.3.68 S-0-0348, Acceleration feedforward gain

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** The acceleration feedforward control reduces the lag error during acceleration in lagless operation.



The acceleration feedforward only takes effect in lagless operation (P-0-0040).

The acceleration command value obtained from double differentiation of the position command value is multiplied with the content of "S-0-0348" and added to the torque/force command value at the velocity loop output.

See also Functional Description "Control Loop Structure"

See also Functional Description "Position Loop"

**Use**



The acceleration feedforward control is activated by entering a value in "S-0-0348" that is greater than "0" (S-0-0348 = 0 ⇒ switched off).

For optimum parameterization of the acceleration feedforward control, the following values have to be entered in "S-0-0348":

- Total mass (motor + load) in kg (linear motor)
- Total mass inertia (motor + load), in relation to the motor output shaft, in  $\text{gm}^2$  (rotary motor)



Depending on the respective mechanical system, the input value of "S-0-0348" has to be adjusted on site.

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor (rotary or linear) entered in "P-0-4014, Type of construction of motor".

- Rotary motor:  $\text{mN} \cdot \text{m} / \text{rad/s}^2 \Rightarrow \text{g} \cdot \text{m}^2$
- Linear motor:  $\text{mN} / \text{mm/s}^2 \Rightarrow \text{kg}$

<b>S-0-0348 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	$\text{mNm}/(\text{rad/s}^2)$	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	0,0000 / 214748,3647		0,0000		
	MPC:	0,0000 / 214748,3647		0,0000		
	MPE:	0,0000 / 214748,3647		0,0000		
	MPM:	0,0000 / 214748,3647		0,0000		

## Standard Parameters

## 4.3.69 S-0-0349, Bipolar jerk limit

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The bipolar jerk limit value, in the operation modes listed below, describes the maximum allowed acceleration change per time (= jerk), symmetrically in both directions (acceleration and deceleration).

The limit value takes effect in the following operation modes:

- Position control
- Drive-internal interpolation
- Drive-controlled positioning



The bipolar jerk limit value limits the change in acceleration per time for "Drive Halt", the error reaction quick stop (velocity command value reset with filter and ramp) and the commands that are generating their own position command values. The value "0" switches the jerk filter off!

See also Functional Description "Establishing the Position Data Reference"

See also Functional Description "Spindle Positioning"

See also Functional Description "Drive Halt"

S-0-0349 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
	<b>Input</b>	<b>min./max.</b>				<b>Default value</b>
	<b>MPB:</b>	S-0-0160 / S-0-0160				0,000
	<b>MPC:</b>	S-0-0160 / S-0-0160				0,000
	<b>MPE:</b>	S-0-0160 / S-0-0160				0,000
	<b>MPM:</b>	S-0-0160 / S-0-0160				0,000

## 4.3.70 S-0-0359, Positioning deceleration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** By this parameter the maximum deceleration at which to move to the target position ("S-0-0258, Target position" or "S-0-0282, Positioning command value") is preset for the drive in the "drive-internal interpolation" and "drive-controlled positioning" modes.

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

**Use** The internally generated position command value sequence, apart from the positioning acceleration (S-0-0260) or deceleration (S-0-0359), takes the maximum positioning velocity (S-0-0259), the maximum positioning jerk (S-0-0193) and the feedrate override (S-0-0108) into consideration.

## Standard Parameters



The acceleration is limited to the value of "S-0-0138, Bipolar acceleration limit value". The value of parameter "S-0-0359, Positioning deceleration" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter "S-0-0138" will take effect.

### S-0-0359 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0160 / S-0-0160		1000,000		
<b>MPC:</b>	S-0-0160 / S-0-0160		1000,000		
<b>MPE:</b>	S-0-0160 / S-0-0160		1000,000		
<b>MPM:</b>	S-0-0160 / S-0-0160		1000,000		

## 4.3.71 S-0-0360, Data container A: Command value 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In parameter "S-0-0360, Data container A: Command value 1", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0370 Data container A: Configuration list command value-1".

If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0360, Data container A: Command value 1" is used. In order to use the data container, the parameter S-0-0360 has to be entered in the list of cyclic data in phase 2 or PM.

See also Functional Description "Multiplex Channel"

### S-0-0360 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 4.3.72 S-0-0362, Data container A: List index command values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter contains the list index by means of which it is possible to access individual list elements configured in "data container A: configuration list command value-x".

It is thereby possible with the multiplex channel to write individual elements of a list via an index in a controlled way. The parameter S-0-0362, Data container A: list index command values can, depending on the requirements, be con-

## Standard Parameters

figured in the cyclic command values or write accessed via the non-cyclical data channel or some other interface.



The parameter becomes effective only if a list parameter is addressed via S-0-0368, Data container A: addressing.

See also Functional Description "Multiplex Channel"

## S-0-0362 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.73 S-0-0364, Data container A: Feedback value 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** To parameter "S-0-0364, Data container A: Feedback value 1", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0371, Data container A: Configuration list feedback value -1".

See also Functional Description "Multiplex Channel"

**Use** If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0364, Data container A: Feedback value 1". In order to use the data container, the parameter S-0-0364 has to be entered in the list of cyclic data in phase 2 or PM.

## S-0-0364 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.74 S-0-0366, Data container A: List index feedback values

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains the list index by means of which it is possible to access individual list elements configured in "data container A: configuration list feedback value-x".

See also Functional Description "Multiplex Channel"

**Use** It is thereby possible with the multiplex channel to read individual elements of a list via an index in a controlled way. The parameter S-0-0366, Data container A: list index feedback values can, depending on the requirements, be configured in the cyclic command values or write accessed via the non-cyclical data channel or some other interface.

## Standard Parameters



The parameter becomes effective only if a list parameter is addressed via S-0-0368, Data container A: addressing.

### S-0-0366 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>	--- / ---			---	
<b>MPC:</b>	--- / ---			---	
<b>MPE:</b>	--- / ---			---	
<b>MPM:</b>	--- / ---			---	

## 4.3.75 S-0-0368, Data container A: Addressing

### Allocation

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

### Function

This parameter contains the indices by means of which the parameter lists "data container A: configuration list command value-x" and "data container A: configuration list feedback value-x" are accessed. This defines the content of the two data containers "data container A: configuration list command value-x" and "data container A: configuration list feedback value-x". Only bits 0...4 (for command values) and 8...12 (for actual values) are used for addressing; the other bits are cut off.

See also Functional Description "Multiplex Channel"

### Structure

Bit	Designation/function	Comment
<b>0-4</b>	addressing for command values	
<b>8-12</b>	addressing for actual values	

Tab.4-73: S-0-0368, Data container A: addressing



If the indicated index is greater than the number of elements in the respective list, the warning "E4008 Invalid addressing command value data container A" or "E4009 Invalid addressing actual value data container A" is generated.



The parameter "S-0-0368, Data container A: addressing" can, depending on the requirements, be configured in the cyclic command values or write accessed via the non-cyclical data channel or some other interface.

### S-0-0368 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>	--- / ---			---	
<b>MPC:</b>	--- / ---			---	
<b>MPE:</b>	--- / ---			---	
<b>MPM:</b>	--- / ---			---	

## 4.3.76 S-0-0370, Data container A: Configuration list command value-1

### Allocation

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»

## Standard Parameters

	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			
<b>Function</b>	Parameter "S-0-0370, Data container A:Configuration list command value -1", serves to enter the IDNs which are transmitted in "S-0-0360, Data container A:Command value 1" depending on the index in "S-0-0368, Data container A:Addressing", low byte. Writing to S-0-0370 is only possible in communication phase 2.				
	See also Functional Description "Multiplex Channel"				
<b>Use</b>	A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0370" are contained in the list "S-0-0188, List of configurable data in the MDT". If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.				



A maximum of 32 IDNs can be configured in S-0-0370.

## S-0-0370 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		s. Text		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

## 4.3.77 S-0-0371, Data container A: Configuration list feedback value-1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Parameter "S-0-0371" serves to enter the IDNs which are transmitted in "S-0-0364, Data container A: Feedback value 1" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0371 is only possible in communication phase 2.  See also Functional Description "Multiplex Channel"				
Use	A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0371" are contained in the list "S-0-0187, List of configurable data in the AT".  If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.				



A maximum of 32 IDNs can be configured in S-0-0371.

## S-0-0371 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		s. Text		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

## 4.3.78 S-0-0372, Drive Halt acceleration bipolar

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In this parameter is set, with which maximum deceleration value a drive is shut down with

- Speed command value reset with ramp
- Drive Halt

See also Functional Description "Drive Halt"

See also Functional Description: "Best Possible Deceleration"

**Use** Additionally, the value of this parameter acts as maximum acceleration or deceleration in spindle positioning process (C0900 Position spindle procedure command).



The acceleration is limited to the value of "S-0-0138, Bipolar acceleration limit value". The value of parameter "S-0-0372, Drive Halt acceleration bipolar" should always be smaller than the value of the parameter "S-0-0138", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter "S-0-0138" will take effect.

### S-0-0372 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0160 / S-0-0160		10000,000		
<b>MPC:</b>	S-0-0160 / S-0-0160		10000,000		
<b>MPE:</b>	S-0-0160 / S-0-0160		10000,000		
<b>MPM:</b>	S-0-0160 / S-0-0160		10000,000		

## 4.3.79 S-0-0375, Diagnostic numbers list

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The drive enters any change of parameter "S-0-0390, Diagnostic message number" in this list. The list is organized as a ring buffer with a maximum of 50 diagnostic message numbers. When the list is read, the last diagnostic message number displayed is displayed in the 1st element of the parameter.



The list from "P-0-0105, Time stamp for list of diagnostic message numbers" corresponds with the parameter "S-0-0375". The diagnostic message numbers relating to the respective point of time are each entered in the same line respectively.

See also Functional Description "Diagnostic System"

### S-0-0375 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input					
MPB:	min./max.				Default value
MPC:	--- / ---				---
MPE:	--- / ---				---
MPM:	--- / ---				---

## 4.3.80 S-0-0378, Absolute encoder range of motor encoder

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter indicates the "S-0-0278, Maximum travel range" that can be selected so that an absolute motor encoder can be evaluated in absolute form.

See also Functional Description "Absolute Measuring Systems"

**Use** If the encoder position exceeds this maximum travel range, bit 6 in the position feedback type parameter "S-0-0277" is set to zero. The position feedback value displayed is no longer unique and the reference of the motor encoder is cleared. The reference status of the position encoders connected to the drive is displayed in parameter "S-0-0403, Position feedback value status".



For **MSM motors**, the parameter is used as input parameter to distinguish between single-turn and multi-turn encoders. If the value entered in the parameterized scaling system is greater than one encoder revolution, evaluation as a multi-turn encoder takes place with monitoring of the battery voltage. Otherwise, evaluation as a single-turn encoder takes place and battery voltage monitoring is switched off.

See also Functional Description "Absolute Measuring Systems"

S-0-0378 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.				Default value
	MPB:	S-0-0076 / S-0-0076				360,0000
	MPC:	S-0-0076 / S-0-0076				360,0000
	MPE:	S-0-0076 / S-0-0076				360,0000
	MPM:	S-0-0076 / S-0-0076				360,0000

## 4.3.81 S-0-0379, Absolute encoder range of optional encoder

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter indicates the "S-0-0278, Maximum travel range" that can be selected so that an absolute external (optional) encoder can be evaluated in absolute form.

See also Functional Description "Absolute Measuring Systems"

**Use** If "S-0-0278, Maximum travel range" exceeds the absolute encoder range, bit 6 in "S-0-0115, Position feedback 2 type" is set to zero. The position feed-

## Standard Parameters

back value displayed is no longer unique and the reference of the external encoder is cleared. The reference status of the position encoders connected to the drive is displayed in parameter "S-0-0403, Position feedback value status".

<b>S-0-0379 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	S-0-0076 / S-0-0076		---	
		MPC:	S-0-0076 / S-0-0076		---	
		MPE:	S-0-0076 / S-0-0076		---	
		MPM:	S-0-0076 / S-0-0076		---	

### 4.3.82 S-0-0380, DC bus voltage

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameter is used to display the DC bus voltage currently measured.					
S-0-0380 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 4.3.83 S-0-0381, DC bus current

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameters serves to display the currently measured electric current which the rectifier supplies into the DC bus.					
S-0-0381 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	A	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 4.3.84 S-0-0382, DC bus power

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter displays the DC bus power currently demanded by the motor.				

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<b>S-0-0382 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	W	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.3.85 S-0-0383, Motor temperature

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter indicates the measured value of the temperature in the winding of the motor, if the temperature sensor incorporated in the motor allows analog temperature evaluation!



If "P-0-0512, Temperature sensor" contains the value "1" or "4", the actual motor temperature cannot be deduced from the displayed value due to the temperature sensor characteristic (switching performance).

See also Functional Description "Motor Temperature Monitoring"

<b>S-0-0383 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0208	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.3.86 S-0-0384, Amplifier temperature

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Display parameter for the measured temperature of the controller power output stage (heat sink temperature).

<b>S-0-0384 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0208	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.3.87 S-0-0385, Motor power

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			



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Diagnostic message text in "S-0-0095": "F2174 Loss of motor encoder reference"

->

Diagnostic number in "S-0-0390" (up to MPx-17VRS): 0xF2174 (hex)

Diagnostic number in "S-0-0390" (as of MPx-18VRS): 0xC00F2174 (hex)

In case of multi-axis firmware, the parameter is available once for each axis.

See Functional Description "Coded Diagnostic Messages of the Drive"

<b>S-0-0390 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 4.3.90 S-0-0391, Monitoring window feedback 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	closed loop		
		<b>Device parameter:</b>	axis-specific		

**Function** With this parameter, the maximum allowed deviation of the position values of motor encoder and external encoder is defined ((S-0-0051, Position feedback value 1, S-0-0053, Position feedback value 2).

If this value is exceeded, the error message "Excessive position feedback difference" is generated. The monitoring is only then active, when both encoders are homed. The monitoring can be switched off, while the parameter is written with the value "0".

See also Functional Description "Monitoring of Measuring Systems"

<b>S-0-0391 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	S-0-0076 / S-0-0076		0,0000	
		MPC:	S-0-0076 / S-0-0076		0,0000	
		MPE:	S-0-0076 / S-0-0076		0,0000	
		MPM:	S-0-0076 / S-0-0076		0,0000	

## 4.3.91 S-0-0393, Command value mode

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	closed loop		
		<b>Device parameter:</b>	axis-specific		

**Function** This parameter is used as control word for positioning.

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

Standard Parameters

Structure	Bit	Designation/function	Comment
	1/0	<b>Mode</b> <b>00:</b> Positive direction The only direction of rotation allowed for jogging and positioning (relative/absolute) is in positive direction (see also F2059 Incorrect command value direction when positioning) <b>01:</b> Negative direction The only direction of rotation allowed for jogging and positioning (relative/absolute) is in negative direction (see also F2059 Incorrect command value direction when positioning) <b>10:</b> Shortest distance Both positive and negative directions of rotation are allowed for jogging and positioning (relative/absolute). <b>Note:</b> If, when a positioning mode is activated, the current travel direction or direction of rotation is opposed to the direction (positive / negative) parameterized in "S-0-0393, Command value mode", error F2059 is not generated. In this case, the axis decelerates with the parameterized deceleration. <b>Note:</b> Bit 1/0 has an effect on the direction of rotation of "modulo-scaled axes" during homing.	
	2	<b>Command value reference when operation mode activated</b> <b>0:</b> Reference for positioning is current actual position <b>1:</b> Reference for positioning is the content of "S-0-0430, Effective target position" (residual path processing)	

Tab.4-74: Structure of Parameter S-0-0393

**Use** Use with regard to "Modulo axes"

This parameter defines the sense of rotation of a "modulo axis" in the case of drive-controlled positioning processes.

"Modulo axes" are, for example, circular tables, spindles etc that, due to their mechanical structure, do not have any travel range limits and can turn "endlessly". After one axis revolution, the actual position value of the "modulo axis" is repeated in relation to the home point. Due to this mechanical property, a mode for positioning processes must be defined because a target position can be reached in both directions of rotation or over a longer or shorter distance.



The position data format must be "modulo" (S-0-0076, Position data scaling type).

**Residual path processing**

The following sections describe some special cases regarding residual path processing:

- If residual path processing is active, the drive, after the operation mode has been activated, travels the residual path without repeated command value acceptance if "S-0-0430" is applicable and the axis has been homed.

## Standard Parameters



When the control voltage is switched off, the content of "S-0-0430" is automatically saved and restored when the drive is switched on again.

- If drive-internal positioning is aborted by jogging or stopping the positioning process (S-0-0346; bit 2/1 = 11), the new positioning command value, too, is not applied before bit 0 in "S-0-0346" is toggled the next time. Any possibly existing residual path from the previous positioning process is cleared. When jogging and stopping the positioning process, the current values of "S-0-0259, Positioning velocity" and "S-0-0260, Positioning acceleration" or "S-0-0359, Positioning deceleration" are active.
- Residual path processing in the case of repeated activation of the operation mode is only carried out when bit 2 = 1 and the axis has remained homed since the last positioning.

## S-0-0393 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0x7	0x2
MPC:	0x0 / 0x7	0x2
MPE:	0x0 / 0x7	0x2
MPM:	0x0 / 0x7	0x2

## 4.3.92 S-0-0398, IDN-list of configurable data in signal status word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Func. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains the IDNs of those parameters that can be entered (configured) in "S-0-0026, Configuration list signal status word" or "S-0-1050.x.20, SIII-Connection: IDN allocation of real-time bit".

See also Functional Description "Digital Inputs/Outputs"

**Use** S-0-0026 is a list with a maximum of 16 parameter IDNs, one bit of each is to be mapped to "S-0-0144, Signal status word". The assignment with regard to which bit of the respective parameter is mapped to S-0-0144 is made in "S-0-0328, Assign list signal status word".

S-0-1050.x.20 is a list with a maximum of 2 parameter IDNs of which one bit each is to be mapped to the connection control (C-Con). The assignment with regard to which bit of the respective parameter is mapped to S-0-1050.x.20 is made in "S-0-1050.x.21, SIII-Connection: Bit allocation of real-time bit".

## S-0-0398 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.3.93 S-0-0399, IDN-list of configurable data in signal control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

See also Functional Description "Digital Inputs/Outputs"

S-0-1050.x.20 is a list with a maximum of 2 parameter IDNs of which one bit each is to be mapped to the connection control (C-Con). The assignment with regard to which bit of the respective parameter is mapped to S-0-1050.x.20 is made in "S-0-1050.x.21, SIII-Connection: Bit allocation of real-time bit".

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

#### 4.3.94 S-0-0400. Home switch

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
Device parameter:	axis-specific				

**Function** The switch status of the home switch connected to the controller is mapped in this parameter.

See also Functional Description "Establishing Position Data Reference for Relative Measuring Systems"

## Structure

Bit	Designation/function	Comment
0	<b>home switch</b> <b>0:</b> not activated (0V) <b>1:</b> activated (24V)	

Tab.4-75: Relevant bits of "S-0-0400, Home switch"



- By means of this parameter, the switch status of the home switch can be assigned to a real-time status bit, for example!
- To evaluate the home switch, S-0-0400 must be assigned to the digital input in "P-0-0300, Digital I/Os, assignment list" provided for this purpose, "P-0-0301, Digital I/Os, bit numbers" must be set accordingly!

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---

## Standard Parameters

MPC:	---	/	---	---
MPE:	---	/	---	---
MPM:	---	/	---	---

## 4.4 S-0-0401 to S-0-1830 Standard Parameters

## 4.4.1 S-0-0401, Probe 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter displays the switch status of the probe 1 input signal.

**Prerequisite:**

- "S-0-0170, Probing cycle procedure command" must have been set and be executed.

See also Functional Description "Probe Function"

**Structure**

Bit	Designation/function	Comment
0	probe input signal 0: 0 V 1: 24 V	

Tab.4-76: Relevant bits of S-0-0401, Probe 1

S-0-0401 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 4.4.2 S-0-0402, Probe 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter displays the switch status of the probe 2 input signal.

**Prerequisite:**

- "S-0-0170, Probing cycle procedure command" must have been set and be executed.

See also Functional Description "Probe Function"

**Structure**

Bit	Designation/function	Comment
0	probe input signal 0: 0 V 1: 24 V	

Tab.4-77: Relevant bits of S-0-0402, Probe 2

## Standard Parameters

<b>S-0-0402 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 4.4.3 S-0-0403, Position feedback value status

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
		<b>Device parameter:</b> axis-specific			

**Function** This parameter displays the status messages of the position feedback values of the connected encoders. In bit 0, it additionally displays the position status of the encoder declared via bit 3 of "S-0-0147, Homing parameter".

See also Functional Description "Establishing the Position Data Reference"

#### Structure

Bit	Designation/function	Comment
<b>0</b>	Status of position feedback value of reference encoder (encoder 1 or 2) 0: Relative 1: Homed	
<b>1</b>	<b>Status of motor encoder</b> S-0-0051, Position feedback value 1 0: Relative 1: Homed	
<b>2</b>	<b>Status of ext. encoder</b> S-0-0053, Position feedback value 2 0: Relative 1: Homed	

Tab.4-78: Relevant Bits of S-0-0403

**Use** If the drive reacts to commands "S-0-0148, C0600 Drive-controlled homing procedure command" or "S-0-0447, C0300 Set absolute position procedure command", bit 0 is reset when these commands are started (value "0"), after the respective command reaction is successfully completed, bit 0 is set again (value "1").

If devices are provided with a SERCOS interface, the status message of the position feedback values can be allocated to a real-time status bit and therefore constantly reported to the NC in the drive status.

See also Parameter Description "S-0-0305, Allocation of real-time status bit 1"

<b>S-0-0403 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	

## Standard Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 4.4.4 S-0-0404, Position command value status

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** When the position command value is switched to axis reference, the master sets the position command value status to "homed". This signals to the drive that the master, as of this point of time, refers all position command values to the axis zero point. The master simultaneously enters the new position command value in the cyclic data.

See also Functional Descriptions "Establishing Position Data Reference for Relative Measuring Systems"

**Structure**

Bit	Designation/function	Comment
0	status of position command value 0: relative 1: homed (referring to axis zero point)	

Tab.4-79: Relevant bits of S-0-0404, Position command value status

**S-0-0404 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.5 S-0-0405, Probe 1 enable

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** With this parameter the measurement with probe 1 is enabled (activated).  
The enable mode (single measurement or continuous measurement) is determined in "S-0-0169, Probe control parameter".

The probe enable can be carried out by a real-time control bit of the master control word, for example.

See also Functional Description "Probe Function"

**Structure**

Bit	Designation/function	Comment
0	probe enable 0: no 1: yes	

Tab.4-80: Relevant bits of S-0-0405, Probe 1 enable

**S-0-0405 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN

Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

#### 4.4.6 S-0-0406, Probe 2 enable

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	synchronisation (ELS)				
Device parameter:	axis-specific				

**Function** With this parameter the measurement with probe 2 is enabled (activated).  
The enable mode (single measurement or continuous measurement) is determined in "S-0-0169, Probe control parameter". The probe enable can be carried out by a real-time control bit of the master control word, for example.

See also Functional Description "Probe Function"

**Structure**

Bit	Designation/function	Comment
0	probe enable 0: no 1: yes	

Tab.4-81: Relevant bits of S-0-0406, Probe 2 enable

S-0-0406 - Attributes	Function:	Par	Editable:	OM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

#### 4.4.7 S-0-0407, Homing enable

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	closed loop				
Device parameter:	axis-specific				

**Function** For NC-controlled homing the master-side homing enable is one of the requirements for starting the search for the reference point on the drive side. Via this parameter the homing enable can be assigned to a real-time control bit. The drive only evaluates the homing enable with active command "C4300 NC-controlled homing procedure"!

See also Functional Descriptions "Establishing Position Data Reference for Relative Measuring Systems"

**Structure**

Bit	Designation/function	Comment
0	Homing enable set on master side? 0: no 1: yes	

Tab.4-82: Relevant bits of S-0-0407, Homing enable

## Standard Parameters

<b>S-0-0407 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.4.8 S-0-0408, Reference marker pulse registered

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function For non distance-coded encoders**

The drive only then informs about registration of the reference point reference marks) in this parameter for NC controlled homing procedure, if "S-0-0407, Homing enable" exists on the master side and the reference marks of the encoder was identified. At the same time, the drive stores the non-homed actual position value of the identified marks in "S-0-0173, Marker position A" (motor encoder) or "S-0-0174, Marker position B" (external encoder).

**For distance-coded encoders**

The drive informs for NC controlled homing in this parameter, about the registration of both reference marks of distance-coded encoder, independent from "S-0-0407, Homing enable". The drive stores the non-homed actual position value of both identified reference marks in "S-0-0173, Marker position A" (first identified homing label) or "S-0-0174, Marker position B" (second identified homing label).

**Structure**

Bit	Designation/function	Comment
0	Reference mark(s) registered? 0: No 1: Yes	

Tab.4-83: Relevant Bits



The parameter is only valid during active command "C4300 NC-controlled homing procedure command". This message is not created for drive-controlled homing (C0600)!

<b>S-0-0408 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.4.9 S-0-0409, Probe 1 positive latched

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»

## Standard Parameters

	<b>Hardware</b>	--
	<b>Funct. package(s):</b>	synchronisation (ELS)
	<b>Device parameter:</b>	axis-specific
<b>Function</b>	This parameter displays the measured value acquisitions that were caused by positive edges of the probe 1 input signal.	
	<b>Prerequisite:</b>	
	<ul style="list-style-type: none"> <li>The command "S-0-0170, Probing cycle procedure command" must be active.</li> <li>Bit 0 must be set in S-0-0169, Probe control parameter.</li> <li>Probe 1 enable (S-0-0405) must be present.</li> </ul>	
	See also Functional Description "Probe Function"	
<b>Use</b>	<p>The respective measured value is stored in "S-0-0130, Probe value 1 positive edge". If "single measurement" has been set for the enable mode of probe 1 in "S-0-0169, Probe control parameter", bit 0 of S-0-0409 changes from "0" to "1" when a measured value is acquired.</p> <p>If "continuous measurement" has been set, the number of previous measured value acquisitions since the activation of the command is displayed in S-0-0409 in binary form. Bit 0 toggles in the case of each new measured value acquisition. The drive clears the count when:</p> <ul style="list-style-type: none"> <li>the control unit clears the command "S-0-0170, Probing cycle procedure command" or</li> <li>sets "S-0-0405, Probe 1 enable" from "1" to "0".</li> </ul>	



The measured value acquisitions can be directly recognized by the control unit by assignment to the real-time status bits!

### S-0-0409 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

## 4.4.10 S-0-0410, Probe 1 negative latched

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			
Function	This parameter displays the measured value acquisitions that were caused by negative edges of the probe 1 input signal.				
	Prerequisite:				
	<ul style="list-style-type: none"><li>• "S-0-0170, Probing cycle procedure command" must be active</li><li>• "S-0-0169, Probe control parameter" bit 1 must be set</li><li>• "S-0-0405, Probe 1 enable" must exist</li></ul>				
	See also Functional Description "Probe Function"				
Use	The respective measured value is stored in "S-0-0131, Probe value 1 negative edge". If "single measurement" has been set for the enable mode of probe 1 in "S-0-0169, Probe control parameter", bit 0 of "S-0-0410" changes from "0" to "1" when a measured value is acquired.				

## Standard Parameters

If "continuous measurement" has been set, the number of previous measured value acquisitions since the activation of the command is displayed in "S-0-0410" in binary form. Bit 0 toggles in the case of each new measured value acquisition.

The drive clears the count when the control unit clears "S-0-0170, Probing cycle procedure command" or sets "S-0-0405, Probe 1 enable" from "1" to "0".



The measured value acquisitions can be directly recognized by the control unit by assignment to the real-time status bits.

## S-0-0410 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.11 S-0-0411, Probe 2 positive latched

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter displays the measured value acquisitions that were caused by positive edges of the probe 2 input signal.

**Prerequisite:**

- "S-0-0170, Probing cycle procedure command" must be active.
- Bit 2 must be set in "S-0-0169, Probe control parameter".
- The probe 2 enable (S-0-0406) must exist.

See also Functional Description "Probe Function"

**Use** The respective measured value is stored in "S-0-0132, Probe value 2 positive edge".

If "single measurement" has been set for the enable mode of probe 1 in "S-0-0169", bit 0 of "S-0-0411" changes from "0" to "1" when a measured value is acquired.

If "continuous measurement" has been set, the number of previous measured value acquisitions since the activation of the command is displayed in "S-0-0411" in binary form. Bit 0 toggles in the case of each new measured value acquisition. The drive clears the count when:

- the control unit clears the command "S-0-0170, Probing cycle procedure command" or
- sets "S-0-0406, Probe 2 enable" from "1" to "0".



The measured value acquisitions can be directly recognized by the control unit by assignment to the real-time status bits!

## S-0-0411 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 4.4.12 S-0-0412, Probe 2 negative latched

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter displays the measured value acquisitions that were caused by negative edges of the probe 2 input signal.

#### Prerequisite:

- "S-0-0170, Probing cycle procedure command" must be active.
- Bit 3 must be set in "S-0-0169, Probe control parameter".
- The probe 2 enable (S-0-0406) must exist.

See also Functional Description "Probe Function"

**Use** The respective measured value is stored in "S-0-0133, Probe value 2 negative edge".

If "single measurement" has been set for the enable mode of probe 1 in "S-0-0169", bit 0 of "S-0-0412" changes from "0" to "1" when a measured value is acquired.

If "continuous measurement" has been set, the number of previous measured value acquisitions since the activation of the command is displayed in "S-0-0412" in binary form. Bit 0 toggles in the case of each new measured value acquisition.

The drive clears the count when:

- the control unit clears the command "S-0-0170, Probing cycle procedure command" or
- sets "S-0-0406, Probe 2 enable" from "1" to "0".



The measured value acquisitions can be directly recognized by the control unit by assignment to the real-time status bits!

#### S-0-0412 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 4.4.13 S-0-0413, Bit number allocation of real-time control bit 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** By means of the real-time control bits 1 and 2 it is possible to directly write, at each case, one bit of a parameter in the drive.

## Standard Parameters

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

**Use** The IDN of the parameter that contains the bit to be written by the real-time control bit 1 is entered in "S-0-0301, Allocation of real-time control bit 1", the bit number is entered in this parameter.

The real time control bits are part of the master control word (S-0-0134) and are cyclically ("in real time") sent to the drive, i.e. in the clock of the SERCOS communication one bit of the assigned parameter can be written.

<b>S-0-0413 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0 / 15	0
MPC:	0 / 15	0
MPE:	0 / 15	0
MPM:	0 / 15	0

#### 4.4.14 S-0-0414, Bit number allocation of real-time control bit 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** By means of the real-time control bits 1 and 2 it is possible to directly write, at each case, one bit of a parameter in the drive.

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

**Use** The IDN of the parameter that contains the bit to be written by the real-time control bit 2 is entered in "S-0-0303, Allocation of real-time control bit 2", the bit number is entered in this parameter.

The real time control bits are part of the master control word (S-0-0134) and are cyclically ("in real time") sent to the drive, i.e. in the clock of the SERCOS communication one bit of the assigned parameter can be written.

<b>S-0-0414 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0 / 15	0
MPC:	0 / 15	0
MPE:	0 / 15	0
MPM:	0 / 15	0

#### 4.4.15 S-0-0415, Bit number allocation of real-time status bit 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** By means of the real-time status bits 1 and 2 it is possible to map a parameter bit for direct access by a control unit.

Via "S-0-0415, Bit number allocation of real-time status bit 1" it is possible to select the bit number of the desired bit of a parameter.

## Standard Parameters



The respective IDN of the parameter is entered in parameter S-0-0305.

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

### S-0-0415 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0 / 15	0
MPC:	0 / 15	0
MPE:	0 / 15	0
MPM:	0 / 15	0

## 4.4.16 S-0-0416, Bit number allocation of real-time status bit 2

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** By means of the real-time status bits 1 and 2 it is possible to map a parameter bit for direct access by a control unit.

Via "S-0-0416, Bit number allocation of real-time status bit 2" it is possible to select the bit number of the desired bit of a parameter.



The respective IDN of the parameter is entered in parameter S-0-0307.

See also Functional Description "Real-Time Control Bits and Real-Time Status Bits"

### S-0-0416 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0 / 15	0
MPC:	0 / 15	0
MPE:	0 / 15	0
MPM:	0 / 15	0

## 4.4.17 S-0-0417, Positioning velocity threshold in modulo mode

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter can be used to define a threshold value for the actual velocity in drive-internal interpolation and drive-controlled positioning modes.

If the actual velocity is above the threshold value, the drive moves to a target position without reversing even if the definition in "S-0-0393, Command value mode" should cause reversing.

**Prerequisite:** The position data format must be "modulo" (S-0-0076, Position data scaling type).

## Standard Parameters



If a value of "0" is entered, the velocity threshold is deactivated, i.e., the drive moves to the target position as defined in "S-0-0393" or in "S-0-0154" (Spindle positioning parameter).

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Spindle Positioning"

## S-0-0417 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0044 / S-0-0044		20,0000		
<b>MPC:</b>	S-0-0044 / S-0-0044		20,0000		
<b>MPE:</b>	S-0-0044 / S-0-0044		20,0000		
<b>MPM:</b>	S-0-0044 / S-0-0044		20,0000		

## 4.4.18 S-0-0418, Target position window in modulo mode

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter can be used to define a symmetrical position range relative to the current position (target position window). Within the symmetrical position range, it is always possible to move to a target position over the shortest distance even if only one direction of movement has been determined for positioning in "S-0-0393, Command value mode" or "S-0-0154, Spindle positioning parameter".

**Prerequisite:** The position data format must be "modulo" (S-0-0076, Position data scaling type).



If a value of "0" is entered, the target position window is deactivated, i.e., the drive always moves to the target position as defined in "S-0-0393" or in "S-0-0154".

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Spindle Positioning"

## S-0-0418 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 4.4.19 S-0-0419, Positioning command acknowledge

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			

## Standard Parameters

	<b>Funct. package(s):</b>	closed loop		
	<b>Device parameter:</b>	axis-specific		
<b>Function</b>	In the "Drive-controlled positioning" mode the parameter is used to acknowledge the positioning command value acceptance. See also Functional Description "Drive-Controlled Positioning" See also Functional Description "Positioning Block Mode"			
<b>Use</b>	The acceptance is acknowledged at the time a new value of "S-0-0282, Positioning command value" is accepted in "S-0-0430, Effective target position" which is the time of acceptance in the internal position command value generator.  If bit 5 = 0 in parameter "S-0-0346, Positioning control word", the acknowledge only takes place after the drive moved to the previous preset positioning value and the message "target position reached" (cf. S-0-0437, bit 0) was set.			
<b>S-0-0419 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
			<b>Format:</b>	BIN
			<b>Decim. pl.:</b>	0
			<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	--- / ---		---
	<b>MPC:</b>	--- / ---		---
	<b>MPE:</b>	--- / ---		---
	<b>MPM:</b>	--- / ---		---

### 4.4.20 S-0-0420, C0400 Activate parameterization level procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	When this command is started, the axis is moved to "parameterization level 1". To achieve this, the cyclically running axis functions (encoder evaluation, motor temperature monitoring, analog signal processing, etc.) are stopped. The reference of the axis-related position encoders is deleted.  The command cannot be executed if the axis is in "AF".					
S-0-0420 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

### 4.4.21 S-0-0422, C0200 Exit parameterization level procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Starting this command brings the drive from "parameterization level 1" to the operating mode. The axis-specific parameter conversions and initializations are carried out.  See also Functional Description "Drive Initialization"				

## Standard Parameters

<b>S-0-0422 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.22 S-0-0423, IDN-list of invalid data for parameterization levels

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** By starting the command "C0200 Exit parameterization level procedure command", the drive parameters are checked and converted. If an error occurs while this is done, the respective parameters will appear in this list. This is also used by other drive commands to display faulty parameter.

See also Functional Description ""Basic Functions of Master Communication"":

<b>S-0-0423 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.23 S-0-0424, Status parameterization level

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Status parameter displaying the current parameterization level:

0: operating mode

1: parameter mode; parameterization level 1 is active

See also Functional Description "Basic Functions of Master Communication"

<b>S-0-0424 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.24 S-0-0425, Sub-device state machine control

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			

## Standard Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** The parameter determines the functions and the behavior of the subdevice state machine.

### Structure

Bit	Designation/function	Comment
0	<p><b>Linkage of the subdevice state machine with sercos state machine</b></p> <p><b>0: Linked</b> - With the phase 4 transition check (S-0-0128), the axis is automatically switched to operating mode (OM). (The communication phase is linked to the axis control. "S-0-0128" internally starts "S-0-0422"). In case the sercos phase returns to "P0", the system is automatically switched to parameter mode (PM). "S-0-0420" is internally started.</p> <p><b>1: Unlinked</b> - Switching of communication phase does not automatically lead to the status change of the subdevice state machine. This bit can be used to unlink the subdevice state machine from the sercos communication state machine.</p>	

Tab.4-84: S-0-0425, Control word subdevice state machine

**Use** Consider the following cases when configuring the bits:

**Bit 0:** If bit 0 is set to 1, the MAC master must switch the subdevice state machine itself. In case of a sercos phase switch, the subdevice always remains in the current state.



Currently, this is a temporary solution. If in case of a sercos phase switch, the subdevice remains in the operating mode (OM), no data cannot be included in the sercos connections. There is no re-check for synchronism of the device timing with the MAC timing (PLL) either.

### S-0-0425 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.25 S-0-0426, Signal selection probe 1

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** In this parameter it is possible to select the parameter the current value of which is to be stored when switching probe 1.

The IDNs of the parameters that can be selected are listed in "S-0-0428, Probe, IDN-list signal selection". It is only possible to select these parameters!

See also Functional Description "Probe Function"

## Standard Parameters

<b>S-0-0426 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		s. Text	
		<b>MPC:</b>	--- / ---		s. Text	
		<b>MPE:</b>	--- / ---		s. Text	
		<b>MPM:</b>	--- / ---		s. Text	

## 4.4.26 S-0-0427, Signal selection probe 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
		<b>Device parameter:</b>	axis-specific		

**Function** In this parameter it is possible to select the parameter the current value of which is to be stored when switching probe 2.

The IDNs of the parameters that can be selected are listed in "S-0-0428, Probe, IDN-list signal selection". It is only possible to select these parameters!

See also Functional Description "Probe Function"

<b>S-0-0427 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		s. Text	
		<b>MPC:</b>	--- / ---		s. Text	
		<b>MPE:</b>	--- / ---		s. Text	
		<b>MPM:</b>	--- / ---		s. Text	

## 4.4.27 S-0-0428, Probe, IDN-list signal selection

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
		<b>Device parameter:</b>	axis-specific		

**Function** This parameter contains a list of IDNs of those parameters the current status value ("measured value") of which can be recorded upon the switch signal of a probe. The measured value is stored in a parameter and is therefore available for the control unit of the machine or installation.

IDN	Signal
S-0-0000	No signal
S-0-0051	Position feedback value 1 (motor encoder)
S-0-0053	Position feedback value 2 (external encoder)
P-0-0052	Actual position value of measuring encoder
P-0-0227	Cam table, access angle
P-0-0753	Position actual value in actual value cycle
P-0-0775	Resulting master axis position
P-0-0776	Effective master axis position

Standard Parameters

IDN	Signal
P-0-0778	Synchronous position command value
P-0-0789	Master axis position, fine-interpolated

Tab.4-85: IDN List With Signal Selection

See also Functional Description "Probe Function"

S-0-0428 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.28 S-0-0429, Emergency halt deceleration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to set the deceleration ramp during the drive-side error reaction. Depending on the settings in "P-0-0119, Best possible deceleration", the emergency halt deceleration is used as reaction to errors of categories F2xxx, F3xxx or F6xxx, F7xxx.

See also Functional Description "Best Possible Deceleration"



The deceleration is limited to the value of "S-0-138, Bipolar acceleration limit value". The value of parameter "S-0-0429, Emergency halt deceleration" should always be smaller than the value of the parameter "S-0-0138, Bipolar acceleration limit value", because otherwise a lag error will build up due to internal control processes. When the value "0" is input for the parameter, the parameter S-0-0138 will take effect.

S-0-0429 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0160 / S-0-0160	0,000
MPC:	S-0-0160 / S-0-0160	0,000
MPE:	S-0-0160 / S-0-0160	0,000
MPM:	S-0-0160 / S-0-0160	0,000

## 4.4.29 S-0-0430, Effective target position

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the operation modes

- drive-controlled positioning
- drive-internal interpolation

## Standard Parameters

- positioning block mode

it is possible to read the current target position (absolute position) via this parameter.

See also Functional Description "Drive-Controlled Positioning"

**Use** In the case of "drive-controlled positioning", depending on the modalities defined in "S-0-0346, Positioning control word", the value in S-0-0430, after an edge change of the positioning command value acceptance bit, corresponds to

- the value of "S-0-0282, Positioning command value", if this value had been defined as the absolute target position.
- the sum of the previous value of S-0-0430 and S-0-0282, if the new target position is referring to the previous target position (S-0-0346, bit 4 = 0).
- the sum of the actual position value S-0-0051 and S-0-0282 at the time of toggling, if the target position is referring to the current actual position value (S-0-0346, bit 4 = 1).



If residual path processing is possible when activating the "drive-controlled positioning" mode again, e.g. after the control voltage is switched on again in the case of axes with absolute measuring system, the effective target position still is contained in S-0-0430 ("non-volatile parameter")!

### S-0-0430 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	RE-TAIN_KUNDE	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	---	
<b>MPC:</b>			--- / ---	---	
<b>MPE:</b>			--- / ---	---	
<b>MPM:</b>			--- / ---	---	

## 4.4.30 S-0-0437, Positioning status

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter contains status bits of the positioning generator that are generated in the operation modes with internal interpolator (target position generator). Such operation modes are, for example, positioning block mode, drive-internal interpolation and drive-controlled positioning.



If the condition for the message is fulfilled, the respective bit changes from 0 to 1!

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

## Standard Parameters

Structure	Bit	Function
	0	Target position reached (S-0-0342) S-0-0430 = P-0-0434 <b>Note:</b> Is only generated with active operation mode!
	1	(  S-0-0258 Target position – S-0-0386, Active position feedback value   < S-0-0057), for drive-internal interpolation mode Is also generated with inactive operation mode!
	2	IN_TARGET POSITION (S-0-0338) =( S-0-0430 - S-0-0386, Active position feedback value   < S-0-0057) &&IN_POSITION (S-0-0336) &&Nfeed-back = 0 (S-0-0331) Is also generated with inactive operation mode!
	3	Interpolator halted (S-0-0343)
	4	Constant command velocity
	5	Drive accelerates
	6	Drive decelerates
	11 - 7	(Reserved)
	12	Jog mode active (see S-0-0346, bits 1 and 2)
	13	Positioning velocity > nLimit (S-0-0315)
	14	Target position outside of travel range (S-0-0323)
	15	(Reserved)

### S-0-0437 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.4.31 S-0-0440, Marker position feedback 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	closed loop				
Device parameter:	axis-specific				

**Function** For a drive with reference mark and with active function "cyclic reference mark detection", the actual position value of the reference mark (zero pulse) is stored in this parameter. This actual position value refers to the "active" coordinate system of the motor encoder.

See also Functional Description "Cyclic Reference Mark Detection"

**Use** A control unit can read the marker position from the drive in the cyclic telegram and this position can then be used internally in the control unit for homing and for encoder monitoring.

When the function is active, the reference mark is permanently evaluated.



The parameter counter marker position feedback 1 (S-0-0442) is incremented with every error-free detection of the reference mark.

## Standard Parameters

<b>S-0-0440 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>	<b>Default value</b>		
		MPB:	--- / ---	---		
		MPC:	--- / ---	---		
		MPE:	--- / ---	---		
		MPM:	--- / ---	---		

## 4.4.32 S-0-0441, Marker position feedback 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	closed loop		
		<b>Device parameter:</b>	axis-specific		

**Function** For a drive with reference mark and with active function "cyclic reference mark detection", the actual position value of the reference mark (zero pulse) is stored in this parameter. This actual position value refers to the "active" coordinate system of the optional encoder.

See also Functional Description "Cyclic Reference Mark Detection"

**Use** A control unit can read the marker position from the drive in the cyclic telegram and this position can then be used internally in the control unit for homing and for encoder monitoring.

When the function is active, the reference mark is permanently evaluated.



The parameter counter marker position feedback 2 (S-0-0443) is incremented with every error-free detection of the reference mark.

<b>S-0-0441 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>	<b>Default value</b>		
		MPB:	--- / ---	---		
		MPC:	--- / ---	---		
		MPE:	--- / ---	---		
		MPM:	--- / ---	---		

## 4.4.33 S-0-0442, Counter marker position feedback 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	closed loop		
		<b>Device parameter:</b>	axis-specific		

**Function** With active function "cyclic reference mark detection", the counter of the marker position is displayed in this parameter. This counter is incremented with every error-free detection of the reference mark of the motor encoder.

See also Functional Description "Cyclic Reference Mark Detection"

**Use** A control unit can read the counter of the marker position from the drive in the cyclic telegram and it can then be used internally in the control unit for evaluating the cyclic marker position.

When the function is active, the counter of the marker position is permanently generated.

## Standard Parameters



The parameter marker position feedback 1 (S-0-0440) was generated again every time the counter was incremented.

### S-0-0442 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.4.34 S-0-0443, Counter marker position feedback 2

### Allocation

Contained in 16VRS:	«MPB»	«-»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	closed loop			
Device parameter:	axis-specific			

### Function

With active function "cyclic reference mark detection", the counter of the marker position is displayed in this parameter. This counter is incremented with every error-free detection of the reference mark of the optional encoder.

See also Functional Description "Cyclic Reference Mark Detection"

### Use

A control unit can read the counter of the marker position from the drive in the cyclic telegram and it can then be used internally in the control unit for evaluating the cyclic marker position.

When the function is active, the counter of the marker position is permanently generated.



The parameter marker position feedback 2 (S-0-0441) was generated again every time the counter was incremented.

### S-0-0443 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.4.35 S-0-0446, Ramp reference velocity for acceleration data

### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

### Function

In the case of the scaling type "ramp time" for the acceleration data "S-0-0160, Acceleration data scaling type", the value of this parameter and the ramp reference time are used as definition values for the reference velocity ramp. The value of S-0-0446 is scaled according to the settings for the scaling of the velocity data "S-0-0044, Velocity data scaling type".

See also Functional Description "Scaling of Physical Data"

### S-0-0446 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

## Standard Parameters

Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0044 / S-0-0044		3000,0000		
MPC:	S-0-0044 / S-0-0044		3000,0000		
MPE:	S-0-0044 / S-0-0044		3000,0000		
MPM:	S-0-0044 / S-0-0044		3000,0000		

## 4.4.36 S-0-0447, C0300 Set absolute position procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** When commissioning an absolute measuring system, its actual position value at first displays an undefined value (possibly the value of P-0-0019), if the command "set absolute position" has not yet been executed.

See also Functional Description "Establishing the Position Data Reference (Set Absolute Position)"

See also Functional Description "Measuring Encoder"

**Use Motor encoder / external encoder**

By means of the command "set absolute position", the actual position value can be set to a desired new value at any position (new reference system). After the end of the command "set absolute position", the actual position value of the respective encoder refers to the new reference system.

The reference bit of the encoder in the parameter "S-0-0403, Position feedback value status" then is "1".

**Measuring encoder**

By means of the command "set absolute position", the internal actual position value of the measuring encoder is set to the value 0 at any position.



The display value of the measuring encoder "P-0-0052, Actual position value of measuring encoder" in additive form always contains the value of the parameter "P-0-0087, Actual position value offset of measuring encoder". This value is not taken into account for "setting absolute position". The display value of the measuring encoder after "set absolute position" is 0 incr. + "P-0-0087, Actual position value offset of measuring encoder".

The reference bit of the measuring encoder in parameter "P-0-0331, Status of measuring encoder" then is "1".

After the end of the command "set absolute position", the actual position value of the respective encoder refers to the new reference system.



The command only acts on the connected absolute measuring system that has been selected in the parameter "S-0-0448, Set absolute position control". It is only possible to select one measuring system at a time.

By means of a backup of all required data of the absolute measuring system in the feedback data memory or parameter data memory, all information will be available every time the machine is switched off and on again. The actual position value retains its reference to the machine zero point.

Standard Parameters

S-0-0447 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input			min./max.	Default value	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 4.4.37 S-0-0448, Set absolute position control

Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	synchronisation (ELS)			
Device parameter:	axis-specific			

Function

In this parameter select the absolute encoder for which the position data reference is to be established. In addition, set whether "S-0-0148, C0600 Drive-controlled homing procedure command" is to be possible with an absolute measuring system in addition to "S-0-0447, C0300 Set absolute position procedure command".

Structure

Bit	Designation/function	Comment
0	Set absolute position for motor encoder 0: No 1: Yes	
1	Set absolute position for external (optional) Encoder 0: No 1: Yes	
2	"S-0-0447, C0300 Set absolute position procedure command" allowed with drive enable ("AF") 0: No 1: Yes	
6-3	Reserved	
7	C0600 Drive-controlled homing procedure command allowed for abs. measuring system (applies to motor encoder and optional (ext.) encoder) 0: No 1: Yes	
8	Set absolute position for measuring encoder 0: No 1: Yes	
15-9	Reserved	

Tab.4-86: Relevant Bits of S-0-0448



Bit 2 does not have any influence on the setting of the absolute position of the measuring encoder!

S-0-0448 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			s. Text	
MPC:	--- / ---			s. Text	
MPE:	--- / ---			s. Text	
MPM:	--- / ---			s. Text	

## 4.4.38 S-0-0450, Data container A: Command value 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	In parameter "S-0-0450, Data container A: Command value 2", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0490, Data container A: Configuration list command value 2". See also Functional Description "Multiplex Channel"					
Use	If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0450, Data container A: Command value 2" is used. In order to use the data container, the parameter S-0-0450 has to be entered in the list of cyclic data in phase 2 or PM.					
S-0-0450 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 4.4.39 S-0-0451, Data container A: Command value 3

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	In parameter "S-0-0451, Data container A: Command value 3", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0491, Data container A: Configuration list command value 3". See also Functional Description "Multiplex Channel"					
Use	If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0451, Data container A: Command value 3" is used. In order to use the data container, the parameter S-0-0451 has to be entered in the list of cyclic data in phase 2 or PM.					
S-0-0451 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			---	---	
	MPC:			---	---	
	MPE:			---	---	
	MPM:			---	---	
				---	---	

#### 4.4.40 S-0-0452, Data container A: Command value 4

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	In parameter "S-0-0452, Data container A: Command value 4", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0492, Data container A: Configuration list command value 4".					
	See also Functional Description "Multiplex Channel"					
Use	If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0452, Data container A: Command value 4" is used. In order to use the data container, the parameter S-0-0452 has to be entered in the list of cyclic data in phase 2 or PM.					
S-0-0452 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

#### 4.4.41 S-0-0453, Data container A: Command value 5

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	In parameter "S-0-0453, Data container A: Command value 5", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0493, Data container A: Configuration list command value 5".					
	See also Functional Description "Multiplex Channel"					
Use	If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0453, Data container A: Command value 5" is used. In order to use the data container, the parameter S-0-0453 has to be entered in the list of cyclic data in phase 2 or PM.					
S-0-0453 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

#### 4.4.42 S-0-0454, Data container A: Command value 6

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Standard Parameters

**Function** In parameter "S-0-0454, Data container A: Command value 6", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0494, Data container A: Configuration list command value 6".

See also Functional Description "Multiplex Channel"

**Use** If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0454, Data container A: Command value 6" is used. In order to use the data container, the parameter S-0-0454 has to be entered in the list of cyclic data in phase 2 or PM.

<b>S-0-0454 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 4.4.43 S-0-0455, Data container A: Command value 7

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** In parameter "S-0-0455, Data container A: Command value 7", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0495, Data container A: Configuration list command value 7".

See also Functional Description "Multiplex Channel"

**Use** If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0455, Data container A: Command value 7" is used. In order to use the data container, the parameter S-0-0455 has to be entered in the list of cyclic data in phase 2 or PM.

<b>S-0-0455 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 4.4.44 S-0-0456, Data container A: Command value 8

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** In parameter "S-0-0456, Data container A: Command value 8", the master transmits the data written in the drive to the target parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0496, Data container A: Configuration list command value 8".

See also Functional Description "Multiplex Channel"

## Standard Parameters

**Use** If a 2-byte target parameter is addressed with 2-byte data, only the low word of "S-0-0456, Data container A: Command value 8" is used. In order to use the data container, the parameter S-0-0456 has to be entered in the list of cyclic data in phase 2 or PM.

<b>S-0-0456 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 4.4.45 S-0-0460, Position switch point 1 "Off"

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	This parameter is used to define the deactivation position for a virtual position-dependent switch (cf. Adjusting the deactivation position by mechanical cams). If the position feedback value (S-0-0051) is higher than the deactivation position, the appropriate bit of "S-0-0059, Position switch flag parameter" indicates zero. Otherwise, it indicates "1" provided the position feedback value has not fallen below the value of "S-0-0060, Position switch point 1 "On"".					
S-0-0460 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		S-0-0076 / S-0-0076		0,0000	
	MPC:		S-0-0076 / S-0-0076		0,0000	
	MPE:		S-0-0076 / S-0-0076		0,0000	
	MPM:		S-0-0076 / S-0-0076		0,0000	

### 4.4.46 S-0-0478, Position/travel range limit status

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter displays the status of position limitation and travel range limit switch monitoring. The status of position limitation and travel range limit switch monitoring is displayed even if monitoring has been deactivated.  See also Functional Description "Position Limitation/Travel Range Limit Switches"				
Structure					
	Bit	Designation/function			Comment
	0	0: Positive position limit value not exceeded 1: Positive position limit value exceeded			
	1	0: Negative position limit value not exceeded 1: Negative position limit value exceeded			

## Standard Parameters

Bit	Designation/function	Comment
2	0: Positive travel range limit switch not exceeded	
	1: Positive travel range limit switch exceeded	
3	0: Negative travel range limit switch not exceeded	
	1: Negative travel range limit switch exceeded	

Tab.4-87: Relevant Bits of P-0-0091, Position/travel range limit status

## S-0-0478 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.47 S-0-0480, Data container A: Feedback value 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** To parameter "S-0-0480, Data container A: Feedback value 2", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0500, Data container A: Configuration list feedback value 2".

If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0480, Data container A: Feedback value 2". In order to use the data container, the parameter S-0-0480 has to be entered in the list of cyclic data in phase 2 or PM.

See also Functional Description "Multiplex Channel"

## S-0-0480 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.48 S-0-0481, Data container A: Feedback value 3

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** To parameter "S-0-0481, Data container A: Feedback value 3", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0501, Data container A: Configuration list feedback value 3".

See also Functional Description "Multiplex Channel"

**Use** If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0481, Data container A: Feedback value 3". In order to use

## Standard Parameters

the data container, the parameter S-0-0481 has to be entered in the list of cyclic data in phase 2 or PM.

<b>S-0-0481 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 4.4.49 S-0-0482, Data container A: Feedback value 4

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	axis-specific		

**Function** To parameter "S-0-0482, Data container A: Feedback value 4", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0502, Data container A: Configuration list feedback value 4".

See also Functional Description "Multiplex Channel"

**Use** If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0482, Data container A: Feedback value 4". In order to use the data container, the parameter S-0-0482 has to be entered in the list of cyclic data in phase 2 or PM.

<b>S-0-0482 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 4.4.50 S-0-0483, Data container A: Feedback value 5

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	axis-specific		

**Function** To parameter "S-0-0483, Data container A: Feedback value 5", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0503, Data container A: Configuration list feedback value 5".

See also Functional Description "Multiplex Channel"

**Use** If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0483, Data container A: Feedback value 5". In order to use the data container, the parameter S-0-0483 has to be entered in the list of cyclic data in phase 2 or PM.

<b>S-0-0483 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.51 S-0-0484, Data container A: Feedback value 6

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** To parameter "S-0-0484, Data container A: Feedback value 6", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0504, Data container A: Configuration list feedback value 6".

See also Functional Description "Multiplex Channel"

**Use** If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0484, Data container A: Feedback value 6". In order to use the data container, the parameter S-0-0484 has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0484 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.52 S-0-0485, Data container A: Feedback value 7

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** To parameter "S-0-0485, Data container A: Feedback value 7", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0505, Data container A: configuration list feedback value 7".

See also Functional Description "Multiplex Channel"

**Use** If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0485, Data container A: Feedback value 7". In order to use the data container, the parameter S-0-0485 has to be entered in the list of cyclic data in phase 2 or PM.

S-0-0485 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

#### 4.4.53 S-0-0486, Data container A: Feedback value 8

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	To parameter "S-0-0486, Data container A: Feedback value 8", the drive copies the data of the source parameter which is addressed via "S-0-0368, Data container A: Addressing" from "S-0-0506, Data container A: Configuration list feedback value 8".					
	See also Functional Description "Multiplex Channel"					
Use	If a 2-byte source parameter is addressed with 2-byte data, only the low word is copied to "S-0-0486, Data container A: Feedback value 8". In order to use the data container, the parameter S-0-0486 has to be entered in the list of cyclic data in phase 2 or PM.					
S-0-0486 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

#### 4.4.54 S-0-0490, Data container A: Configuration list command value 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Parameter "S-0-0490, Data container A: Configuration list command value 2" serves to enter the IDNs which are transmitted in "S-0-0450, Data container A: Command value" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0490 is only possible in communication phase 2.  See also Functional Description "Multiplex Channel"				
Use	A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0490" are contained in the list "S-0-0188, List of configurable data in the MDT". If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.				



A maximum of 32 IDNs can be configured in S-0-0490.

<b>S-0-0490 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

## Standard Parameters

## 4.4.55 S-0-0491, Data container A: Configuration list command value 3

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0491" serves to enter the IDNs which are transmitted in "S-0-0451, Data container A: Command value 3" depending on the index in "S-0-0368, Data container A: Addressing", low byte.

See also Functional Description "Multiplex Channel"

**Use** Writing to S-0-0491 is only possible in communication phase 2. A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0491" are contained in the list "S-0-0188, List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in "S-0-0491".

## S-0-0491 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.56 S-0-0492, Data container A: Configuration list command value 4

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0492" serves to enter the IDNs which are transmitted in "S-0-0452, Data container A: Command value 4" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0492 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0492" are contained in the list "S-0-0188, List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0492.

## S-0-0492 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text

## Standard Parameters

MPE:	---	/	---	s. Text
MPM:	---	/	---	s. Text

### 4.4.57 S-0-0493, Data container A: Configuration list command value 5

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0493" serves to enter the IDNs which are transmitted in "S-0-0453, Data container A: Command value 5" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0493 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0493" are contained in the list "S-0-0188, List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0493.

#### S-0-0493 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	---	s. Text
MPC:	---	s. Text
MPE:	---	s. Text
MPM:	---	s. Text

### 4.4.58 S-0-0494, Data container A: Configuration list command value 6

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0494" serves to enter the IDNs which are transmitted in "S-0-0454, Data container A: Command value 6" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0494 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0494" are contained in the list "S-0-0188, List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0494.

#### S-0-0494 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.59 S-0-0495, Data container A: Configuration list command value 7

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0495" serves to enter the IDNs which are transmitted in "S-0-0455, Data container A: Command value 7" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0495 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0495" are contained in the list "S-0-0188, List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0495.

## S-0-0495 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.60 S-0-0496, Data container A: Configuration list command value 8

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0496" serves to enter the IDNs which are transmitted in "S-0-0456, Data container A: Command value 8" depending on the index in "S-0-0368, Data container A: Addressing", low byte. Writing to S-0-0496 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0496" are contained in the list "S-0-0188, List of configurable data in the MDT".

If this is not the case, the command error "C0151 Config. IDNs for command value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0496.

## S-0-0496 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			s. Text	
MPC:	--- / ---			s. Text	
MPE:	--- / ---			s. Text	
MPM:	--- / ---			s. Text	

### 4.4.61 S-0-0500, Data container A: Configuration list feedback value 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0500" serves to enter the IDNs which are transmitted in "S-0-0480, Data container A: Feedback value 2" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0500 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0500" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0500.

#### S-0-0500 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			s. Text	
MPC:	--- / ---			s. Text	
MPE:	--- / ---			s. Text	
MPM:	--- / ---			s. Text	

### 4.4.62 S-0-0501, Data container A: Configuration list feedback value 3

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0501" serves to enter the IDNs which are transmitted in "S-0-0481, Data container A: Feedback value 3" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0501 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0501" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0501.

## Standard Parameters

<b>S-0-0501 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			s. Text	
<b>MPC:</b>		--- / ---			s. Text	
<b>MPE:</b>		--- / ---			s. Text	
<b>MPM:</b>		--- / ---			s. Text	

## 4.4.63 S-0-0502, Data container A: Configuration list feedback value 4

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Parameter "S-0-0502" serves to enter the IDNs which are transmitted in "S-0-0482, Data container A: Feedback value 4" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0502 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0502" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0500.

<b>S-0-0502 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			s. Text	
<b>MPC:</b>		--- / ---			s. Text	
<b>MPE:</b>		--- / ---			s. Text	
<b>MPM:</b>		--- / ---			s. Text	

## 4.4.64 S-0-0503, Data container A: Configuration list feedback value 5

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Parameter "S-0-0503" serves to enter the IDNs which are transmitted in "S-0-0483, Data container A: Feedback value 5" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0503 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0503" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.

### S-0-0503 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

## Function

See also Functional Description "Multiplex Channel"

## Use

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



### S-0-0504 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

## Function

See also Functional Description "Multiplex Channel"

**Use**

A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0505" are contained in the list "S-0-0187. List of configurable data in the AT".

## Standard Parameters

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0505.

## S-0-0505 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.67 S-0-0506, Data container A: Configuration list feedback value 8

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "S-0-0506" serves to enter the IDNs which are transmitted in "S-0-0486, Data container A: Feedback value 8" depending on the index in "S-0-0368, Data container A: Addressing", high byte. Writing to S-0-0506 is only possible in communication phase 2.

See also Functional Description "Multiplex Channel"

**Use** A check is run in the command "S-0-0127, C0100 Communication phase 3 transition check" to find out whether the IDNs contained in "S-0-0501" are contained in the list "S-0-0187, List of configurable data in the AT".

If this is not the case, the command error "C0152 Config. IDNs for actual value data container not configurable" is generated.



A maximum of 32 IDNs can be configured in S-0-0506.

## S-0-0506 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.68 S-0-0520, Axis control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Selection of the position feedback values for the following non-position-controlled operation modes:

Standard Parameters

Operation mode	Code displayed in S-0-0292	Associated value of parameters S-0-0032... S-0-0035
Torque control	0x0001	0000.0000.0000.0001
Velocity control	0x0002	0000.0000.0000.0010

Tab.4-88: Operation Modes Where the Active Position Feedback Value (S-0-0386) Can Be Selected Directly via S-0-0520

See also Functional Description "Operation Modes"

In torque and velocity control modes, it can be defined whether the "S-0-0051, Position feedback value 1" or the "S-0-0053, Position feedback value 2" is displayed in "S-0-0386, Active position feedback value".

Bit	Designation/function	Comment
0	<b>Selection of the position feedback value in non-position-controlled operation modes:</b>  0: Motor encoder 1: External encoder	

Tab.4-89: Relevant Bits of S-0-0520, Axis Control Word for Non-Position-Controlled Operation Modes

**Selection of the position feedback values for the following closed-loop position control modes:**

Operation mode	Code displayed in S-0-0292	Associated value of parameters S-0-0032... S-0-0035
Position control drive controlled	0x0305	0000.0011.0000.0101
Drive-controlled positioning	0x0215	0000.0010.0001.0101
Positioning block mode	0x0235	0000.0010.0011.0101
Velocity Synchronization	0x0042	0000.0000.0100.0010
Position synchronization	0x0245	0000.0010.0100.0101

Tab.4-90: Operation Modes Where the Active Position Feedback Value Can Be Cyclically Selected by the Master Communication via S-0-0520

The position feedback value is selected in "S-0-0520, Axis control word" while the acknowledgement of which position feedback value is in fact active is set in "S-0-0521, Axis status word".

## Standard Parameters

Bit	Designation/function	Comment
1/0	<b>Selection of the position feedback value if "Position control encoder" is set in "P-0-0185" (default):</b> 00 or 10: Motor encoder 01: External encoder 11: Hybrid actual position value for hybrid position control  <b>Selection of the position feedback value if "Measuring wheel encoder" is set in "P-0-0185":</b> 00 or 10: Motor encoder 01 or 11: Hybrid actual position value for measuring wheel mode	"Hybrid actual position value":  Actual position value of motor encoder and external encoder
2	<b>Selection of the position control type</b> 0: With lag error 1: Lagless	

Tab.4-91: Relevant Bits of S-0-0520, Control Word of Axis Controller

**Selection of the position feedback values for the following closed-loop position control modes:**

Operation mode	Code displayed in S-0-0292	Associated value of parameters S-0-0032... S-0-0035
Position control, encoder 2	0x0004 or 0x000C	0000.0000.0000.x100
Drive-internal interpolation, encoder 2	0x0014 or 0x001C	0000.0000.0001.x100
Positioning block mode, encoder 2	0x0034 or 0x003C	0000.0000.0011.x100
Position control drive-controlled, encoder 2	0x0104 or 0x010C	0000.0001.0000.x100
Drive-controlled positioning, encoder 2	0x0214 or 0x021C	0000.0010.0001.x100
Cam, encoder 2, virtual master axis	0x8804 or 0x880C	1000.1000.0000.x100
Phase synchronization, encoder 2, virtual master axis	0x9004 or 0x900C	1001.0000.0000.x100
Phase synchronization, encoder 2, real master axis	0x9014 or 0x901C	1001.0000.0001.x100
MotionProfile, encoder 2, virtual master axis	0x9804 or 0x980C	1001.1000.0000.x100
MotionProfile, encoder 2, real master axis	0x9814 or 0x981C	1001.1000.0001.x100
x = "0": with lag error and x = "1": lagless		

Tab.4-92: Operation Modes Where the "hybrid actual position value" can be selected via S-0-0520.

Using "S-0-0520", the following settings can be made for the above operation modes where encoder 2 is invariably configured as position control encoder:

## Standard Parameters

Bit	Designation/function	Comment
1/0	<b>Selection of the position feedback value if "Position control encoder" is set in "P-0-0185" (default):</b> <b>00, 10 or 01:</b> External encoder (acc. to operation mode.....encoder 2) <b>11:</b> Hybrid actual position value for hybrid position control  <b>Selection of the position feedback value if "Measuring wheel encoder" is set in "P-0-0185":</b> <b>x0:</b> Motor encoder <b>x1:</b> Hybrid actual position value for measuring wheel mode	"Hybrid actual position value":  Actual position value of motor encoder and external encoder  x = 0 or 1 (don't care)

Tab.4-93: Relevant Bits of S-0-0520, Control Word of Axis Controller



Operation modes where the motor encoder is invariably configured as position control encoder ( ....., encoder 1) do not allow any selection or switching of the actual position value via "S-0-0520".

### S-0-0520 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x4
MPC:	--- / ---	0x4
MPE:	--- / ---	0x4
MPM:	--- / ---	0x4

## 4.4.69 S-0-0521, Axis status word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Up to MPx-16VRS: Status word of position loop

The parameter displays current information about the active operation mode in all operation modes, if such information is relevant for position control.

See also Functional Description "Operation Modes"

## Standard Parameters

Structure	Bit	Designation/function	Comment
	1/0	<b>The active position control encoder is</b> <b>00:</b> Motor encoder <b>01:</b> External encoder <b>10:</b> Motor encoder (equivalent to "00") <b>11:</b> Motor and external encoder, hybrid actual position value for ... a) "Hybrid position control" if "Position control encoder" is defined in "P-0-0185" b) "Measuring wheel mode" if "Measuring wheel encoder" is defined in "P-0-0185"	
	2	<b>Position control is ...</b> <b>0:</b> With lag error <b>1:</b> Lagless	

Tab.4-94: Relevant Bits of "S-0-0521, Axis status word"

**Use** Display of the active position control encoder

The motor encoder is displayed as the active position control encoder if two different value pairs are set in bit 1/0. If "Motor encoder" (bit 0 of "S-0-0520, Axis control word" is selected or position-controlled operation mode is set to motor encoder (... , encoder 1)), then this has priority over the presetting displayed by bit 1.

**S-0-0521 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

**4.4.70 S-0-0524, Dead time compensation, positive edge, probe 1**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** Between the activation of a probe and the point of time at which the resultant signal change takes effect at the hardware input of the control section, there is a small time difference, called "dead time". Depending on the direction of the signal change (rising or falling signal edge), different dead times are to be expected.

**Use** This parameter is used to input the dead time to be expected with a rising edge of the probe signal and enables the firmware to compensate the measuring error caused by the dead time.



The drive generates the probe value at detection of the signal change which was triggered by the dead time earlier. The firmware corrects the recorded probe value by the measuring error caused by the dead time.

## Standard Parameters

<b>S-0-0524 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	0,000 / 50000,000		0,000	
		<b>MPC:</b>	0,000 / 50000,000		0,000	
		<b>MPE:</b>	0,000 / 50000,000		0,000	
		<b>MPM:</b>	0,000 / 50000,000		0,000	

### 4.4.71 S-0-0525, Dead time compensation, negative edge, probe 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
		<b>Device parameter:</b>	axis-specific		

**Function** Between the activation of a probe and the point of time at which the resultant signal change takes effect at the hardware input of the control section, there is a small time difference, called "dead time". Depending on the direction of the signal change (rising or falling signal edge), different dead times are to be expected.

**Use** This parameter is used to input the dead time to be expected with a falling edge of the probe signal and enables the firmware to compensate the measuring error caused by the dead time.



The drive generates the probe value at detection of the signal change which was triggered by the dead time earlier. The firmware corrects the recorded probe value by the measuring error caused by the dead time.

<b>S-0-0525 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	0,000 / 50000,000		0,000	
		<b>MPC:</b>	0,000 / 50000,000		0,000	
		<b>MPE:</b>	0,000 / 50000,000		0,000	
		<b>MPM:</b>	0,000 / 50000,000		0,000	

### 4.4.72 S-0-0526, Dead time compensation, positive edge, probe 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
		<b>Device parameter:</b>	axis-specific		

**Function** Between the activation of a probe and the point of time at which the resultant signal change takes effect at the hardware input of the control section, there is a small time difference, called "dead time". Depending on the direction of the signal change (rising or falling signal edge), different dead times are to be expected.

**Use** This parameter is used to input the dead time to be expected with a rising edge of the probe signal and enables the firmware to compensate the measuring error caused by the dead time.

## Standard Parameters



The drive generates the probe value at detection of the signal change which was triggered by the dead time earlier. The firmware corrects the recorded probe value by the measuring error caused by the dead time.

## S-0-0526 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,000 / 50000,000	0,000
MPC:	0,000 / 50000,000	0,000
MPE:	0,000 / 50000,000	0,000
MPM:	0,000 / 50000,000	0,000

## 4.4.73 S-0-0527, Dead time compensation, negative edge, probe 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** Between the activation of a probe and the point of time at which the resultant signal change takes effect at the hardware input of the control section, there is a small time difference, called "dead time". Depending on the direction of the signal change (rising or falling signal edge), different dead times are to be expected.

**Use** This parameter is used to input the dead time to be expected with a falling edge of the probe signal and enables the firmware to compensate the measuring error caused by the dead time.



The drive generates the probe value at detection of the signal change which was triggered by the dead time earlier. The firmware corrects the recorded probe value by the measuring error caused by the dead time.

## S-0-0527 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,000 / 50000,000	0,000
MPC:	0,000 / 50000,000	0,000
MPE:	0,000 / 50000,000	0,000
MPM:	0,000 / 50000,000	0,000

## 4.4.74 S-0-0531, Checksum of backup operation data

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** When this parameter is read, the checksum of the parameters listed in "S-0-0192, IDN-list of backup operation data" is generated via the active non-volatile memory.



In the list of parameter S-0-0192, the IDNs of those parameters are stored the values of which are axis-specific and for regular operation have to be loaded to the drive of the respective axis.

## Standard Parameters

When an installation has been completely set up, the checksum for each drive can be read via parameter S-0-0531. These values can be stored by a control unit. It is thereby possible to compare the stored checksum to the new checksum which was read and find out whether operation-relevant data have changed.

<b>S-0-0531 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		---	
		<b>MPC:</b>	--- / ---		---	
		<b>MPE:</b>	--- / ---		---	
		<b>MPM:</b>	--- / ---		---	

### 4.4.75 S-0-0532, Travel range limit parameter

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> axis-specific			

**Function** This parameter serves to define the signal behavior of the travel range limit switch inputs and the behavior of the drive with regard to travel range exceedance.

See also Functional Description "Position Limitation/Travel Range Limit Switches"

See also Functional Description "Digital Inputs/Outputs"

#### Structure

Bit	Designation/function	Comment
0	<b>Signal behavior of travel range limit switch inputs</b> 0: Not inverted, 24 V ⇒ travel range exceeded 1: Inverted, 0 V ⇒ travel range exceeded	
1	<b>Activation of travel range limit switches</b> 0: No 1: Yes  Digital inputs must be assigned to bit 0 and bit 1 of parameter "P-0-0222". Otherwise, it is not possible to write to the bit in operation mode.	
2	<b>Treatment of travel range exceedance</b> 0: As an error (according to error reaction) 1: As a fatal warning (deceleration)	

Tab.4-95: Relevant Bits of S-0-0532, Travel range limit parameter

<b>S-0-0532 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	0x0 / 0x7		0x0	
		<b>MPC:</b>	0x0 / 0x7		0x0	
		<b>MPE:</b>	0x0 / 0x7		0x0	
		<b>MPM:</b>	0x0 / 0x7		0x0	

## Standard Parameters

## 4.4.76 S-0-0533, Nominal torque/force of motor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In this parameter, you can enter the nominal torque or the nominal force of the motor. Under defined ambient and operating conditions, the motor can permanently deliver the nominal torque or the nominal force, i.e. the value applies to the status of the motor at operating temperature. The value is for information purposes only or is used as reference value for percentage-based torque/force scaling.

For Rexroth motors with motor data memory version 4.5, the value is written with "P-0-3056, Nominal motor torque/force, encoder memory".

"S-0-0111, Motor current at standstill" is connected to this parameter. When the nominal torque or the nominal force is demanded from the motor, the motor current corresponds to the absolute value of S-0-0111. The quotient of S-0-0533 and S-0-0111 corresponds to the torque/force constant in the status at operating temperature.



With Rexroth motors MSK, MHD, MKD, the value in "P-0-0051, Torque/force constant" refers to an ambient temperature of 20°C.

See also Functional Description "Torque/Force Limitation"

## S-0-0533 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Nm	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	--- / ---	0,000
MPC:	--- / ---	0,000
MPE:	--- / ---	0,000
MPM:	--- / ---	0,000

## 4.4.77 S-0-0534, Maximum torque/force of motor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter can be used to enter the maximum torque or the maximum force of the motor. When using the "correction of torque/force constant", it is obligatory to enter the value.

For Rexroth motors with motor data memory version 4.5, "P-0-3055, Maximum motor torque/force, encoder memory" is written to this value.

"S-0-0109, Motor peak current" is connected to this parameter. When the maximum torque or the maximum force is demanded from the motor, the motor current corresponds to the absolute value of "S-0-0109". The quotient of "S-0-0534" and "S-0-0109" corresponds to the torque/force constant at maximum current. Due to magnetic saturation effects, this value is mostly lower than "P-0-0051, Torque/force constant".



With Rexroth motors MSK, MHD, MKD, the value of "S-0-0534, Maximum torque/force of motor" refers to an ambient temperature of 20 °C.

## Standard Parameters

See also Functional Description "Torque/Force Limitation"

### S-0-0534 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Nm	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	--- / ---	0,000
MPC:	--- / ---	0,000
MPE:	--- / ---	0,000
MPM:	--- / ---	0,000

## 4.4.78 S-0-0535, Active velocity feedback value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** The value of parameter "S-0-0535" always displays the current velocity of the encoder which is set in the active operation mode. Depending on the set operation mode, the active velocity feedback value can either correspond to parameter "S-0-0040, Velocity feedback value" or to parameter "S-0-0156, Velocity feedback value 2" or to a mixed value.

See also Functional Description "Velocity Control"

### S-0-0535 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.79 S-0-0600.x.20, Encoder data out container

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** The encoder output data of the Basic encoder evaluation is stored in this parameter.

See also Parameter Description "S-0-0601.0.1"

### Use



The structure index is used to define the interface.

### Economy:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

### Basic:

## Standard Parameters

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

## Double-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

## Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

## S-0-0600.x.20 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.80 S-0-0600.x.1, Encoder status

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter contains the status information of the encoder. The structure index is used to define the slot of the associated encoder.

## Standard Parameters

Structure	Bit	Designation/function	Comment
	0	<b>Type of design</b> 0: Rotary 1: Linear	
	13	<b>Encoder error</b> 0: No error 1: Error	
	15/14	<b>Ready for operation</b> 11: Ready for operation 10: Reserved 01: Reserved 00: Not ready for operation	

Tab.4-96: S-0-0600.000.001, Encoder status

S-0-0600.x.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
		Input	min./max.	Default value		
		MPB:	--- / ---	---		
		MPC:	--- / ---	---		
		MPE:	--- / ---	---		
		MPM:	--- / ---	---		

### 4.4.81 S-0-0600.x.2, Position unscaled

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameter contains the position (unscaled) of the encoder as 32-bit value. The structure index is used to define the slot of the associated encoder.					
S-0-0600.x.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.4.82 S-0-0601.x.1, Encoder data out configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	This parameter is used to configure the content elements of "S-0-0600.x.20, Encoder data out container" (Basic encoder evaluation).				

## Standard Parameters

## Structure

Bit	Designation/function	Comment
15-8	Reserved	
7-0	<b>Standard telegrams:</b> 0000 0000: Standard telegram 0 0000 0001: Standard telegram 1	

Tab.4-97: S-0-0601.x.1, Encoder data out configuration

Structure of standard telegram 0:

Bit	Description	
47-32	Status (16 bits)	
31-0	Position (32 bits)	

Tab.4-98: Parameter Content for Standard Telegram 0

## Use



The structure index is used to define the interface.

## Economy:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

## Basic:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

## Double-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

## Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

## Standard Parameters

### S-0-0601.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0x0		
<b>MPC:</b>	--- / ---		0x0		
<b>MPE:</b>	--- / ---		0x0		
<b>MPM:</b>	--- / ---		0x0		

## 4.4.83 S-0-0601.x.2, Resolution of position

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter specifies the resolution of the position of the Basic encoder evaluation.

**Use** The resolution is specified as follows:

- in incr./rev. for rotary measuring systems,
- in nanometers/incr. for linear measuring systems.



The structure index is used to define the interface.

### Economy:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

### Basic:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

### Double-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

### Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)

## Standard Parameters

## S-0-0601.x.2 - Attributes

Structure index	Significance
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for optional encoder

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 4.4.84 S-0-0601.x.6, Absolute position range

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter specifies the maximum absolutely evaluable travel range which is supported by Basic encoder evaluation.

- Use** The travel range is specified as follows:
- in revolutions for rotary measuring systems,
  - in millimeters for linear measuring systems.



The structure index is used to define the interface.

**Economy:**

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

**Basic:**

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

**Double-axis:**

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

## Standard Parameters

### Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

### S-0-0601.x.6 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 4.4.85 S-0-0601.x.10, Overflow threshold position

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter specifies the value in increments, at which the position of the Basic encoder evaluation jumps to 0.

### Use



The structure index is used to define the interface.

### Economy:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

### Basic:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

### Double-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

## Standard Parameters

## Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

## S-0-0601.x.10 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 4.4.86 S-0-0601.x.11, Encoder available data out

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter specifies the available encoder output data of the Basic encoder evaluation.

## Structure

Bit	Designation/function	Comment
15-14	<b>Marker position</b> 11: Both options available 10: Separate marker position available 01: No separate marker position available 00: No marker position available	
13	<b>Acceleration:</b> 1: Acceleration available as 32-bit value 0: No acceleration value available	
12	<b>Velocity:</b> 1: Velocity available as 32-bit value 0: No velocity value available	
11-10	<b>Position:</b> 11: Position available as 64-bit value and 32-bit value 10: Position available as 64-bit value 01: Position available as 32-bit value 00: No position value available	
9-0	Reserved	

Tab.4-99: S-0-0601.0.11, Encoder available data out

## Standard Parameters

Use



The structure index is used to define the interface.

Economy:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

Basic:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

S-0-0601.x.11 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x400
MPC:	--- / ---	0x400
MPE:	--- / ---	0x400
MPM:	--- / ---	0x400

### 4.4.87 S-0-0601.x.12, Encoder refresh time data out

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter specifies the time in µsec which elapses until the Basic encoder evaluation supplies new "encoder output data".

Use



The structure index is used to define the interface.

Economy:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

Basic:

## Standard Parameters

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

## Double-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

## Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

## S-0-0601.x.12 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0,000
MPC:	--- / ---	0,000
MPE:	--- / ---	0,000
MPM:	--- / ---	0,000

## 4.4.88 S-0-0602.x.1, Phys. Encoder type

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter specifies the encoder type of the physical encoder.

**Structure**



The assignment is not specified in SERCOS.

Value	Encoder Type
0	No encoder
25	Encoder with sine signals and SSI interface (AMO) <sup>1)</sup> Sine signals 1Vss; SSI interface with AMO-compatible signal specification

Standard Parameters

Value	Encoder Type
26	<b>Encoder with sine signals and SSI interface (SICK STEGMANN)<sup>1)</sup></b> Sine signals 1Vss; SSI interface with SICK STEGMANN-compatible signal specification
27	<b>Encoder with sine signals and SSI interface (SIKO)<sup>1)</sup></b> Sine signals 1Vss; SSI interface with SIKO-compatible signal specification
106	<b>Encoder with EnDat 2.2 interface (Heidenhain)</b>
107	<b>Encoder with SSI interface (SICK   STEGMANN)<sup>2)</sup></b> SICK STEGMANN-compatible signal specification
<sup>1)</sup> Encoder type which can only be used at the preferred slot for motor encoders	
<sup>2)</sup> Encoder type which cannot be used at the preferred slot for motor encoders	

Tab.4-100: S-0-0602.0.1, Phys. Encoder type



The structure index (S-0-0602.x.1) is used to define the interface.

**Economy:**

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

**Basic:**

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

**Double-axis:**

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

**Multi-axis:**

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

## Standard Parameters

## S-0-0602.x.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.89 S-0-0602.x.2, Phys. Encoder properties

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter specifies the properties of the physical encoder.  
**Structure**



The bit assignment is not specified in sercos.

Bit	Designation/function	Comment
0	<b>Type of design:</b> 0: Rotary 1: Linear	
2/1	Reserved	
3	<b>Rotational direction:</b> 0: Not inverted 1: Inverted	
16... 4	Reserved	

Tab.4-101: S-0-0602.00.2, Phy. Encoder properties



The structure index is used to define the interface.

**Economy:**

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

**Basic:**

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

**Double-axis:**

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)

## Standard Parameters

Structure index	Significance
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

### Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

### S-0-0602.x.2 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.90 S-0-0602.x.3, Phys. Encoder resolution (incremental)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter specifies the resolution of the encoder.

### Use



Only for incremental encoders.

The resolution is specified as follows:

- **In case of rotary encoders:** Number of division periods or cycles per shaft revolution (DP/rev).
- **In case of linear encoders:** in mm (mm/line count).



The structure index is used to define the interface.

### Economy:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

### Basic:

## Standard Parameters

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

## Double-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

## Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

## S-0-0602.x.3 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.91 S-0-0602.x.4, Phys. Encoder resolution (absolute)

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	optional drives card				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	device-specific				

**Function** This parameter specifies the resolution of the encoder.

**Use**



Only for absolute encoders.

The resolution is specified as follows:

- **In case of rotary encoders:** Number of division periods or cycles per shaft revolution (DP/rev).
- **In case of linear encoders:** Resolution in mm (mm/line count).



The structure index is used to define the interface.

## Standard Parameters

### Economy:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

### Basic:

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

### Double-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

### Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

#### S-0-0602.x.4 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.92 S-0-0602.x.7, Phys. Encoder protocol configuration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter serves to configure the encoder interface (transmission protocol) between the control section and the physical encoder.

## Standard Parameters

## Structure



The assignment is not specified in SERCOS.

The assignment is defined with regard to the specific interface subject to "S-0-0602.0.1, Phys. Encoder type".

## SSI interface:

Bit	Designation/function	Comment
31-27	Reserved	
26-24	<b>Baud rate<sup>1)</sup></b> 1xx: Reserved 011: 400 kHz 010: 300 kHz 001: 200 kHz 000: 100 kHz	
23	Reserved	
22-20	<b>Coding</b> 001: Binary code 000: Gray code	
19	Reserved	
18-16	<b>Number of error bits</b> 111: 7 bits ... 001: 1 bits 000: 0 bits	MPx-17VRS: Only the PFB (PowerFailBit) is supported as LSB
15	Reserved	
14-12	<b>Number of status bits</b> 111: 7 bits ... 001: 1 bits 000: 0 bits	
11-8	<b>Number of position bits, multi-turn</b> 1111: 15 bits ... 1100: 12 bits ... 0001: 1 bit 0000: 0 bits	
7	Reserved	

Standard Parameters

Bit	Designation/function	Comment
6-0	<b>Number of position bits<sup>1)</sup></b> ... <b>0100000</b> : 32 bits ... <b>0001100</b> : 12 bits ... <b>0000001</b> : 1 bit <b>0000000</b> : 0 bits Rotary measuring systems: Number of single-turn position bits plus number of multi-turn position bits Linear measuring systems: Number of position bits	
<sup>1)</sup> The baud rate limits the maximum possible telegram length: <ul style="list-style-type: none"> <li>• Baud rate 400 kHz, maximum telegram length 48 bits</li> <li>• Baud rate 300 kHz, maximum telegram length 36 bits</li> <li>• Baud rate 200 kHz, maximum telegram length 24 bits</li> <li>• Baud rate 100 kHz, maximum telegram length 12 bits</li> </ul>		

Tab.4-102: S-0-0602.x.7, Phys. Encoder protocol configuration

**EnDat 2.2 interface:**TODO ASAL

Bit	Designation/function	Comment
31-27	Reserved	
26-24	<b>Baud rate<sup>1)</sup></b> <b>1xx</b> : Reserved <b>011</b> : 400 kHz <b>010</b> : 300 kHz <b>001</b> : 200 kHz <b>000</b> : 100 kHz	
23	Reserved	
22-20	<b>Coding</b> <b>001</b> : Binary code <b>000</b> : Gray code	
19	Reserved	
18-16	<b>Number of error bits</b> <b>111</b> : 7 bits ... <b>001</b> : 1 bits <b>000</b> : 0 bits	MPx-17VRS: Only the PFB (PowerFailBit) is supported as LSB
15	Reserved	

## Standard Parameters

Bit	Designation/function	Comment
14-12	<b>Number of status bits</b> 111: 7 bits ... 001: 1 bits 000: 0 bits	
11-8	<b>Number of position bits, multi-turn</b> 1111: 15 bits ... 1100: 12 bits ... 0001: 1 bit 0000: 0 bits	
7	Reserved	
6-0	<b>Number of position bits<sup>1)</sup></b> ... 0100000: 32 bits ... 0001100: 12 bits ... 0000001: 1 bit 0000000: 0 bits Rotary measuring systems: Number of single-turn position bits plus number of multi-turn position bits Linear measuring systems: Number of position bits	
<sup>1)</sup> The baud rate limits the maximum possible telegram length: <ul style="list-style-type: none"> <li>• Baud rate 400 kHz, maximum telegram length 48 bits</li> <li>• Baud rate 300 kHz, maximum telegram length 36 bits</li> <li>• Baud rate 200 kHz, maximum telegram length 24 bits</li> <li>• Baud rate 100 kHz, maximum telegram length 12 bits</li> </ul>		

Tab.4-103: S-0-0602.x.7, Phys. Encoder protocol configuration

Use



The structure index is used to define the interface.

**Economy:**

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)

**Basic:**

## Standard Parameters

Structure index	Significance
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

### Double-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X8.1 (option 3 => additional slot for axis 1)
4	Not allowed
5	Not allowed
6	X8.2 (option 6 => additional slot for axis 2)

### Multi-axis:

Structure index	Significance
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

#### S-0-0602.x.7 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.93 S-0-0602.x.130, Basic encoder evaluation phys. configuration, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware		optional drives card		«MPC»
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		device-specific		

**Function** Summary of the phys. configuration of the Basic encoder evaluation (S-0-0602.0.1 to S-0-0602.0.7).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

#### S-0-0602.x.130 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text

Standard Parameters

MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

4.4.94    S-0-0610.x.1, Encoder status (input)


Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»    «MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»    «MPC»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

Function Structure    This parameter contains the status information of the encoder.

Bit	Designation/function	Comment
15-14	<b>Ready for operation</b> 11: Ready for operation 10: Reserved 01: Reserved 00: Not ready for operation	
13	<b>Encoder error</b> 1: Error 0: No error	
12	<b>Encoder warning</b> 1: Warning 0: No warning	
11-6	Reserved	
5	<b>Position status</b> 1: Correctly initialized 0: Not correctly initialized	
4	Reserved	
3	<b>Rotational direction</b> 1: Inverted 0: Not inverted	
2	<b>Cyclic marker evaluation</b> 1: Active 0: Inactive	
1	Reserved	
0	<b>Type of design</b> 1: Linear 0: Rotary	

Tab.4-104:    S-0-0610.x.1, Encoder status (input)

Use

    The structure index is used to define the encoder function.

## Standard Parameters

Structure index	Significance
0	Motor encoder
1	Optional encoder

Tab.4-105: Defining the Structure Index

### S-0-0610.x.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.95 S-0-0610.x.2, Position unscaled (input)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

Function Use This parameter contains the status position (unscaled) of the encoder.



The structure index is used to define the encoder function.

Structure index	Significance
0	Motor encoder
1	Optional encoder

Tab.4-106: Defining the Structure Index

### S-0-0610.x.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.96 S-0-0610.x.20, Encoder data out container (input)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

Function This parameter specifies the encoder output data of the encoder.

See also Parameter Description "S-0-0611.0.1"

Use



The structure index is used to define the encoder function.

## Standard Parameters

Structure index	Significance
0	Motor encoder
1	Optional encoder

## S-0-0610.x.20 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.97 S-0-0611.x.1, Encoder data out configuration (input)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter specifies the setting of the encoder output data of the encoder.

## Structure

Bit	Designation/function	Comment
15-8	Reserved	
7-0	Standard telegrams: 0000 0000: Standard telegram 0	

Tab.4-107: S-0-0611.0.1, Encoder data out configuration (input)

Structure of standard telegrams:

Bit	Description
47-32	Status (16 bits)
31-0	Position (32 bits)

Tab.4-108: Parameter Content for Standard Telegram 0

## Use



The structure index is used to define the encoder function.

Structure index	Significance
0	Motor encoder
1	Optional encoder

## S-0-0611.x.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 4.4.98 S-0-0611.x.2, Resolution position (input)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter specifies the resolution of the position.

**Use** The resolution is specified as follows:

- in incr./rev. for rotary measuring systems,
- in nanometers/incr. for linear measuring systems.



The structure index is used to define the encoder function.

Structure index	Significance
0	Motor encoder
1	Optional encoder

### S-0-0611.x.2 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 4.4.99 S-0-0611.x.6, Absolute position range (input)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter specifies the maximum absolutely evaluable travel range which is supported by the encoder.

**Use** The travel range is specified as follows:

- in revolutions for rotary measuring systems,
- in millimeters for linear measuring systems.



The structure index is used to define the encoder function.

Structure index	Significance
0	Motor encoder
1	Optional encoder

### S-0-0611.x.6 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0

## Standard Parameters

MPE:	--- / ---	0
MPM:	--- / ---	0

## 4.4.100 S-0-0611.x.10, Overflow threshold position (input)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter specifies the value in increments, at which the position value of the encoder jumps to 0.

**Use**

The structure index is used to define the encoder function.

Structure index	Significance
0	Motor encoder
1	Optional encoder

**S-0-0611.x.10 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Incr	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 4.4.101 S-0-0611.x.11, Encoder available data out (input)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter specifies the available encoder output data of the encoder.

**Structure**

Bit	Designation/function	Comment
15-14	<b>Marker position</b> 11: Both options available 10: Separate marker position available 01: No separate marker position available 00: No marker position available	
13	<b>Acceleration:</b> 1: Acceleration available as 32-bit value 0: No acceleration value available	
12	<b>Velocity:</b> 1: Velocity available as 32-bit value 0: No velocity value available	

## Standard Parameters

Bit	Designation/function	Comment
11-10	<b>Position:</b> <b>11:</b> Position available as 64-bit value and 32-bit value <b>10:</b> Position available as 64-bit value <b>01:</b> Position available as 32-bit value <b>00:</b> No position value available	
9-0	Reserved	

Tab.4-109: S-0-0611.0.11, Encoder available data out (input)

Use



The structure index is used to define the encoder function.

Structure index	Significance
0	Motor encoder
1	Optional encoder

S-0-0611.x.11 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x400
MPC:	--- / ---	0x400
MPE:	--- / ---	0x400
MPM:	--- / ---	0x400

### 4.4.102 S-0-0611.x.12, Encoder refresh time data out (input)

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter specifies the time in µsec which elapses until the encoder supplies new encoder output data.

Use



The structure index is used to define the encoder function.

Structure index	Significance
0	Motor encoder
1	Optional encoder

S-0-0611.x.12 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0,000
MPC:	--- / ---	0,000
MPE:	--- / ---	0,000
MPM:	--- / ---	0,000

## Standard Parameters

## 4.4.103 S-0-0822, Torque/force ramp

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** With the torque/force ramp time (S-0-0823) the torque/force ramp defines an increase for the torque/force command value (S-0-0080) in the operation mode "torque/force control".



Parameter S-0-0822 replaces the previously available filtering by means of the PT1 filter (cf. P-0-0176)!

See also Parameter Description "S-0-0822, Torque/force ramp"

See also Parameter Description "S-0-0824, Status "Torque/force command value attained"

See also Functional Description "Torque/Force Control"

**Use** The figure below illustrates the operating principle and function of S-0-0822:

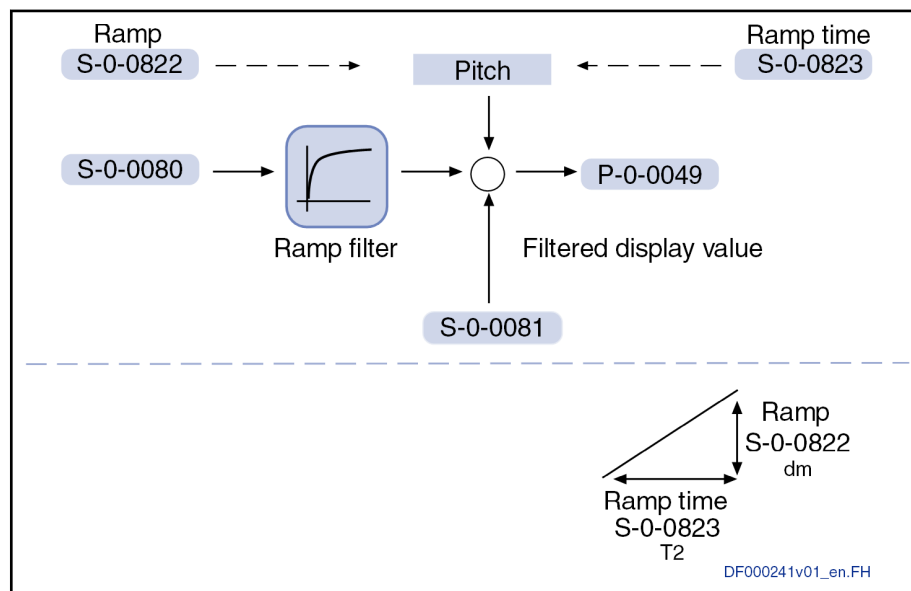


Fig.4-110: Operating Principle of S-0-0822 and S-0-0823



The filter effect is thereby achieved by determining a maximum allowed torque increase ( $dm/dt$ )!

### Parameterization

The following has to be observed for parameterization:

- The two values (S-0-0822, S-0-0823) determine the maximum change in the command value per master communication clock. Greater input causes the delay of the internal force command value compared to the input value.
- The value contained in S-0-0822 defines the torque/force difference which can be reached within the ramp time.

### S-0-0822 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

## Standard Parameters

Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1
Input	min./max.		Default value		
MPB:	S-0-0086 / S-0-0086		0,0		
MPC:	S-0-0086 / S-0-0086		0,0		
MPE:	S-0-0086 / S-0-0086		0,0		
MPM:	S-0-0086 / S-0-0086		0,0		

### 4.4.104 S-0-0823, Torque/force ramp time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** The torque/force ramp time (S-0-0823) is the reference time for the torque/force ramp. In the operation mode "torque/force control", the parameter S-0-0823, together with the torque/force ramp (S-0-0822), defines an increase for the torque/force command value (S-0-0080).

See also Parameter Description "S-0-0822, Torque/force ramp"

See also Parameter Description "S-0-0824, Status "Torque/force command value attained"

See also Functional Description "Operation Modes - Torque/Force Control"

**Use** The figure below illustrates the operating principle and function of S-0-0823:

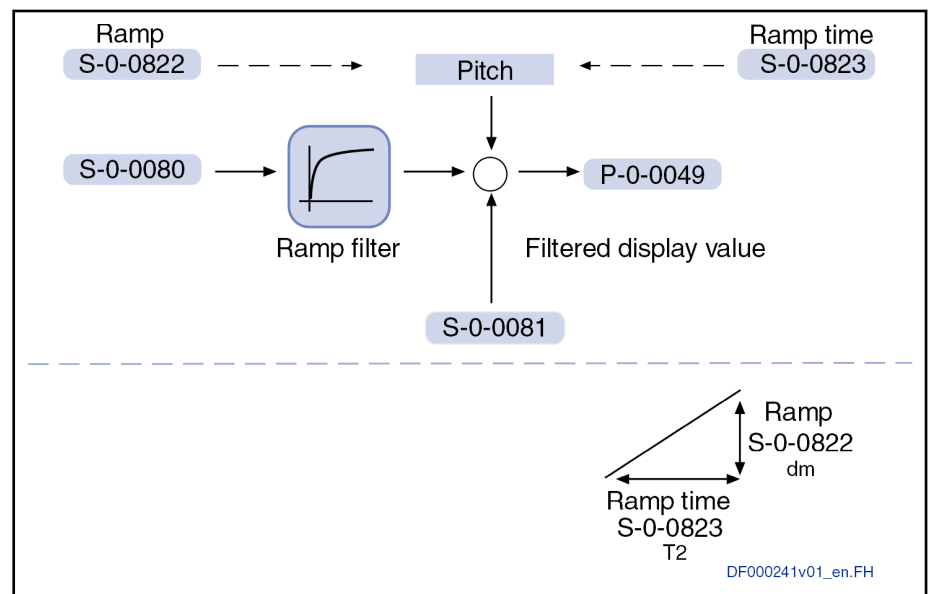


Fig.4-111: Operating Principle of S-0-0822 and S-0-0823



The filter effect is thereby achieved by determining a maximum allowed torque increase (dM/dt)!

The following has to be observed for parameterization:

- The two values (S-0-0822, S-0-0823) determine the maximum change in the command value per master communication clock.
- The input of the ramp time can take place in steps of 0.1ms.
- Greater input causes the delay of the internal force command value compared to the input value.

## Standard Parameters

<b>S-0-0823 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		0,0 / 6553,5		0,0		
<b>MPC:</b>		0,0 / 6553,5		0,0		
<b>MPE:</b>		0,0 / 6553,5		0,0		
<b>MPM:</b>		0,0 / 6553,5		0,0		

## 4.4.105 S-0-0824, Status "Torque/force command value attained"

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The message "S-0-0824, Status "Torque/force command value attained"" indicates that the actual torque/force value is within a window (S-0-0826) around the torque/force command value (S-0-0080 + S-0-0081). The message is required in the torque/force control mode, but is output in all other operation modes, too.

See also Functional Description "Operation Modes"

**Structure** The parameter has the following structure:

Bit	Designation/function	Comment
0	<b>Status "Torque/force command value attained"</b> S-0-0080 + S-0-0081 – S-0-0084 < S-0-0826  0: $M_{act} \neq M_{cmd}$ 1: $M_{act} = M_{cmd}$	

See also Parameter Description "S-0-0826, Torque/force window"

<b>S-0-0824 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 4.4.106 S-0-0826, Torque/force window

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In this parameter the torque/force window is entered. The window is related to the absolute value of the torque/force command (S-0-0080).

**Use** When the actual torque/force value (S-0-0084) is within this window around the command value (S-0-0080 + S-0-0081), the message "torque/force command value reached" (S-0-0824) is output.

See also Parameter Description "S-0-0824, Message torque/force command value reached"

## Standard Parameters

<b>S-0-0826 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	S-0-0086 / S-0-0086		0,0	
		MPC:	S-0-0086 / S-0-0086		0,0	
		MPE:	S-0-0086 / S-0-0086		0,0	
		MPM:	S-0-0086 / S-0-0086		0,0	

### 4.4.107 S-0-1000, sercos: SCP Type & Version

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
		<b>Funct. package(s):</b> "open loop", "closed loop"			
		<b>Device parameter:</b> device-specific			

**Function** The identification of a bus slave takes place via this parameter. The parameter consists of a 16-bit list, with each element of the list indicating a package and its version. For the significance of the identifier, see SERCOS standard.

<b>Structure</b>	<b>Bit</b>	<b>Designation/function</b>	<b>Comment</b>
	3-0	<b>Version:</b> 0: Unstandardized version 1: SCP V1.1.x	
	15-8	<b>Functional package/classes:</b> 0x00: Reserved 0x01: SCP_FixCFG 0x02: SCP_VarCFG 0x03: SCP_Sync 0x04: SCP_WD 0x05: SCP_Diag 0x06: SCP_RTb 0x07: SCP_HP 0x08: SCP_SMP 0x09: SCP_MUX 0x0A: SCP_NRT 0x0B: SCP_SIG	

Tab.4-112: S-0-1000, SERCOS III: SCP Type and Version

<b>S-0-1000 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 4.4.108 S-0-1002, sercos: Communication Cycle time (tScyc)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»

## Standard Parameters

<b>Hardware</b>	optional drives card
<b>Funct. package(s):</b>	"open loop", "closed loop"
<b>Device parameter:</b>	device-specific

**Function** The communication cycle time of the SERCOS III interface defines the time intervals at which the cyclic data, i.e. the process data (MDT and AT), are transmitted.

See also Functional Description "SERCOS III"

**Use** Observe the following aspects for parameter setting:

- Entry is set to 250 us, 500 us, 1 ms, 2 ms, ... to 65 ms in increments of 1 ms.



The minimum cycle time of a SERCOS III slave in a CCD group is 500 us!

- The "SERCOS cycle time (TScyc)" has to be transmitted from the master to the slave in communication phase 2 and be activated in both master and slave in and after communication phase 3.

## S-0-1002 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	250,000 / 65000,000	2000,000
MPC:	250,000 / 65000,000	2000,000
MPE:	2000,000 / 65000,000	2000,000
MPM:	250,000 / 65000,000	2000,000

## 4.4.109 S-0-1003, sercos: Allowed MST losses in CP3/CP4

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Number of allowed MST failures (synchronization telegram) which may occur directly one after the other in phases 3 and 4, before the drive triggers an F4001 error.

See also Functional Description "SERCOS III"

## S-0-1003 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	1
MPC:	--- / ---	1
MPE:	--- / ---	1
MPM:	--- / ---	1

## 4.4.110 S-0-1005, sercos: Minimum feedback processing time (t5)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Time required in the drive between the start of feedback acquisition and the start of AT0.

See also Functional Description "SERCOS III"

## Standard Parameters



In phase 2 the master reads this value to set the "feedback acquisition starting time (T4)" (S-0-1007) accordingly for all drives.

**Use** The drive has to set this value such that the current actual values are transmitted to the control unit in the next drive telegram (AT).

### S-0-1005 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.111 S-0-1006, sercos: AT0 transmission starting time (t1)

### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»
Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

### Function

The AT transmission starting time determines when the master, related to the MST, transmits its drive telegram in communication phases 3 and 4.

See also Functional Description "SERCOS III"

### S-0-1006 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,000 / 65000,000	100,000
MPC:	0,000 / 65000,000	100,000
MPE:	0,000 / 65000,000	100,000
MPM:	0,000 / 65000,000	100,000

## 4.4.112 S-0-1007, sercos: Feedback acquisition capture point (t4)

### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»
Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

### Function

Feedback acquisition starting time set by the master, after the end of the master synchronization telegram. The master can therefore specify the same actual value acquisition starting time for all drives that operate in a co-ordinate mode. This guarantees the synchronization of actual value acquisition for the drives involved.



From communication phase 3 on the drive activates the feedback acquisition starting time.

See also Functional Description "SERCOS III"

### Use

The master must set the feedback acquisition starting time smaller than or equal to the difference of the "SERCOS cycle time" (S-0-1002) and the "minimum feedback acquisition time" (S-0-1005) which was queried.

### S-0-1007 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	P2->P3	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	500,000
MPC:	--- / ---	500,000
MPE:	--- / ---	500,000
MPM:	--- / ---	500,000

## 4.4.113 S-0-1008, sercos: Command value valid time (t3)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The "command value valid" time indicates the time after which the drive may access the new command values after the end of the master synchronization telegram. The master can therefore set the same "command value valid" time for all drives that operate in a co-ordinate mode.



For reasons of compatibility, this parameter still exists, but IndraDrive no longer uses and evaluates it.

See also Functional Description "SERCOS III"

S-0-1008 - Attributes	Function:	Par	Editable:	P2	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.114 S-0-1009, sercos: Device Control (C-Dev) offset in MDT

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The telegram assignment defines at which position (telegram offset) and in which MDT (telegram number) the Device Control (C-Dev) is.

See also Functional Description "SERCOS III"

**Structure**


Bit	Designation/function	Comment
10-0	Telegram offset in bytes	
15-12	MDT telegram number	
	0: MDT0	
	1: MDT1	
	2: MDT2	
	3: MDT3	

Tab.4-113: "S-0-1009: SERCOS III: Device Control (C-Dev) offset in MDT"

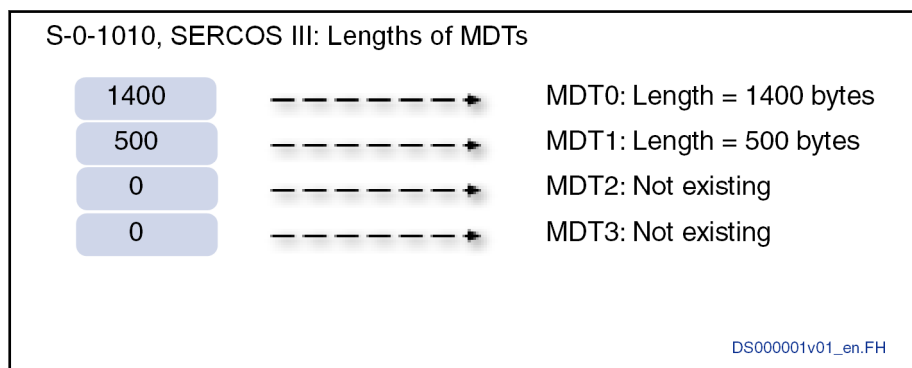
S-0-1009 - Attributes	Function:	Par	Editable:	P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware		optional drives card			
Funct. package(s):		"open loop", "closed loop"			
Device parameter:		device-specific			

 The lengths are required for initializing SERCOS III communication.

**Structure** The list parameter has the following structure:



**Use** Observe the following aspects for parameterization:

- Always preset all four lengths.
- Identify non-existing MDTs with length = 0.

<b>S-0-1010 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Byte	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific				

See also Functional Description "SERCOS III"

## Standard Parameters

Structure	Bit	Designation/function	Comment
	10...0	Telegram offset in bytes	
	15-12	AT telegram number 0: AT0 1: AT1 2: AT2 3: AT3	

Tab.4-115: "S-0-1011: SERCOS III: Device Status (S-Dev) offset in AT"

S-0-1011 - Attributes	Function:	Par	Editable:	P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 4.4.117 S-0-1012, sercos: Length of ATs

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter contains the AT lengths of all four possible drive telegrams.



The lengths are required for initializing SERCOS III communication.

See also Functional Description "SERCOS III"

**Structure** The list parameter has the following structure:

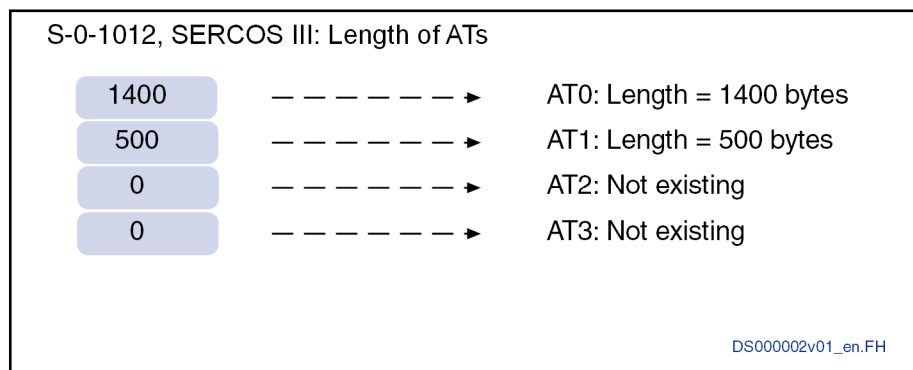


Fig.4-116: "S-0-1012, SERCOS III: AT Lengths"

**Use** Observe the following aspects for parameterization:

- Always preset all four lengths.
- Identify non-existing ATs with length = 0.

S-0-1012 - Attributes	Function:	Par	Editable:	P2	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

### 4.4.118 S-0-1013, sercos: SVC offset in MDT

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The SVC offset in MDT indicates at which position and in which master data telegram the service channel for the drive is transmitted.

See also Functional Description "SERCOS III"

#### Structure

Bit	Designation/function	Comment
11-0	MDT SVC offset In bytes	
13/12	MDT telegram number 00: MDT0 01: MDT1	

Tab.4-117: "S-0-1013: SERCOS III: SVC Offset in MDT"

#### S-0-1013 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x8
MPC:	--- / ---	0x8
MPE:	--- / ---	0x8
MPM:	--- / ---	0x8

### 4.4.119 S-0-1014, sercos: SVC offset in AT

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The SVC offset in AT indicates at which position and in which drive telegram (AT) the service channel for the drive is transmitted.

See also Functional Description "SERCOS III"

#### Structure

Bit	Designation/function	Comment
11-0	AT SVC offset In bytes	
13/12	AT number 00: AT0 01: AT1	

Tab.4-118: "S-0-1014, SERCOS III: SVC Offset in AT"

#### S-0-1014 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		0x8		
MPC:	--- / ---		0x8		
MPE:	--- / ---		0x8		
MPM:	--- / ---		0x8		

## 4.4.120 S-0-1015, sercos: Ring delay

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** In phase 2 the master determines the ring delay time (S-0-1015) and assigns it to the slaves. With this delay, the slaves can determine their sync times for the P- and S-channels by means of their delay counters. For this purpose, the master must execute the command "S-0-1024, C5300 SERCOS III: SYNC delay measuring procedure command".



The command "S-0-1024, C5300 SERCOS III: SYNC delay measuring procedure command" must be executed in phase 2 before the command "S-0-0127, C0100 Communication phase 3 transition check".

See also Functional Description "SERCOS III"

S-0-1015 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.121 S-0-1016, sercos: Slave delay (P/S)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** After the master transmitted the entire ring delay (S-0-1015) to the slaves, the slaves can determine the SYNCNT-P/S. With these two delay times (P in the first and S in the second element), the master determines the physical order of the slaves in the ring or line.

See also Functional Description "SERCOS III"

S-0-1016 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.122 S-0-1017, sercos: NRT transmission time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	Parameter "S-0-1017" serves to define the time window for the NRT channel for SERCOS III.				

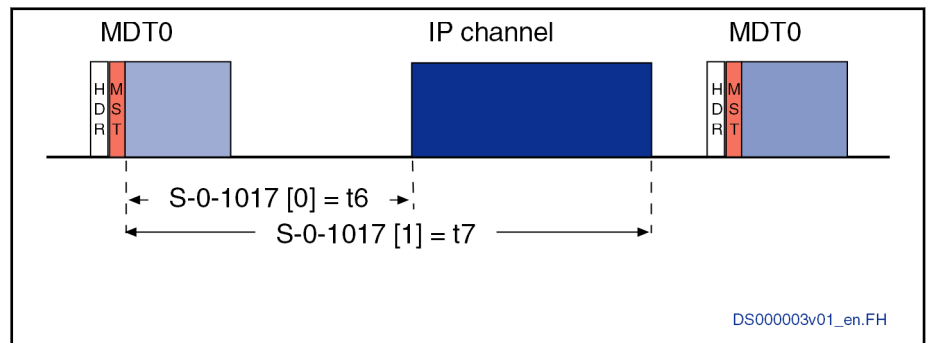


Fig.4-119: "SERCOS III: NRT Transmission Time"

See also Functional Description "SERCOS III"

Structure

The list parameter "S-0-1017" has the following structure:

- First element: Beginning (t6) of the NRT channel
- Second element: End (t7) of the NRT channel

Use

Observe the following aspects for parameterization:

- t7-t6 ≥ 125µs, minimum length of the NRT channel
- t6=t7=0 --> NRT channel switched off

S-0-1017 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.123 S-0-1019, Master comm. engineering over IP: MAC address

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	Parameter "S-0-1019" contains the MAC address of the master communication interface for engineering over IP which is required within the scope of Ethernet communication. The MAC address (Media Access Control) is used for unique identification in the network.				
	See also Functional Description "SERCOS III"				
Structure	The MAC address is a list parameter with the following structure:				

Standard Parameters

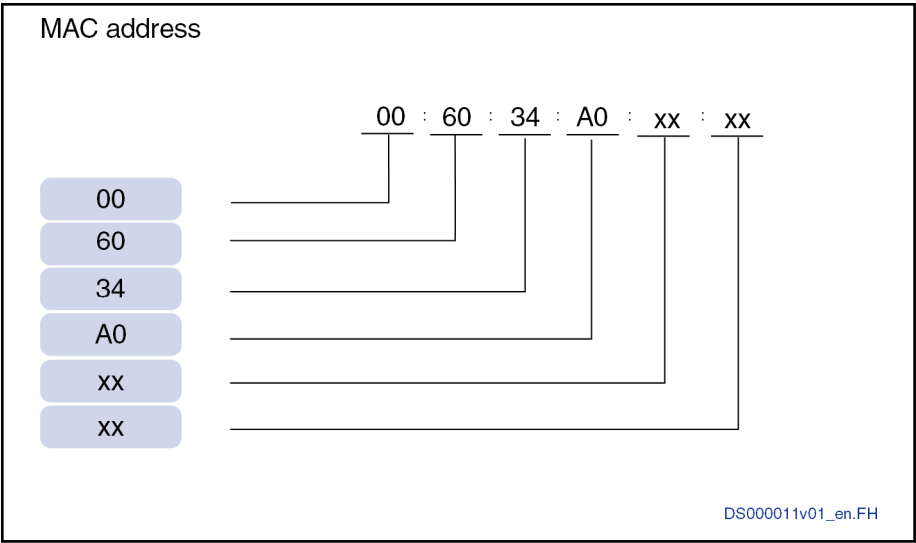


Fig.4-120:     S-0-1019, Master comm. engineering over IP: MAC address

Use



The MAC address has been permanently assigned to the hardware and cannot be modified!

S-0-1019 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	P2->P3	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

4.4.124     S-0-1020, Master comm. engineering over IP: IP address

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	device-specific				

Function     Parameter "S-0-1020" contains the IP address of the master communication interface for engineering over IP. This address is required to ensure that the device in the network can be reached via IP communication.



- Changes in the parameter only become effective by:
- Switching on the 24 V supply of the drive again
  - Executing drive command "C6100 Command Activate IP settings"

See also Functional Description "SERCOS III"

Structure     The IP address is a list parameter with the following structure:

## Standard Parameters

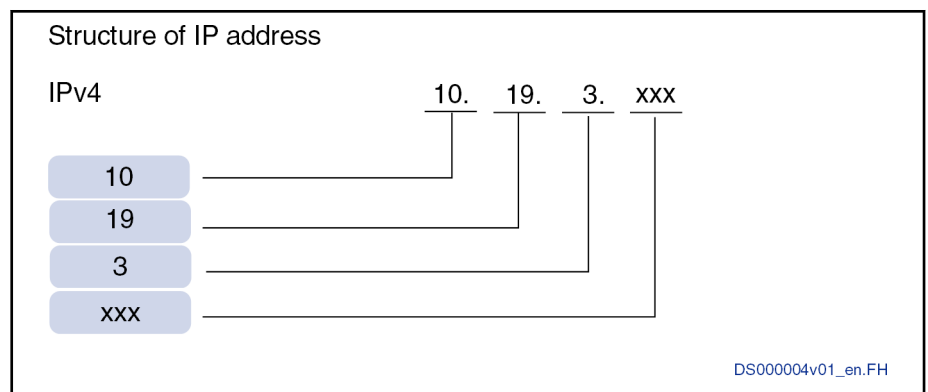


Fig.4-121: S-0-1020, Master comm. engineering over IP: IP address

### Use



The IP address must be set with regard to the specific application. It can be set via all communication interfaces or via the control panel.

See also Parameter Description:

"S-0-1021, Master comm. engineering over IP: Network mask"

"S-0-1022, Master comm. engineering over IP: Gateway address"

### S-0-1020 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.125 S-0-1021, Master comm. engineering over IP: Network mask

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	optional drives card				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	device-specific				

**Function** Parameter "S-0-1021" contains the network mask of the master communication interface for engineering over IP which is required within the scope of IP communication. Each IP address (Internet Protocol) consists of a network and a device part. The network mask is used to distinguish between the network and device parts.



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing drive command "C6100 Command Activate IP settings"

See also Functional Description "SERCOS III"

**Structure** The network mask is a list parameter with the following structure:

## Standard Parameters

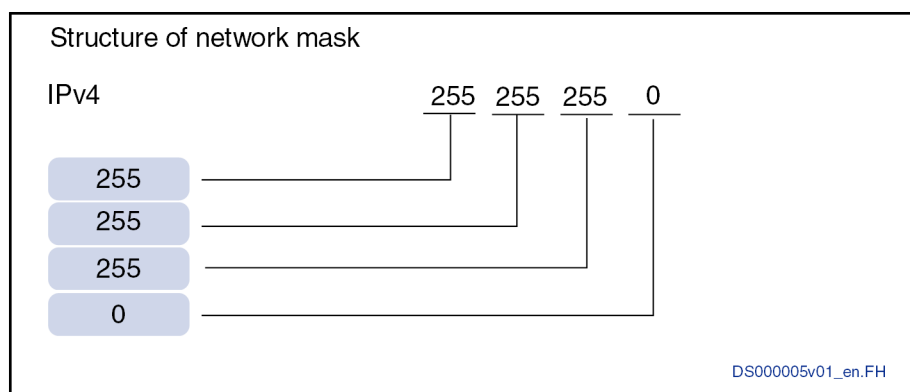


Fig.4-122: S-0-1021, Master comm. engineering over IP: Network mask

## Use



The network mask must be set with regard to the specific application. It can be set via all communication interfaces or via the control panel.

See also Parameter Description:

"S-0-1020, Master comm. engineering over IP: IP address"

"S-0-1022, Master comm. engineering over IP: Gateway address"

## S-0-1021 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.126 S-0-1022, Master comm. engineering over IP: Gateway address

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameter "S-0-1022" contains the gateway address of the IP node on the master communication interface for engineering over IP which is required within the scope of IP communication.

If the communication node wants to transmit an IP package (Internet Protocol), the network parts of the source IP address and the target IP address are compared. If they do not match, the IP package is transmitted to the gateway IP address.



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing drive command "C6100 Command Activate IP settings"

See also Functional Description "SERCOS III"

**Structure** The gateway address is a list parameter with the following structure:

## Standard Parameters

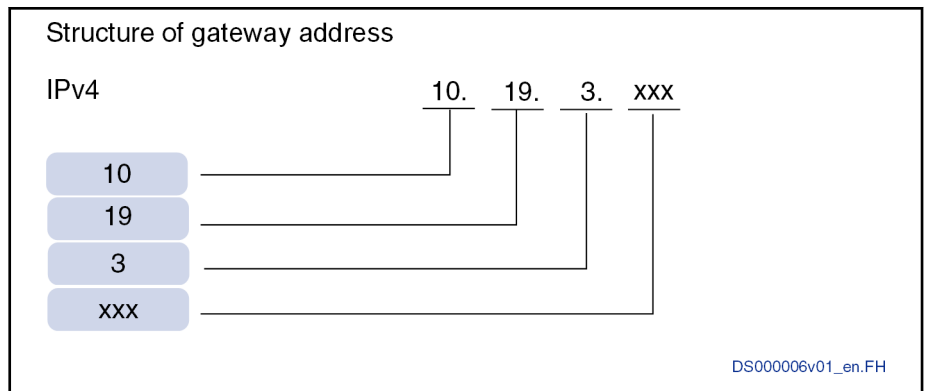


Fig.4-123: S-0-1022, Master comm. engineering over IP: Gateway address

### Use



The gateway address must be set with regard to the specific application. It can be set via all communication interfaces or via the control panel.

See also Parameter Description:

"S-0-1020, Master comm. engineering over IP: IP address"

"S-0-1021, Master comm. engineering over IP: Network mask"

### S-0-1022 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.127 S-0-1023, sercos: SYNC jitter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The parameter S-0-1023 is used to set the maximum possible jitter of the control unit's synchronization clock.



This allows adjusting the monitoring functions in the SERCOS III slaves to the possibilities of the SERCOS III master.

See also Functional Description "SERCOS III"

### S-0-1023 - Attributes

Function:	Par	Editable:	P2	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,200 / 50,000	1,000
MPC:	0,200 / 50,000	1,000
MPE:	0,200 / 50,000	1,000
MPM:	0,200 / 50,000	1,000

## Standard Parameters

## 4.4.128 S-0-1024, C5300 sercos: SYNC delay measuring procedure command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This command is required for measuring the delays between the two ports. Before the start of the command, the slave needs an appropriate value for "S-0-1015, SERCOS III: Ring delay". The delay measurement is required for the synchronous operation in phases 3 and 4, and therefore must be carried out before the transition command "S-0-0127, C0100 Communication phase 3 transition check".

See also Functional Description "SERCOS III"

S-0-1024 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 4.4.129 S-0-1026, sercos: Version of communication hardware

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter contains the SERCOS-III-specific hardware version in the form of a text (ASCII format):

- FPGA version and revision
- GPCC version and revision

See also Functional Description "SERCOS III"

**Structure** Interpret the content of the parameter as follows:

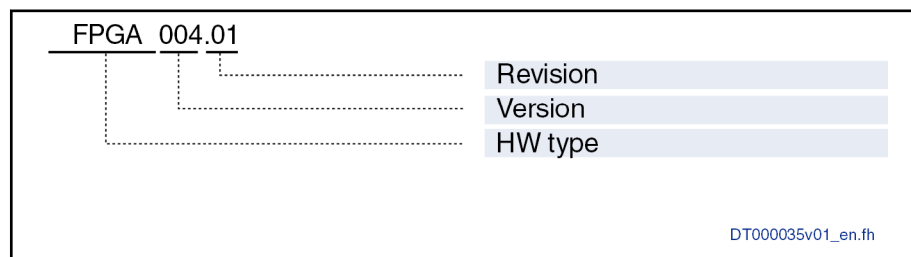


Fig.4-124: Structure and Content of "S-0-1026, SERCOS III: Version of communication hardware"

S-0-1026 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		

Standard Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

#### 4.4.130 S-0-1027.0.1, sercos: Requested MTU

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The parameter "S-0-1027.0.1" serves for definition which MTU the slave should use.

The maximum transmission unit (MTU) describes the maximum package size in byte, which can be communication via network, without the data package to be fragmented.



**The effective MTU within the drive is fixed to 1,500 bytes at the moment.**

**Use** By using a smaller MTU, the last Ethernet transmission time can be adjusted nearer to the end of the NRT channel. Therewith, the NRT time frame can be utilized even better or proceed an Ethernet communication for small SERCOS cycle times.

The current effective MTU is displayed in the parameter "S-0-1027.0.2, SERCOS III: Effective MTU".

Observe the following aspects for parameterization:

- Due to protocol definitions, the communication phases up to phase 2 lie in the minimum effective MTU at 576 bytes.
- The smaller the MTU is selected, the higher is the Ethernet protocol overhead compared with the data to be transferred.
- By adjusting the MTU, the Ethernet communication can be interrupt.



Is a requested MTU smaller than 576 bytes entered, the effective MTU must be changed at phase boot-up.

Thereby, an existing Ethernet communication connection can be interrupt and maybe not continued.

In such a case, all Ethernet connections must be closed before a phase switch and may be re-built after a successful phase boot-up.

##### S-0-1027.0.1 - Attributes

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	46 / 1500	1500
MPC:	46 / 1500	1500
MPE:	46 / 1500	1500
MPM:	46 / 1500	1500

#### 4.4.131 S-0-1027.0.2, sercos: Effective MTU

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			

## Standard Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** device-specific

**Function** The parameter "S-0-1027.0.2" displays the current - in the drive used - MTU. The maximum transmission unit (MTU) describes the maximum package size in byte, which can be communication via network, without the data package to be fragmented.



The effective MTU within the drive is fixed to 1,500 bytes at the moment.

## S-0-1027.0.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.132 S-0-1028, sercos: Error counter MST-P/S

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** The MST error counter counts all invalid MSTs in phases 3 and 4 and has a limit stop at  $2^{16}-1$ .



During heavily disturbed transmission the value 65535 will be reached after some time.

## Interpretation of parameter content

You have to observe the following points for interpreting the error counter:

- The error counter is only incremented once per communication cycle, independent of the number of MSTs which failed.
- The error counter is cleared at the first MST in phase 3.

See also Functional Description "SERCOS III"

## S-0-1028 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.133 S-0-1031, sercos: Signal assignment TSx

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

## Standard Parameters

**Function** With this parameter, different measuring signal can be assigned to the test pins of the SERCOS FPGA. The parameter is only used for diagnostic purposes.

See also Functional Description "SERCOS III"

<b>S-0-1031 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

### 4.4.134 S-0-1032, sercos: Communication control

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In this parameter, the master specifies or shows individual basic communication functions.

#### Structure

Bit	Designation/function	Comment
<b>3</b>	<b>SWC function</b> <b>0:</b> sercos telegrams are transferred at the inactive port as they are. <b>1:</b> The transfer of sercos telegrams at the inactive port is prevented (if the master activated this function in phase 0).	
<b>4</b>	<b>Soft master function</b> <b>0:</b> All default standards apply. <b>1:</b> Settings and limits (e.g. maximum value of S-0-1023 "SYNC jitter") are adjusted for soft master mode.	

Tab.4-125: S-0-1032.0.0, sercos: Communication control

<b>S-0-1032 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

### 4.4.135 S-0-1034, sercos: PHY error counter Port1 and Port2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter shows the PHY errors signaled in relation to the ports.

## Standard Parameters

Structure	Bit	Designation/function	Comment
	0-15	<b>Port 1:</b> The parameter shows the "False Carrier" and "Data reception with errors" errors which the PHY signals at port 1 via the MII interface.	
	16-31	<b>Port 2:</b> The parameter shows the "False Carrier" and "Data reception with errors" errors which the PHY signals at port 2 via the MII interface.	

Tab.4-126: S-0-1034.0.0, sercos: PHY error counter Port1 and Port2

S-0-1034 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.136 S-0-1035, sercos: Error counter Port1 &amp; Port2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter is the image of a SERCOS FPGA register "SercosError-Count" in which all faulty telegrams (e.g., FCS error) are displayed in relation to the port.

The error counters end with a maximum of 65535. The error register in the FPGA is not automatically cleared; this is achieved only by writing to the parameter.

Structure	Bit	Designation/function	Comment
	15-0	Error counter Port 1	
	31-16	Error counter Port 2	

Tab.4-127: S-0-1035, SERCOS III: Port 1 and Port 2 Error Counters

S-0-1035 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.137 S-0-1035.0.1, sercos: Error counter P&amp;S

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

## Standard Parameters

**Function** This parameter is the image of a sercos FPGA register "SercosErrorCount" in which all faulty telegrams (e.g., FCS error) are displayed in relation to the telegram type.

The error counters end with a maximum of 65535. The error register in the FPGA is not automatically cleared; this is achieved only by writing to the parameter.

### Structure

Bit	Designation/function	Comment
15-0	P-telegram error counter	
31-16	S-telegram error counter	

Tab.4-128: S-0-1035.00.1, sercos: Error counter P&S

<b>S-0-1035.0.1 - Attributes</b>	<b>Function:</b> Par	<b>Editable:</b> ++	<b>Data length:</b> 4Byte
	<b>Memory:</b> --	<b>Validity ch.:</b> --	<b>Format:</b> HEX
	<b>Unit:</b> --	<b>Extr. val. ch.:</b> --	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b> AT	<b>Comb. check:</b> --	<b>Set-depend.:</b> --

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.138 S-0-1036, sercos: Inter Frame Gap

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** SERCOS III needs this parameter to enable the slave to determine the end of the telegram blocks (MDT and AT blocks). The master determines the value in phase 2 and transfers it to the slaves.

<b>S-0-1036 - Attributes</b>	<b>Function:</b> Par	<b>Editable:</b> P2	<b>Data length:</b> 2Byte
	<b>Memory:</b> --	<b>Validity ch.:</b> --	<b>Format:</b> DEC_OV
	<b>Unit:</b> Byte	<b>Extr. val. ch.:</b> +	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b> --	<b>Comb. check:</b> --	<b>Set-depend.:</b> --

Input	min./max.	Default value
MPB:	12 / 1000	---
MPC:	12 / 1000	---
MPE:	12 / 1000	---
MPM:	12 / 1000	---

## 4.4.139 S-0-1037, sercos: Slave Jitter

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The master needs this parameter to determine parameter "S-0-1036, SERCOS III: Inter Frame Gap" and reads it in phase 2. The value depends on HW and FPGA and is 40 ns for the IndraDrive.

<b>S-0-1037 - Attributes</b>	<b>Function:</b> Par	<b>Editable:</b> --	<b>Data length:</b> 2Byte
	<b>Memory:</b> --	<b>Validity ch.:</b> --	<b>Format:</b> DEC_OV
	<b>Unit:</b> ns	<b>Extr. val. ch.:</b> --	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b> --	<b>Comb. check:</b> --	<b>Set-depend.:</b> --

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---


## Standard Parameters

MPE:	---	---	---
MPM:	---	---	---

## 4.4.140 S-0-1039, Hostname

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	The parameter contains a unique host name for a device. The device can be identified by this name. In case of "engineering over IP" and NRT, the host name is used for IP assignment over DHCP to identify the device uniquely.					
S-0-1039 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

## 4.4.141 S-0-1040, Drive address of master communication

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	By means of this parameter, the address for the master communication (e.g. sercos, Profibus...) can be set. Except for the amendments for sercos, the parameter corresponds to parameter "P-0-4025". Any change in the address is simultaneously carried out for both parameters.				
<hr/>					
 The effective address can be taken either directly from "S-0-0096, Slave arrangement (SLKN)" or from "P-0-4031, Overview of device addresses".					
<hr/>					
The entered address takes effect:					
<ul style="list-style-type: none"><li>• <b>Sercos:</b> Immediately</li><li>• <b>Field bus and analog/parallel:</b>At the next change to the operating mode (OM)</li></ul>					
S-0-1040 - Attributes	Function:	Par	Editable:	PM	Data length: 2Byte
	Memory:	FIX_IDN_SP	Validity ch.:	PM->OM	Format: DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.: 0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.: --
Input		min./max.		Default value	
MPB:		1 / 250		s. Text	
MPC:		1 / 250		s. Text	
MPE:		1 / 250		s. Text	
MPM:		1 / 250		s. Text	

## 4.4.142 S-0-1041, sercos: AT Command value valid time (t9)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Hardware	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Device parameter:	optional drives card		
Function	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

## Standard Parameters

**Function** The "AT command value valid" time indicates the time after which the drive may access the new command values after the end of the master synchronization telegram. The master can therefore set the same "command value valid" time for all drives that operate in a co-ordinate mode.



For reasons of compatibility, this parameter still exists, but IndraDrive no longer uses and evaluates it.

### S-0-1041 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.143 S-0-1042, sercos: Topology index

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter represents the topology index (position).

### Structure

Bit	Designation/function	Comment
0-15	Topology index from phase 0	
16-31	Is only of relevance in case of devices with hot-plug ability (IndraDrive and HydraulicDrive = 0)	

Tab.4-129: S-0-1042.0.0, sercos: Topology index

### S-0-1042 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

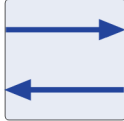
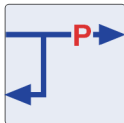
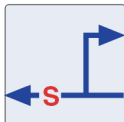
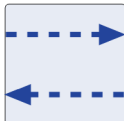
Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.144 S-0-1044, sercos: Device Control (C-Dev)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter serves to display the internal device status word. It is cyclically transferred by the master in SERCOS phase 1 and higher phases and can be read for diagnostic purposes.

# Standard Parameters

Structure	Bit	Designation/function	Comment
	11	<b>Status of physical topology</b> (master view, for NRT function): 0: Physical ring interrupted 1: Physical ring closed	
	13-12	<b>Command topology:</b>  <div> <div>00: Fast forward at both ports</div> <div> <div>Px</div>  <div>Py</div> </div> </div> <div> <div>01: Loopback and Forward for P-telegram</div> <div> <div>Px</div>  <div>Py</div> </div> </div> <div> <div>10: Loopback and Forward for S-telegram</div> <div> <div>Px</div>  <div>Py</div> </div> </div> <div> <div>11: Reserved (NRT)</div> <div> <div>Px</div>  <div>Py</div> </div> </div> <div>DK000295.fh</div>	
	14	<b>Topology handshake of master:</b> 0->1 or 1->0: Slave is to apply new command topology of bit 13-12.	
	15	<b>Identification bit:</b> Slave shows the state of this bit via LED or display. This function is used for remote address assignment.	

Tab.4-130: S-0-1044, SERCOS III: Device Control (C-Dev)

S-0-1044 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 4.4.145 S-0-1045, sercos: Device Status (S-Dev)

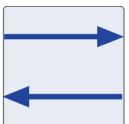
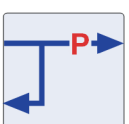
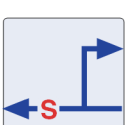
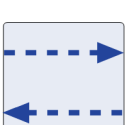
Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
Funct. package(s):		"open loop", "closed loop"			
Device parameter:		axis-specific			

**Function** This parameter serves to display the internal device status word. It is cyclical-ly transferred by the slave in SERCOS phase 1 and higher phases and can be read for diagnostic purposes.

Standard Parameters

Structure	Bit	Designation/function	Comment
	1	<b>Current error</b> 0: Not clearable 1: Clearable	As of MPx-06VRS
	4	<b>Parameterization level:</b> 1: Parameterization level 1 with active sub-device	
	5	<b>Change bit commands</b>	
	6	<b>Sub-/device warning (C2D):</b> E.g.: Warning temperature of power section etc.  The bit is reset automatically once the cause of the warning has been eliminated.	
	7	<b>Sub-/device error (C1D):</b> E.g.: Switchover due to power section overtemperature etc. <ul style="list-style-type: none"><li>Slave remains in current phase</li><li>Connection data is still copied</li><li>Service channel possible</li><li>Clearing via S-0-0099</li></ul>	
	8	<b>Bit 8 bus slave valid:</b> 0: Data from SERCOS III telegrams is not processed by the slave 1: Data from SERCOS III telegrams is processed by the slave	
	9	<b>Err-Con (connection error):</b> 1: Consumer signals an error in a connection	
	11/10	<b>Status at inactive port (for hot plug / redundancy):</b> <b>Bit 13/12 = 01 or 10:</b> 00: "Fast forward" at either port 01: "Loopback and forward" for P-telegram 10: "Loopback and forward" for S-telegram 11: NRT mode <b>Bit 13/12 = 00 or 11:</b> Always 00	

## Standard Parameters

Bit	Designation/function	Comment
13/12	<b>Actual topology:</b> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center;">00: Fast forward at both ports</div> <div style="text-align: center;">Px  Py</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center;">01: Loopback and Forward for P-telegram</div> <div style="text-align: center;">Px  <span style="color: red;">inactive port</span> Py</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="text-align: center;">10: Loopback and Forward for S-telegram</div> <div style="text-align: center;"><span style="color: red;">inactive port</span> Px  Py</div> </div> <div style="display: flex; align-items: center;"> <div style="text-align: center;">11: NRT mode</div> <div style="text-align: center;">Px  Py</div> </div> </div> <div style="text-align: right; font-size: small;">DK000296.fh</div>	
14	<b>Topology handshake of slave:</b> <b>0-&gt;1 or 1-&gt;0:</b> Slave has applied command topology. Result of application attempt is mapped in bit 13/12.	
15	<b>Communication warning interface (warning IF):</b> Number of allowed MST failures has exceeded value specified in "S-0-1003" by 50%.	

Tab.4-131: S-0-1045, SERCOS III: Device Status (S-Dev)

## S-0-1045 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.4.146 S-0-1046, sercos: Slave addresses of the device

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	optional drives card				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	device-specific				

**Function** This parameter shows all the addresses of a device from "S-0-1040, Drive address of master communication" in a list.

Thus, a single-axis device has one list element with one address, a double-axis device has two list elements with two addresses.

## S-0-1046 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 4.4.147 S-0-1047, sercos: Maximum Consumer Activation Time

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter describes the maximum consumer data processing time. It describes the time having to elapse between the end of the MDT telegram block (in case of MS connections) or of the AT telegram block (in case of CC connections) and the activation moment "S-0-1007" in order to ensure that the values of the consumer connection are still processed in this cycle.

The parameter is the counterpart of parameter "S-0-1005, SERCOS III: Minimum feedback processing time (t5)" which displays this for producer connections.

See also Functional Description "SERCOS III"

S-0-1047 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 4.4.148 S-0-1050.x.1, sercos Connection: Connection setup

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function Structure** The parameter contains the configuration data of a connection.

Bit	Designation/function	Comment
1/0	<b>Monitoring mechanism (consumer)</b> 00: Synchronous operation 01: Asynchronous operation (with watchdog) 10: Asynchronous operation (without watchdog) 11: Reserved	MPx16 only supports "00"
2	Reserved	
3	<b>Clock generation (producer)</b> 0: Synchronous 1: Asynchronous	

## Standard Parameters

Bit	Designation/function	Comment
5/4	<b>Configuration type:</b> 00: Configuration list with EIDNs (SE-6 relevant) 01: Container without assigned contents (SE-5 relevant) 10: Telegram type parameter FSP-Drive (S-0-0015 relevant) 11: Reserved	MPx16 only supports "00" and "10"
13/12	<b>Configuration source:</b> 00: Bus master 01: Not bus master 10: Not bus master 11: Not bus master	
14	<b>Connection type</b> 0: Consumer 1: Producer	
15	<b>Configuration activation</b> 0: Slave does not need to evaluate configuration 1: Slave needs to evaluate configuration	

Tab.4-132: S-0-1050.x.1, SIII connection: Configuration

## S-0-1050.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
MPB:			--- / ---	0x0	
MPC:			--- / ---	0x0	
MPE:			--- / ---	0x0	
MPM:			--- / ---	0x0	

## 4.4.149 S-0-1050.x.2, sercos Connection: Connection number

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter is used to unequivocally identify a connection. A bus master needs this parameter to determine the telegram offset, for example.

**Rules:**

1. Producer and consumer of one connection have the same connection number.
2. A slave cannot have the same connection numbers for its connections.
3. MS-AT and MS-MDT in a slave have different connection numbers.

## S-0-1050.x.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
MPB:			0 / 65535	0	
MPC:			0 / 65535	0	

Standard Parameters

MPE:	0 / 65535	0
MPM:	0 / 65535	0

#### 4.4.150 S-0-1050.x.3, sercos Connection: Telegram assignment

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The telegram assignment defines at which position (telegram offset) and in which telegram (MDT or AT, telegram number) the connection is. The telegram offset points to the connection control (C-Con) of this connection.

**Structure**

Bit	Designation/function	Comment
10-0	Telegram offset in bytes	
11	Telegram type 0: AT 1: MDT	
15-12	Telegram number 0: MDT0 / AT0 1: MDT1 / AT1 2: MDT2 / AT2 3: MDT3 / AT3	

Tab.4-133: S-0-1050.x.3, SIII-Connection: Telegram assignment

**S-0-1050.x.3 - Attributes**

Function:	Par	Editable:	P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

#### 4.4.151 S-0-1050.x.4, sercos Connection: Max. length of connection

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** With this parameter, the slave shows the master how many bytes it allows for this connection. 2 bytes are included for the connection control C-Con.

**S-0-1050.x.4 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Standard Parameters

## 4.4.152 S-0-1050.x.5, sercos Connection: Current length of connection

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** With this parameter, the slave shows the master how many bytes are currently required for this connection. 2 bytes are included for the connection control C-Con.

The data of this parameter is made available by the slave for all configuration types which can be set ("S-0-1050.x.1, SIII-Connection: Connection setup") and is always updated after "S-1050.x. 6, SIII-Connection: Configuration list" has been written.

S-0-1050.x.5 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.153 S-0-1050.x.6, sercos Connection: Configuration list

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains the IDNs (4 bytes) which are cyclically transmitted in this connection. The content only takes effect in configuration type

00: Configuration with EIDNs ("S-1050.x.1, SIII-Connection: Connection setup").

With this configuration type, the slave determines the parameter "S-0-1050.x. 5, SIII-Connection: Current length of connection" from the content of this parameter.

S-0-1050.x.6 - Attributes	Function:	Par	Editable:	P2	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.154 S-0-1050.x.7, sercos Connection: Assigned connection capability

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to assign a connection type (S-0-1060) to a connection.

See also Functional Description "SERCOS III"

## Standard Parameters

**Use** Observe the following aspects for parameter setting:

- Assignment is achieved via the SI of parameter "S-0-1060".
- If the value of the parameter is "-1", there was no assignment and the default settings are applicable.
- When the value is written, parameters "S-0-1050.x.1, SIII-Connection: Connection setup" and "S-0-1050.x.4, SIII-Connection: Max. length of connection" are adjusted to match the setting.
- When command "S-0-0127, C0100 Communication phase 3 transition check" is executed, it is checked whether the value of "S-0-1060.x.3, SIII-Connectiontype: Max. quantity of this conn. capability" is exceeded when all connections are selected. If the value is exceeded, error code "C0174 Connection configuration not allowed" is output. The appropriate parameter "S-0-1060.x.3" is then executed in parameter "S-0-0021, IDN-list of invalid operation data for CP2".

### S-0-1050.x.7 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
MPB:		-1 / 5		---	
MPC:		-1 / 5		---	
MPE:		-1 / 5		---	
MPM:		-1 / 5		---	

## 4.4.155 S-0-1050.x.8, sercos Connection: Connection control (C-Con)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter contains the image of the connection control (C-Con) of the connection. This applies to producer and consumer connections.

### Structure

Bit	Designation/function	Comment
0	<b>ProducerReady</b> 0: Producer does not generate any valid process data yet 1: Producer generates valid process data. Consumer can apply process data by toggling bit 1 or bit 12.	
1	<b>NewData bit</b> - Each change indicates that new process data are transferred. - In synchronous mode (S-0-1050.x.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.x.10). - Bit 12 and bit 1 are identical.	
2	<b>CC DataFieldDelay</b> 1: CC producer data have a sercos cycle delay, because they were copied via the bus master. The consumer shall prefer taking the data of the port at which this bit has the value 0.	The function is not supported

## Standard Parameters

Bit	Designation/function	Comment
4	<b>Flow control:</b> 0: Producer and/or consumer are activated for this connection. Error monitoring is active. 1: Producer and/or consumer are deactivated for this connection. Errors are not monitored and do not cause any error reaction (e.g. F4002).	The function is not supported
6	<b>Real-time bit 1</b> Assignment is achieved via S-0-1050.x.20 and S-0-1050.x.21	
7	<b>Real-time bit 2</b> Assignment is achieved via S-0-1050.x.20 and S-0-1050.x.21	
15-12	<b>Counter:</b> - Each change indicates that new process data are transferred. - In synchronous mode (S-0-1050.x.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.x.10). - Bit 12 and bit 1 are identical.	The function is supported as of MPx-18VRS

Tab.4-134: S-0-1050.x.8, sercos Connection: Connection control (C-Con)

## S-0-1050.x.8 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.156 S-0-1050.x.9, sercos Connection: State

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** The parameter always displays the current status of each single connection. The displayed value (state) of the connection state machine depends on the connection type (producer, consumer).

**Structure**

Value	Name	Comment
0	<b>init</b>	State is automatically reached on restart; connection error bit in S-Dev is deleted.
1	<b>prepare</b>	State of an active connection if the connection check in command "S-0-0127" was without errors.
2	<b>ready</b>	Connection has been started - ProducerReady is sent with 1 - NewData does not yet toggle.  Currently, the state cannot be detected in the IndraDrive.

## Standard Parameters

Value	Name	Comment
3	producing	NewData toggles according to specification - valid process data is transferred.
4	stopping	Stop bit is set - state of remaining bits in C-Con and state of process data are as desired. Currently, this state is not implemented in the IndraDrive.

Tab.4-135: S-0-1050.x.9, Value Code for Producer Connections

### Structure

Value	Name	Comment
0	init	State is automatically reached on restart; connection error bit in S-Dev is deleted.
1	prepare	State of an active connection if the connection check in command "S-0-0127" was without errors.
2	waiting	Waiting for "NewData"; process data is not retrieved.
3	consuming	Process data is retrieved; connection monitoring is active.
4	stopped	Process data is not retrieved. Connection monitoring is not active. Currently, this state is not implemented in the IndraDrive.
5	warning	Process data is not retrieved. Connection monitoring is active.
7	error	Process data is not retrieved. Connection error bit is set in S-Dev. The state remains as it is until command "S-0-0127, C0100 Communication phase 3 transition check" is re-executed.

Tab.4-136: S-0-1050.x.9, Value Code for Consumer Connections

### S-0-1050.x.9 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.157 S-0-1050.x.10, sercos Connection: Producer cycle time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter indicates the cycle time within which the producer updates the data of the cyclic connection. In addition, the NewData bit in the connection control is toggled. The consumer of the connection uses the time as a monitoring time to detect failures. The number of failures is displayed in "S-0-1050.x.12, SIII-Connection: Error counter data losses".



The producer cycle time must equal "S-0-1002, SERCOS III: Communication Cycle time (tScyc)".

It could be a multiple of the SERCOS cycle time (S-0-1002) for the MS-MDT-connection.

## Standard Parameters

<b>S-0-1050.x.10 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		1000,000		
<b>MPC:</b>		--- / ---		1000,000		
<b>MPE:</b>		--- / ---		1000,000		
<b>MPM:</b>		--- / ---		1000,000		

## 4.4.158 S-0-1050.x.11, sercos Connection: Allowed data losses

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter indicates the number of allowed losses of producer data, before a connection is considered to be broken, the consumer does not process data anymore and sets the Err-Con bit for the bus master in the device status (S-Dev, S-IF).

<b>S-0-1050.x.11 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		1 / 65535		2		
<b>MPC:</b>		1 / 65535		2		
<b>MPE:</b>		1 / 65535		2		
<b>MPM:</b>		1 / 65535		2		

## 4.4.159 S-0-1050.x.12, sercos Connection: Error counter data losses

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter indicates how many losses of producer data the consumer has already detected. This counter is without overflow and ends with 65535. The counter will be reset with the positive edge of ProducerReady in the connection control (C-Con).

<b>S-0-1050.x.12 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 4.4.160 S-0-1050.x.20, sercos Connection: IDN allocation of real-time bit

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter contains the IDN assignment (4Byte) of the real-time bits in the connection control (C-Con). The list contains a maximum of 2 IDNs. The

## Standard Parameters

bit assignment takes place in parameter "S-0-1050.x.21, SIII-Connection: Bit allocation of real-time bit".

### S-0-1050.x.20 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.161 S-0-1050.x.21, sercos Connection: Bit allocation of real-time bit

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter contains the bit assignment of the real-time bits parameterized in "S-0-1050.x.20, SIII-Connection: IDN allocation of real-time bit". The list contains a maximum of 2 bit offsets with values from 0...31.

### S-0-1050.x.21 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 4.4.162 S-0-1051, sercos Connection: Image of connection setups

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter contains the current setups of all connections. It consists of a list with "S-0-1050.x.1, SIII-Connection: Connection setup" of all connections in ascending order. This gives the bus master (or configurator) an overview of the number of possible connections (= list length) and of the connections already assigned to the bus master or other configuration sources.

### S-0-1051 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.163 S-0-1060.x.1, sercos Connectiontype: Default configuration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

## Standard Parameters

**Function** This parameter contains the default configuration data of a connection. This default configuration data is automatically applied on assignment via parameter "S-0-1050.x.7, SIII-Connection: Assigned connection capability". The following items are replaced:

- Connection type
- Configuration source
- Configuration type
- Clock generation (producer)
- Monitoring mechanism (consumer)

See also Functional Description "SERCOS III"

<b>S-0-1060.x.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.164 S-0-1060.x.2, sercos Connectiontype: Configuration mask

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM» «MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM» «MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		

**Device parameter:** axis-specific

**Function** This parameter contains the configuration mask of the bits which can be changed in parameter "S-0-1060.x.1, SIII-Connectiontype: Default configuration" and in parameter "S-0-1050.x.4, SIII-Connection: Connection setup" in deviation from the default configuration.

The significance of the individual bits can be found in the description of parameter "S-0-1050.x.1, SIII-Connection: Connection setup".

See also Functional Description "SERCOS III"

<b>S-0-1060.x.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.165 S-0-1060.x.3, sercos Connectiontype: Max. quantity of conn. Capability

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM» «MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM» «MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		

**Device parameter:** axis-specific

**Function** This parameter indicates how often this connection type may be assigned to connections.

The assignment mechanisms and the error reaction are described in parameter "S-0-1050.x.7, SIII-Connection: Assigned connection capability".

Standard Parameters

<b>S-0-1060.x.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

#### 4.4.166 S-0-1060.x.4, sercos Connectiontype: Max. Length of Connection

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> axis-specific			

**Function** This parameter indicates the maximum connection length that is allowed for this connection type.

When the connection type is assigned to a connection, the value is automatically applied to parameter "S-0-1050.x.7, SIII-Connection: Max. length of connection" of this connection via parameter "S-0-1050.x.4, SIII-Connection: Assigned connection capability".

<b>S-0-1060.x.4 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

#### 4.4.167 S-0-1060.x.6, sercos Connectiontype: Configurable IDNs

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> axis-specific			

**Function** This parameter indicates all configurable ident numbers (S-0-1050.x.6) which can be parameterized in a connection if this connection type was selected via the connection type assignment function (S-0-1050.x.7).

The assignment mechanisms and the error reaction are described in parameter "S-0-1050.x.7, SIII-Connection: Assigned connection capability".

<b>S-0-1060.x.6 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

#### 4.4.168 S-0-1060.x.7, sercos Connectiontype: Min. processing time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			

## Standard Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** This parameter indicates the minimum processing time which a connection requires if this connection type was selected via the connection type assignment function (S-0-1050.x.7). While parameters "S-0-1005 „SERCOS III: Minimum feedback processing time (t5)" and "S-0-1047, SERCOS III: Maximum Consumer Activation Time" indicate the maximum values of the processing times of all connection, this parameter indicates the connection-type-specific value which is always less than or equal to these general values.

The assignment mechanisms and the error reaction are described in parameter "S-0-1050.x.7, SIII-Connection: Assigned connection capability".

<b>S-0-1060.x.7 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.169 S-0-1060.x.10, sercos Connectiontype: Minimum producer cycle time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter indicates the shortest producer cycle time which is allowed in parameter "S-0-1050.x.10, SIII-Connection: Producer cycle time" in case of a connection of this connection type.

The assignment mechanisms and the error reaction are described in parameter "S-0-1050.x.7, SIII-Connection: Assigned connection capability".

<b>S-0-1060.x.10 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.170 S-0-1061, sercos: Maximum ScycCnt

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter indicates the maximum value of the counter in the MDT0 telegram with SERCOS III. The counter is evaluated by the HW and ensures that, if connections are synchronous, a synchronization time "S-0-1007 „SERCOS III: Feedback acquisition capture point (t4)" greater than "S-0-1002, SERCOS III: Communication Cycle time (tScyc)" is also possible.

<b>S-0-1061 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Standard Parameters

Input	min./max.	Default value
MPB:	0 / 16383	0
MPC:	0 / 16383	0
MPE:	0 / 16383	0
MPM:	0 / 16383	0

#### 4.4.171 S-0-1099.0.1, sercos: Test-IDN for Conformity purpose - configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Hardware	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Device parameter:	axis-specific		
Function	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
S-0-1099.0.1 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Data length:	2Byte	Format:	HEX
	Decim. pl.:	0	Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

#### 4.4.172 S-0-1099.0.2, sercos: Test-IDN for Conformity purpose

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Hardware	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Device parameter:	axis-specific		
Function	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
S-0-1099.0.2 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
	Data length:	2Byte	Format:	HEX
	Decim. pl.:	0	Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

#### 4.4.173 S-0-1100.0.1, Diagnostic counter sent SMP fragments

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Hardware	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Device parameter:	axis-specific		
Function	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
S-0-1100.0.1 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Data length:	4Byte	Format:	DEC_OV
	Decim. pl.:	0	Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	

## Standard Parameters

MPE:	---	---	---
MPM:	---	---	---

## 4.4.174 S-0-1100.0.2, Diagnostic counter received SMP fragments

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter counts the SMP fragments having been received since the control voltage was switched on. Once it reaches  $2^{32}-1$ , the counter is automatically reset to 0.

S-0-1100.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.175 S-0-1100.0.3, Diagnostic counter dropped SMP fragments

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter indicates the number of received SMP fragments which were dropped by the SMP stack because the fragment header did not meet the receiver's expectations.

This may have the following reasons:

- Invalid session ID
- Wrong sequence of the sequence counter
- Wrong sequence of FOS/LOS bits

Once it reaches  $2^{32}-1$ , the counter is automatically reset to "0".

S-0-1100.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.176 S-0-1101.x.1, SMP Container Data

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter contains the SMP fragments transmitted by an SMP container.

## Standard Parameters

<b>S-0-1101.x.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 4.4.177 S-0-1101.x.2, List of session identifiers

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	axis-specific		

**Function** This parameter contains a list of all session identifiers which are currently set up in an SMP container.

An SMP session is defined by a session identifier and a priority level. These values are stored in parameters "S-0-1101.x.2 List of session identifiers" and "S-0-1101.000.003 List of session priorities". Entries having the same list index together define one SMP session.

<b>S-0-1101.x.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 4.4.178 S-0-1101.x.3, List of session priorities

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	axis-specific		

**Function** This parameter contains a list of all session priorities which are currently set up in an SMP container.

An SMP session is defined by a session identifier and a priority level. These values are stored in parameters "S-0-1101.x.2 List of session identifiers" and "S-0-1101.000.003 List of session priorities". Entries having the same list index together define one SMP session.

The highest priority level is 0, the lowest one 3.

<b>S-0-1101.x.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0 / 3		---	
		MPC:	0 / 3		---	
		MPE:	0 / 3		---	
		MPM:	0 / 3		---	

### 4.4.179 S-0-1300.x.1, Component Name

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»

## Standard Parameters

<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	device-specific			

**Function** This parameter serves to identify the respective component of the sercos device, which is mapped in this instance of the electronic type plate. It shows a general type designation of the component.

The name is given in English, irrespective of the set language selection.

Examples of contents are:

- Control Unit
- Power Unit
- Motor

<b>S-0-1300.x.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	s. Text

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.180 S-0-1300.x.3, Vendor Code

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter contains the sercos-specific vendor code of the component that is assigned to the instance.



Bosch Rexroth components are identified by vendor code 100.

A sercos component is identified via:

- Vendor Code (S-0-1300.0.3)
- Vendor Device ID (S-0-1300.0.5)

**Use** The vendor code is used while the system is running up to verify whether the offline configuration (made on the basis of a device description file) is "valid", i.e. based on the actual device properties.

<b>S-0-1300.x.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	s. Text

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.181 S-0-1300.x.4, Device Name

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

## Standard Parameters

**Function** This parameter represents the component designation according to the vendor-specific type code.

Example: "HCS01.1E-W0008-A-03-B-ET-EC-NN-NN-NN-FW"

The parameter serves to display the component name in the Engineering Tool.

S-0-1300.x.4 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	s. Text
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.4.182 S-0-1300.x.5, Vendor Device ID

Allocation	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter contains the sercos-specific vendor device ID.

A sercos component is identified via:

- Vendor Code (S-0-1300.0.3)
- Vendor Device ID (S-0-1300.0.5)

**Structure** The parameter describes the product family to which the device belongs in a general form.

*Example:*

HCS0x

describes all devices of the IndraDrive C / IndraDrive Cs product family.

**Use** The vendor device ID is used while the system is running up to verify whether the offline configuration made on the basis of a device description file is "valid", i.e. based on the actual device properties.

S-0-1300.x.5 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	s. Text
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.4.183 S-0-1300.x.8, Hardware Revision

Allocation	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter contains the hardware change index of the component, e.g., "AB1". It is used for display for diagnostic and service purposes.

S-0-1300.x.8 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.4.184 S-0-1300.x.9, Software Revision

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This parameter contains the version of the operating firmware of the drive, e.g., "FWA-INDRV*-MPB-18V02-D5-1-NNN-NN" (S-0-0030, Manufacturer version). It is used for display for diagnostic and service purposes.					
S-0-1300.x.9 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.185 S-0-1300.x.11, Order Number

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameter is used to represent the part number of the component, e.g., "R911327662". The part number is used for service purposes.					
S-0-1300.x.11 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
MPE:			--- / ---	---		
MPM:			--- / ---	---		

## 4.4.186 S-0-1300.x.12, Serial Number

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameter is used to represent the serial number of the component, e.g., "7260887123456". The serial number is used for diagnostic and service purposes.					
S-0-1300.x.12 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	s. Text

## Standard Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 4.4.187 S-0-1300.x.150, Firmware identifier

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This parameter contains an identifier of the respective device assembly. The value is stored in the hardware during device production and cannot be changed by the user.					
S-0-1300.x.150 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 4.4.188 S-0-1301, List of GDP classes

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter indicates the implemented classes of the generic device functions of a sercos device. This parameter serves to find the sercos-defined functions that are available in the diagnosis, identification, initialization and parameter management areas.					
S-0-1301 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 4.4.189 S-0-1302.0.1, FSP Type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter specified an instance for S-0-1302.x.1 for each resource in a subdevice. The instance indicates the FSP in which the resource is specified. At present, only I/O and Drive resources are specified in SERCOS FSPs. Currently, the I/Os in the drive are not implemented according to FSP I/O. That means that only the "Drive" is available as a resource specified according to SERCOS.				

## Standard Parameters

<b>S-0-1302.0.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 4.4.190 S-0-1302.0.3, Application type

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** Replacement parameter "S-0-0142" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

A descriptive name (text) for the drive and/or the axis (e.g. swivel axis) can be stored in this parameter.



This parameter does not have any effect on the function.

The following applies:

- The UTF-8 character set can be written to this parameter.
- Size in number of bytes: 40
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.

<b>S-0-1302.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			s. Text	
<b>MPC:</b>		--- / ---			s. Text	
<b>MPE:</b>		--- / ---			s. Text	
<b>MPM:</b>		--- / ---			s. Text	

## 4.4.191 S-0-1305.0.2, sercos: Current fine time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter contains the lower 32 bits of the current SERCOS time in "IEC 61588 format". Starting in phase 3, the time is sent by the master in the "MDT0 telegram" and automatically continued by the slave FPGA until a new transmission is effected.

<b>S-0-1305.0.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	

Standard Parameters

MPE:	---	---	---
MPM:	---	---	---

#### 4.4.192 S-0-1305.0.3, sercos: Current coarse time

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains the upper 32 bits of the current sercos time in "IEC 61588 format". Starting in phase 3, the time is sent by the master in the "MDT0 telegram" and automatically continued by the slave FPGA until a new transmission is effected.

S-0-1305.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

#### 4.4.193 S-0-1350, C6400 reboot command

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This command is used to activate a drive restart.  
While the command is executed, the parameters to be saved are stored. After a delay of two seconds, the drive is restarted.  
See also Functional Description "SERCOS Interface"



The reboot command causes the drive firmware to jump to the boot kernel. Execution of the command has the same effect as activation and deactivation of the 24-V supply. This may result in errors on the module bus or in the master communication of neighboring drives.

**Use** The drive firmware comprises activities after which the drive must be switched off and on. This can be achieved with the reboot command.

A reboot command can be executed after the following activities:

- Function package switching
- Change of the master communication protocol
- Firmware download

After the above activities have been completed, the commissioning tool "IndraWorks Ds/D/MLD" provides the reboot command as a button.

S-0-1350 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---

## Standard Parameters

MPE:	---	---	---
MPM:	---	---	---

## 4.4.194 S-0-1601, List of FSP Drive classes

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter contains drive classes which the drive supports according to the functional package (open loop, closed loop). A drive class comprises a defined functionality with the associated parameters and bit combinations.					
S-0-1601 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.195 S-0-1800.0.1, List of applications

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains a list of the assemblies supported by the device (S-0-1820.0.1). It is defined at compiling time.					
S-0-1800.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 4.4.196 S-0-1800.0.2, List of validator objects

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the list of the CIP Safety validators available in the drive. These are listed in S-0-1810.x.1.					
S-0-1800.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

Standard Parameters

## 4.4.197 S-0-1800.0.4, SV Safety connection fault count

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter contains the error counter of the individual CIP safety validators. One validator is treated per instance.					
S-0-1800.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.198 S-0-1800.0.10, SSO Device Status

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the internal device status of the CIP safety supervisor.					
S-0-1800.0.10 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
MPE:			--- / ---	---		
MPM:			--- / ---	---		

## 4.4.199 S-0-1800.0.15, SSO Safety Configuration Identifier

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter contains the safety configuration identifier SCID which consists of the safety configuration CRC (P-0-3234.0.4) and the safety configuration time stamp (SCTS ) (P-0-0190).					
S-0-1800.0.15 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## Standard Parameters

## 4.4.200 S-0-1800.0.16, SSO Configuration Lock

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter contains the SSO configuration lock. It indicates whether or not the flag for the configuration lock is set in the CIP safety supervisor.

S-0-1800.0.16 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.201 S-0-1800.0.17, SSO Configuration UNID

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter contains the SSO configuration UNID. The SNCT interface is not supported; therefore only tool-based selection (10 octets with 0xFF) is allowed.

S-0-1800.0.17 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.202 S-0-1800.0.18, SSO Proposed TUNID

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter contains the SSO proposed TUNID.

S-0-1800.0.18 - Attributes	Function:	Par	Editable:	SCM	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.203 S-0-1800.0.19, SSO Target UNID

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»

## Standard Parameters

	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the SSO target UNID.					
S-0-1800.0.19 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.4.204 S-0-1801.0.1, Vendor ID

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	The vendor ID is part (attribute 1) of the CIP identity object.					
S-0-1801.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 4.4.205 S-0-1801.0.2, Device Type

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	The device type is part (attribute 2) of the CIP identity object.					
S-0-1801.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 4.4.206 S-0-1801.0.3, Product Code

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	The product code is part (attribute 3) of the CIP identity object.					
S-0-1801.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC OV

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.207 S-0-1801.0.4, Revision

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The revision (major and minor) is part (attribute 4) of the CIP identity object.

S-0-1801.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 4.4.208 S-0-1801.0.5, Status

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Internal state of the CIP safety supervisor (attribute 11 safety supervisor instance attribute).

Attribute (value)	Status
0	Undefined
1	Self-testing
2	Idle
3	Self-test exception
4	Executing
5	Abort
6	Critical fault
7	Configuring
8	Waiting for TUNID
9 - 50	Reserved by CIP
51 - 99	Device-specific
100 - 255	Vendor-specific

Tab.4-137: S-0-1801.0.5, Status

S-0-1801.0.5 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	---		---		
MPC:	---		---		
MPE:	---		---		
MPM:	---		---		

### 4.4.209 S-0-1801.0.6, CIP serial number

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	The CIP serial number is part (attribute 6) of the CIP identity object.					
S-0-1801.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
MPC:			--- / ---	---		
MPE:			--- / ---	---		
MPM:			--- / ---	---		

### 4.4.210 S-0-1801.0.7, Product Name

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	The product name is part (attribute 7) of the CIP identity object.					
S-0-1801.0.7 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		---	/ ---	---	
	MPC:		---	/ ---	---	
	MPE:		---	/ ---	---	
	MPM:		---	/ ---	---	

### 4.4.211 S-0-1810.x.1, SV Max data age

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the maximum measured data age of the particular CIP safety connection. By writing to it, it can be reset o 0.					
S-0-1810.x.1 - Attributes	Function:	Par	Editable:	OM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## Standard Parameters

## 4.4.212 S-0-1810.x.2, Safety Validator State

Allocation	Contained in 16VRS:		«-»	«-»	«-»		
	Contained in 17VRS:		«-»	«-»	«-»		
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»	
	Hardware		optional safety technology module				
	Funct. package(s):		"open loop", "closed loop"				
	Device parameter:		axis-specific				
Function		This parameter contains the state of the safety validator.					
S-0-1810.x.2 - Attributes		Function:	Par	Editable:	--	Data length:	2Byte
		Memory:	--	Validity ch.:	--	Format:	DEC_OV
		Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
		Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value		
	MPB:	--- / ---			---		
	MPC:	--- / ---			---		
	MPE:	--- / ---			---		
	MPM:	--- / ---			---		

## 4.4.213 S-0-1810.x.3, SV Error code

Allocation	Contained in 16VRS:		«-»	«-»	«-»
	Contained in 17VRS:		«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»
	Hardware		optional safety technology module		
	Funct. package(s):		"open loop", "closed loop"		
	Device parameter:		axis-specific		
Function	This parameter contains the safety validator error codes that are possibly available internally.				
S-0-1810.x.3 - Attributes	Function:	Par	Editable:	--	Data length:
	Memory:	--	Validity ch.:	--	Format:
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:
					--
	Input	min./max.		Default value	
	MPB:	--- / ---		---	
	MPC:	--- / ---		---	
	MPE:	--- / ---		---	
	MPM:	--- / ---		---	

## 4.4.214 S-0-1810.x.4, Safety Validator type

Allocation	Contained in 16VRS:		«-»	«-»	«-»
	Contained in 17VRS:		«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»
	Hardware		optional safety technology module		
	Funct. package(s):		"open loop", "closed loop"		
	Device parameter:		axis-specific		
Function	This parameter contains the type of the safety validator. It indicates whether the CIP safety validator is of type consumer or producer.				
S-0-1810.x.4 - Attributes	Function:	Par	Editable:	--	Data length:
	Memory:	--	Validity ch.:	--	Format:
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:
					--
	Input	min./max.		Default value	
	MPB:	--- / ---		---	
	MPC:	--- / ---		---	
	MPE:	--- / ---		---	
	MPM:	--- / ---		---	

## 4.4.215 S-0-1810.x.5, SV Time coord msg min multiplier

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		

## Standard Parameters

	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the time coordination multiplier of the safety validator.					
S-0-1810.x.5 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 4.4.216 S-0-1810.x.6, SV Max consumer number

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the maximum supported consumer number of the respective safety validator.					
S-0-1810.x.6 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		---	/	---	---
	MPC:		---	/	---	---
	MPE:		---	/	---	---
	MPM:		---	/	---	---

### 4.4.217 S-0-1810.x.7, SV Timeout multiplier

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the timeout multiplier of the safety validator.					
S-0-1810.x.7 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 4.4.218 S-0-1810.x.8, SV Ping interval EPI multiplier

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the ping interval EPI multiplier of the safety validator.					
S-0-1810.x.8 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC OV

## Standard Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.4.219 S-0-1810.x.9, SV Network time expectation multiplier

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** This parameter contains the network time expectation multiplier of the safety validator.

S-0-1810.x.9 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.4.220 S-0-1820.x.1, CIP assembly instance number

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** This parameter contains the CIP assembly instance number. The particular connection point is output as parameter.

S-0-1820.x.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 4.4.221 S-0-1820.x.2, Safety Validator instance number

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** This parameter contains the instance number of the safety validator. There is no differentiation between consumer and producer.

S-0-1820.x.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.		Default value		
MPB:	--- / ---		---		

## Standard Parameters

MPC:	---	---	---
MPE:	---	---	---
MPM:	---	---	---

### 4.4.222 S-0-1820.x.3, Safety application type

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»		
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter contains the safety application type. The flag of bit 0 indicates whether it is a producing or a consuming connection.					
S-0-1820.x.3 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 4.4.223 S-0-1820.x.4, Safety application data size

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter contains the data size of the safety application. It outputs the length of the useful data connection of this instance as sercos parameter.					
S-0-1820.x.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 4.4.224 S-0-1830.x.1, List of cyclic SMP container (out)

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter is used to define the sercos SMP container to be used for the cyclic output data of the CIP safety on sercos connection.					
S-0-1830.x.1 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Standard Parameters

## 4.4.225 S-0-1830.x.2, List of cyclic SMP Session ID (out)

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter is used to define the sercos SMP session to be used for the cyclic output data of the CIP safety on sercos connection.					
S-0-1830.x.2 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 4.4.226 S-0-1830.x.3, List of cyclic SMP containers (in)

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter is used to define the sercos SMP containers to be used for the cyclic input data of the CIP safety on sercos connection.					
S-0-1830.x.3 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		s. Text	
	MPC:		--- / ---		s. Text	
	MPE:		--- / ---		s. Text	
	MPM:		--- / ---		s. Text	

## 4.4.227 S-0-1830.x.4, List of cyclic SMP Session IDs (in)

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter is used to define the sercos SMP sessions to be used for the cyclic input data of the CIP safety on sercos connection.					
S-0-1830.x.4 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

## 4.4.228 S-0-1830.x.5, List of UCM SMP containers (in)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
Allocation	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		

## Standard Parameters

	<b>Hardware</b>		optional safety technology module			
	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		axis-specific			
<b>Function</b>	This parameter is used to define the sercos SMP containers to be used for the acyclic input data of the CIP safety on sercos connection.					
<b>S-0-1830.x.5 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	<b>MPB:</b>		--- / ---		s. Text	
	<b>MPC:</b>		--- / ---		s. Text	
	<b>MPE:</b>		--- / ---		s. Text	
	<b>MPM:</b>		--- / ---		s. Text	

### 4.4.229 S-0-1830.x.6, List of UCM SMP Session IDs (in)

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter is used to define the sercos SMP sessions to be used for the acyclic input data of the CIP safety on sercos connection.					
S-0-1830.x.6 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

### 4.4.230 S-0-1830.x.7, List of UCM SMP containers (out)

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter is used to define the sercos SMP containers to be used for the acyclic output data of the CIP safety on sercos connection.					
S-0-1830.x.7 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

### 4.4.231 S-0-1830.x.8, List of UCM SMP Session IDs (out)

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter is used to define the sercos SMP sessions to be used for the acyclic output data of the CIP safety on sercos connection.				

## Standard Parameters

## S-0-1830.x.8 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		s. Text	
<b>MPC:</b>		--- / ---		s. Text	
<b>MPE:</b>		--- / ---		s. Text	
<b>MPM:</b>		--- / ---		s. Text	

## 4.4.232 S-0-1830.x.9, List of consumer numbers

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter is relevant to devices which support "multicast CIP safety connections". It is used for communicating the particular list entries of the "S-0-1830.0.x" parameters.



Presently, "multicast CIP safety connections" are not supported.

## S-0-1830.x.9 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		s. Text	
<b>MPC:</b>		--- / ---		s. Text	
<b>MPE:</b>		--- / ---		s. Text	
<b>MPM:</b>		--- / ---		s. Text	

## 5 Product-Specific Parameters

### 5.1 P-0-0000 to P-0-0100 General Functions

#### 5.1.1 P-0-0001, Switching frequency of the power output stage

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter can be used to set the switching frequency of the power output stage ( $f_{PWM}$ ) as desired within the scope of the frequencies supported by the respective power section.



Only set such switching frequencies which are supported by the involved components! Observe the Technical Data for drive controllers and motors.

See also Functional Description "Current Loop"

**Use** Observe the following aspects for parameter setting:

- The actually possible input values for the switching frequency of the output stage depend on the performance setting in parameter "P-0-0556, Config word of axis controller".
- The effective switching frequency can be reduced according to the settings in "P-0-0045, Control word of current controller ", bits 7 and 11. This reduction can be made in relation to the load, in relation to the velocity or synchronously with the output frequency (MPC).
- The maximum switching frequency is determined by "P-0-4058, Amplifier type data", list element 16. Depending on the device type, the following values can be set:

Device type / switching frequency $f_s$ [kHz]	2	4	8	12	16
HCS01.1-B (Basic)	x	x	x	x	x
HCS01.1-E (Economy)	x	x	x	O	O
HCQ, HCT (multi-axis)	O	x	x	O	O
HCS01.1-A (Advanced +)*	x	x	x	x	x

\*HCS01.1-A MPx-17 only

O: Not possible

X: Possible

Tab.5-1: Switching Frequency

The cycle time of the current control results from the combination of the switching frequency of the output stage and the performance setting in parameter "P-0-0556, Config word of axis controller". The higher the switching frequency selected, the shorter the cycle time.



The higher the clock frequency selected, the lower the continuous output current of the controller.

#### P-0-0001 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Hz	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	4000 / 16000	4000
MPC:	4000 / 16000	4000
MPE:	4000 / 8000	4000
MPM:	4000 / 8000	4000

## 5.1.2 P-0-0002, SPI flash aging counter

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	«MPC»		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains a rotary counter for consistent reconstruction of the PARAM\_SP memory area when the system is started the next time.



The functional principle of the parameter is documented only internally. Changes or evaluations are reserved to customer support.

P-0-0002 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.1.3 P-0-0003, Status of parameter buffering

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	«MPC»		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter provides status information about present storage processes of the drive. As long as one of these bits is set, parameter changes in the related memory area are not completed yet. If the drive is switched off in this state, parameters will be lost.

**Structure**

Bit	Designation/function	Comment
0	Data backup in PARAM_SP 0: Not active 1: Active	
1	Data backup in ON_BOARD_SP 0: Not active 1: Active	
2	Data backup in ON_BOARD_FIX 0: Not active 1: Active	

Product-Specific Parameters

Bit	Designation/function	Comment
3	<b>Data backup in PARAM_FIX</b> 0: Not active 1: Active	
8	<b>Storage in PARAM_SP</b> 0: All data backups were without error 1: One of the data backups caused an error	
9	<b>Storage in ON_BOARD_SP</b> 0: All data backups were without error 1: One of the data backups caused an error	
10	<b>Storage in ON_BOARD_FIX</b> 0: All data backups were without error 1: One of the data backups caused an error	
11	<b>Storage in PARAM_FIX</b> 0: All data backups were without error 1: One of the data backups caused an error	

Tab.5-2: P-0-0003, Status of parameter buffering

P-0-0003 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.1.4 P-0-0004, Velocity loop smoothing time constant

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	---			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The activatable time constant in this parameter is effective within the velocity loop and is suitable for suppressing quantization effects and for limitation the band width of velocity control loop.

See also Functional Description "Velocity Control"

**Use** The limit frequency results from the smoothing time constant by the relation:

$$f_g = \frac{1}{2 \cdot \pi \cdot T}$$

Fig.5-3: Band Width

By entering the smoothing time constant, which is smaller or equal the aperture time (clock rate) of the velocity loop, the filter is switched-off. You will find an overview about the clock rates within the section "Control Section Design and Performance".

## Product-Specific Parameters

<b>P-0-0004 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		0 / 65500		800		
MPC:		0 / 65500		800		
MPE:		0 / 32000		800		
MPM:		0 / 65500		800		

## 5.1.5 P-0-0005, SPI flash aging counter (onboard)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«MPE»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter contains a rotary counter for consistent reconstruction of a dynamically managed ON\_BOARD\_SP memory area when the system is started the next time.



The functional principle of the parameter is documented only internally. Changes or evaluations are reserved to customer support.

<b>P-0-0005 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	RE-TAIN_GER-AET	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.1.6 P-0-0007, Display text of diagnostic message

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter contains the display suitable for "S-0-0095 Diagnostic message".

Example: "AF" or "PL"

See also Functional Description "Coded Diagnoses of the Drive"

<b>P-0-0007 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.1.7 P-0-0008, Activation E-Stop function

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»

## Product-Specific Parameters

Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** This parameter is used for activating the E-Stop input and selecting a reaction for the shutdown of the drive.

See also Functional Description "E-Stop Function"

### Structure

Bit	Designation/function	Comment
0	<b>Activation of E-Stop</b> 0: Inactive 1: Active	
1	<b>Error class in the case of interpretation as an error (bit 2 = 0)</b> 0: Best possible deceleration (P-0-0119) 1: Velocity command value set to zero	
2	<b>Interpretation</b> 0: As non-fatal error 1: Fatal warning	

Tab.5-4: P-0-0008, Activation E-Stop function



The input is always "0-active", i.e. 0 V on the input means it is active! "P-0-0223, E-Stop input" must have been assigned to a digital input via the P-0-0300 and P-0-0301 parameters.

### P-0-0008 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0x7	0x0
MPC:	0x0 / 0x7	0x0
MPE:	0x0 / 0x7	0x0
MPM:	0x0 / 0x7	0x0

## 5.1.8 P-0-0009, Error number

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** When the drive diagnoses a class 1 diagnostics error, a bit is set in parameter "S-0-0011, Class 1 diagnostics". Bit 13 for "Error in class 1 diagnostics" is then set in the drive status word.

See also Functional Description "Error Memory (Power Section and Control Section)"

**Use** In order to allow a more detailed diagnosis

- the diagnostic number appears on the display and is stored in parameter "S-0-0390, Diagnostic message number",
- the plain text diagnosis is stored in parameter "S-0-0095, Diagnostic message"

## Product-Specific Parameters

- and the respective error number is stored in parameter "P-0-0009, Error number".

When there isn't any error present, the value of parameter P-0-0009, Error number equals 0.

**Example** for a diagnosis:

S-0-0390: F8022 (hex)

P-0-0009: 8022 (decimal)

S-0-0095: F8022 Enc. 1: enc. signals incorr. (can be cleared in ph. 2)

P-0-0009 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 5.1.9 P-0-0010, Excessive position command value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In operation mode "cyclic position control"(e.g. S-0-0032... 35 = 0x0003, 0x0004, 0x000B or 0x000C) the NC provides position command values in equal intervals "S-0-0001, NC cycle time (TNcyc)". Thereby, the drive monitors the difference among two sequently position command values on exceeding the parameter "S-0-0091, Bipolar velocity limit value".

When exceeding, the failure "F2037 Excessive position command difference" is applied and the failure causing "excessive position command value"  $X_{cmd}(k)$  is stored in the parameter "P-0-0010".

See also Functional Description "Position Control with Cyclic Command Value Input"

P-0-0010 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 5.1.10 P-0-0011, Last valid position command value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In operation mode "cyclic position control"(e.g. S-0-0032... 35 = 0x0003, 0x0004, 0x000B or 0x000C) the NC provides position command values in equal intervals "S-0-0001, NC cycle time (TNcyc)". Thereby, the drive monitors the difference among two sequently position command values on exceeding the parameter "S-0-0091, Bipolar velocity limit value".

## Product-Specific Parameters

When exceeding, the failure "F2037 Excessive position command difference" is applied and "latest valid position command value"  $X_{cmd}(k-1)$  is stored in the parameter "P-0-0011".

See also Functional Description "Position Control with Cyclic Command Value Input"

<b>P-0-0011 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>		<b>min./max.</b>	<b>Default value</b>	
		MPB:		--- / ---	---	
		MPC:		--- / ---	---	
		MPE:		--- / ---	---	
		MPM:		--- / ---	---	

### 5.1.11 P-0-0013, List of all IDNs not corresponding to default value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b> "open loop", "closed loop"			
		<b>Device parameter:</b> axis-specific			

**Function** This parameter contains a list of the IDNs of those parameters the data of which was changed with regard to the default value.

See also Functional Description "Parameters, Basics"

<b>P-0-0013 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>		<b>min./max.</b>	<b>Default value</b>	
		MPB:		--- / ---	---	
		MPC:		--- / ---	---	
		MPE:		--- / ---	---	
		MPM:		--- / ---	---	

### 5.1.12 P-0-0014, C1400 Command Get marker position

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b> closed loop			
		<b>Device parameter:</b> axis-specific			

**Function** The command "P-0-0014" serves for checking the reference marks detection of an incremental measuring system.

See also Functional Description "Detect Marker Position"

**Use** Is the command activated, the detected reference mark of the position command value of the measuring system is stored in the parameter "S-0-0173, Marker position A" and the command is reported as finished. Is the drive fitted with an external encoder, additionally to the motor encoder, bit 3 defines from "S-0-0147, Homing parameter", in which encoder the position of the reference mark is stored!



The position command value of further reference marks is stored for incremental encoders with distance-coded reference marks in the parameter "S-0-0174, Marker position B".

## Product-Specific Parameters

<b>P-0-0014 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.1.13 P-0-0018, Number of pole pairs/pole pair distance

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The following settings can be made depending on bit 9 of parameter "P-0-4014, Type of construction of motor":

- Number of pole pairs in case of rotary motors
- Pole pair distance/pole pair length in case of linear motors



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

See also Functional Description "Motor, Mechanical Axis System Measuring Systems"

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

<b>P-0-0018 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Pole pairs	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		1 / s. Text			3	
<b>MPC:</b>		1 / s. Text			3	
<b>MPE:</b>		1 / s. Text			3	
<b>MPM:</b>		1 / s. Text			3	

## 5.1.14 P-0-0019, Initial position value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** In case of a non-homed drive (S-0-0403 = 0x0), the position feedback value of the motor encoder (S-0-0051) and, if available, the position feedback value of the optional encoder (S-0-0053) is set to the value of "P-0-0019" during the

## Product-Specific Parameters

initialization process (command for transition from communication phase 3 to 4), if absolute encoder evaluation is not active.

See also Parameter Description "S-0-0277 / S-0-0115 "



The default value of "P-0-0019" is zero.

See also Functional Description "Absolute Measuring Systems"

See also Functional Description "Shifting the Position Data Reference for Relative and Absolute Measuring Systems"

### P-0-0019 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPC:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPE:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPM:</b>	S-0-0076 / S-0-0076	0,0000

## 5.1.15 P-0-0020, Oscilloscope: Operation mode

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** Parameter "P-0-0020" can be used to activate special functions.



The parameter can only be changed when all oscilloscope functions of a device have been deactivated (P-0-0028, Oscilloscope: Control word").

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
0	<b>Oscilloscope</b> <b>0:</b> Axis oscilloscope (one separate oscilloscope for each axis of a device) <b>1:</b> Device oscilloscope (one common oscilloscope for all axes of a device)	
4	<b>Mode</b> <b>0:</b> Standard mode: The shortest recording cycle is the position control cycle <b>1:</b> Expert mode: The current or velocity control cycle can be selected as the shortest recording cycle. Recording in these cycles is not guaranteed. Subject to the work load of the control section, the recording cycle can therefore also be longer.	The bit is not remanent. After having been switched on, the device is always in standard mode.
5	<b>Trend mode</b> <b>0:</b> Standard recording with trigger signal. Multiple device measurement is possible. <b>1:</b> Recording is continuous without trigger signal. Measured values are provided via "P-0-0280" which can be read cyclically.	

Tab.5-5: P-0-0020, Oscilloscope: Operation mode

See also Functional Description "Oscilloscope Function"

## P-0-0020 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0x0		
<b>MPC:</b>	--- / ---		0x0		
<b>MPE:</b>	--- / ---		0x0		
<b>MPM:</b>	--- / ---		0x0		

## 5.1.16 P-0-0021, Oscilloscope: List of measured values 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The measured values of channel 1 of the oscilloscope function are stored in chronological order in parameter "P-0-0021, Oscilloscope: list of measured values 1". The oldest measured value is the first element of the list of measured values.

The recorded signal is the one identified by means of the IDN entered in "P-0-0023, Oscilloscope: signal selection 1".



Attribute, unit etc. are automatically adjusting to this selected signal.

See also Functional Description "Oscilloscope Function"

## P-0-0021 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV

Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.1.17 P-0-0022, Oscilloscope: List of measured values 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The measured values of channel 2 of the oscilloscope function are stored in chronological order in parameter "P-0-0022, Oscilloscope: list of measured values 2". The oldest measured value is the first element of the list of measured values.

The recorded signal is the one identified by means of the IDN entered in "P-0-0024, Oscilloscope: signal selection 2".



Attribute, unit etc. are automatically adjusting to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0022 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.1.18 P-0-0023, Oscilloscope: Signal selection 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The IDN entered in "P-0-0023, Oscilloscope: Signal selection 1" defines the signal that is to be recorded by channel 1.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated with the input "0" or "S-0-0000".

When the recording is over, the recorded measured values are contained in parameter "P-0-0021, Oscilloscope: List of measured values 1".

See also Functional Description of firmware "Oscilloscope Function"

P-0-0023 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.1.19 P-0-0024, Oscilloscope: Signal selection 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The IDN entered in "P-0-0024, Oscilloscope: Signal selection 2" defines the signal that is to be recorded by channel 2.

Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated by entering "0" or using "S-0-0000".

After recording has been completed, the recorded measured values are contained in parameter "P-0-0022, Oscilloscope: List of measured values 2".

See also Functional Description "Oscilloscope Function"

P-0-0024 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.1.20 P-0-0025, Oscilloscope: Trigger mask

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** For trigger signals with the display format "Bin" and "Hex", it is possible by means of parameter "P-0-0025, Oscilloscope: trigger mask" to put an additional trigger mask over the trigger signal and trigger threshold before the comparison. On all other display formats of the trigger signal the parameter doesn't have any effect.

See also Functional Description "Oscilloscope Function"

P-0-0025 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0xFFFFFFFF
MPC:	--- / ---	0xFFFFFFFF
MPE:	--- / ---	0xFFFFFFFF
MPM:	--- / ---	0xFFFFFFFF

## 5.1.21 P-0-0026, Oscilloscope: Trigger signal selection

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter "P-0-0026, Oscilloscope: Trigger signal selection" determines, for the trigger unit, to which signal from "P-0-0149, Oscilloscope: Signal selection list" the trigger level (P-0-0027) is to be compared.



Selecting a trigger signal (cf. P-0-0026) also determines the unit and format for "P-0-0027, Oscilloscope: Trigger level".

See also Functional Description of firmware "Oscilloscope Function"

**Use** At the start of the recording (P-0-0036, bit 2 ↑ 1) the trigger error bit (P-0-0037, bit 7) is then set in the status word.

Changing the parameter is only possible when the oscilloscope has been deactivated (see also P-0-0028, Oscilloscope: Control word").



When S-0-0000 is preset as IDN, the trigger function is not active.

### P-0-0026 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.1.22 P-0-0027, Oscilloscope: Trigger level

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter "P-0-0027, Oscilloscope: trigger level" is the comparative value for the trigger function.

See also Functional Description "Oscilloscope Function"

**Use** Depending on the selected trigger edge (P-0-0030), the bit for "internal trigger" (P-0-0037, bit 2) is set when the trigger condition has been reached.

Before that bit 8 and bit 9 in the status word (P-0-0029) indicate whether the value of the selected trigger source is above or below the trigger level or whether the value corresponds to the trigger level.



The parameter can only be changed when the recording has been started (see also "P-0-0028, Oscilloscope: control word"). Depending on the IDN selected in "P-0-0026, Oscilloscope: trigger signal selection", attribute and unit are adjusting to the selected signal.

## Product-Specific Parameters

<b>P-0-0027 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			0	
<b>MPC:</b>		--- / ---			0	
<b>MPE:</b>		--- / ---			0	
<b>MPM:</b>		--- / ---			0	

## 5.1.23 P-0-0028, Oscilloscope: Control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** The parameter "P-0-0028, Oscilloscope: Control word" contains (except for the operation mode) all settings for controlling the oscilloscope. These settings contain the selection for trigger offset measurement and the activation (start/stop) of the oscilloscope.

See also Functional Description "Oscilloscope Function"

**Structure**

Bit	Designation/function	Comment
0	<b>Start of recording</b>	
	0: Recording is stopped	
	1: Recording is started	
1	<b>Kind of trigger</b>	
	0: Internal trigger (without offset measurement)	
	1: External trigger (with offset measurement)	

Tab.5-6: P-0-0028, Oscilloscope: Control word

<b>P-0-0028 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.1.24 P-0-0029, Oscilloscope: Status word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** The parameter "P-0-0029, Oscilloscope: status word" displays the current status of the oscilloscope function.

See also Functional Description "Oscilloscope Function"

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	0	<b>start of recording</b> 0: Recording by P-0-0028, bit 0 stopped or completed. 1: Recording by P-0-0028, Bit 0 started. Change of some oscilloscope parameters locked.	
	1	<b>trigger start</b> 0: trigger function completed 1: Trigger function started. Internal trigger not yet released. Comparison continues to run.	
	2	<b>internal trigger</b> 0: Internal trigger not yet released. 1: Internal trigger released. Comparison successfully completed.	
	3	<b>trigger function completed</b> 1: When triggering via external trigger signal, (P-0-0028, bit1 = 1) an external trigger signal was detected. When triggering via internal source only, this bit is set together with bit 2.	
	4	<b>delay function completed</b> 0: delay function still active 1: Delay function completed. New measured values can be read. Bit 0 is cleared.	
	7	<b>trigger error</b> 0: trigger function correctly initialized at start of recording (P-0-0028, bit 0) 1: Trigger function not correctly initialized at start of recording (P-0-0028, bit 0), e.g. incorrect trigger source (P-0-0026). Trigger function therefore cannot be executed.	
	8/9	<b>status trigger signal</b> (comparison only takes place with active trigger function and until internal trigger bit2 has been reached) 00: no comparison 01: trigger signal > trigger threshold (P-0-0027) 10: trigger signal < trigger threshold (P-0-0027) 11: trigger signal = trigger threshold (P-0-0027)	

Tab.5-7: P-0-0029, Oscilloscope: status word

See also Parameter Description "P-0-0028, Oscilloscope: control word

P-0-0029 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.1.25 P-0-0030, Oscilloscope: Trigger edge

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter "P-0-0030, Oscilloscope: Trigger edge" determines the edge at which the "internal trigger" (P-0-0029, bit 2) is triggered.

See also the functional description: "Oscilloscope Function"

**Structure**

Bit	Designation/function	Comment
0	<b>Trigger edge positive</b> 1: Internal trigger is triggered at positive edge	
1	<b>Trigger edge negative</b> 1: Internal trigger is triggered at negative edge	
2	<b>Trigger equal</b> 1: Internal trigger is triggered when trigger level and value of trigger source are equal	

Tab.5-8: P-0-0030, Oscilloscope: Trigger edge

**Use** In addition, it is possible to check the equality of trigger level and trigger source. Combinations of several conditions (e.g.) are possible.

The parameter can also be changed when the recording has been started (see also "P-0-0028, Oscilloscope: Control word"). This however can cause the "internal trigger" to be triggered accidentally.

**P-0-0030 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	1 / 4	3
MPC:	1 / 4	3
MPE:	1 / 4	3
MPM:	1 / 4	3

## 5.1.26 P-0-0031, Oscilloscope: Time resolution

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The time resolution of the oscilloscope function (i.e. the sampling rate) can be defined by parameter "P-0-0031, Oscilloscope: time resolution". As a maximum (= highest sampling rate) the signals can be recorded in the position loop clock (Advanced: 250 µs, Basic: 500 µs, Low Performance: 1 ms).

The following applies to the parameterization of P-0-0031:

- The input range of P-0-0031 therefore depends on the hardware and firmware that are used (or the performance set in "P-0-0556").
- When new values are entered they are automatically replaced by multiples of the minimum value.

Product-Specific Parameters



Parameter "P-0-0031" can only be changed when the oscilloscope has been deactivated (see also "P-0-0028, Oscilloscope: control word").

See also Functional Description "Oscilloscope Function"

P-0-0031 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	250 / 8000000	1000
MPC:	250 / 8000000	1000
MPE:	250 / 8000000	1000
MPM:	250 / 8000000	1000

## 5.1.27 P-0-0032, Oscilloscope: Size of memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** The size of memory defines the number of measured values to be recorded per measurement. A maximum of 8192 measured values can be recorded per channel. By means of the size of memory and the time resolution ("P-0-0031, Oscilloscope: time resolution") you can determine the recording time.



The minimum recording duration is one position clock!

In general, the following applies:

$$\text{recording time} = \text{time resolution} \cdot \text{size of memory} [\mu\text{s}]$$

Fig. 5-9: Recording time

With the size of memory the master can adjust the size of the lists of measured values to its requirements (e.g. available memory). The parameter can only be changed when the oscilloscope has been deactivated (see also "P-0-0028, Oscilloscope: control word").

See also Functional Description "Oscilloscope Function"

P-0-0032 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 8192	4096
MPC:	1 / 8192	4096
MPE:	1 / 8192	4096
MPM:	1 / 8192	4096

## 5.1.28 P-0-0033, Oscilloscope: Number of measured values after trigger event

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	--			

## Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		axis-specific			
<b>Function</b>	The parameter "P-0-0033, Oscilloscope: number of measured values after trigger event" determines the number of measured values that will still be recorded after the trigger event ("P-0-0029", bit 3 = 1) has occurred (delay function).					
	See also the functional description: "Oscilloscope Function"					
<b>Use</b>	After these measured values have been recorded, the bit "delay function completed" (P-0-0029, bit 4) is set in "P-0-0029, Oscilloscope: status word". The entire recording then is completed and the lists of measured values can be read.					
<b>P-0-0033 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	0 / 8192			0	
	<b>MPC:</b>	0 / 8192			0	
	<b>MPE:</b>	0 / 8192			0	
	<b>MPM:</b>	0 / 8192			0	

## 5.1.29 P-0-0034, Position command additional actual value

Allocation	Contained in 16VRS:		«MPB»	«-»	«MPM»	
	Contained in 17VRS:		«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter is used as the start value for synchronization in a synchronization mode with outer position control loop.					
	It contains the difference between "P-0-0753, Position actual value in actual value cycle" and the synchronous position command value generated from the master axis position. In the case of modulo scaling, the parameterized actual value cycle is used as modulo range for P-0-0034.					
P-0-0034 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## 5.1.30 P-0-0035, Oscilloscope: Trigger control offset

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	With the selection "trigger offset measurement" (P-0-0028, bit 1 = 1), the parameter "P-0-0035, Oscilloscope: control offset" contains the number of measured values that were recorded between the occurrence of the "internal trigger" (P-0-0029, bit 2) and the occurrence of the "external trigger for trigger offset measurement" (P-0-0036, bit 0). The parameter indicates the offset between these two trigger sources and can be used for synchronizing the lists of measured values of several drives via the master.				

Product-Specific Parameters

See also Functional Description "Oscilloscope Function"

See also Parameter Description "P-0-0028, Oscilloscope: control word"

P-0-0035 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.1.31 P-0-0036, Oscilloscope: External trigger signal

Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

Function

The parameter "P-0-0036" is a real time control bit capable parameter and can be parameterized in the real time channel of the interface and as hardware input.

See also Parameter Description "P-0-0028, Oscilloscope: control word"

See also Parameter Description "P-0-0136, Oscilloscope: manual trigger signal"

Structure

See also Functional Description "Oscilloscope Function"

Bit	Designation/function	Comment
0	external trigger signal 0: External trigger signal = Low 1: External trigger signal = High	

Tab.5-10: P-0-0020, Oscilloscope: external trigger signal

P-0-0036 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.1.32 P-0-0037, Oscilloscope: Internal trigger signal

Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

Function

The parameter "P-0-0037, Oscilloscope: internal trigger signal" contains the status of the internal trigger. It is a real-time status bit capable parameter and can be parameterized both in the real-time channel of the interface and as hardware output.

See also the functional description: "Oscilloscope Function"

## Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	0	<b>internal trigger</b> 0: Internal trigger not yet triggered. Comparison still active. 1: Internal trigger triggered. Comparison successfully completed.	

Tab.5-11: P-0-0037: Oscilloscope: internal trigger signal

P-0-0037 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.1.33 P-0-0038, Torque-generating current, command value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		"open loop", "closed loop"			
Device parameter:		axis-specific			

**Function** Display parameter for the torque component or force-generating component of the current command value.

The velocity loop generates the torque or force command value that is afterwards converted to the torque-generating current command value via "P-0-0051, Torque/force constant". The value is therefore updated in the velocity loop cycle time (250 µs/125 µs controller performance).

See also Functional Description "Torque/Force Control"

P-0-0038 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	A eff	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.1.34 P-0-0039, Flux-generating current, command value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		"open loop", "closed loop"			
Device parameter:		axis-specific			

**Function** Display parameter for the current command value component that generates the magnetic flux in the motor. The flux-generating current is output of the flux loop that is processed in the position loop cycle time.

In the case of asynchronous motors the flux-generating current nominally corresponds to "P-0-4004, Magnetizing current". Differing from this value, the flux-generating current command value is reduced, if:

- "P-0-0532, Premagnetization factor" of less than 100% was selected and the motor is in no-load operation,
- the motor is operated in the field weakening range.

## Product-Specific Parameters

Synchronous motors do not require flux-generating current. The field weakening operation is an exception. In this case the controller generates a negative flux-generating current in order to weaken the permanent field!

### P-0-0039 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	OM	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	A eff	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	s. Text / s. Text	---
MPC:	s. Text / s. Text	---
MPE:	s. Text / s. Text	---
MPM:	s. Text / s. Text	---

## 5.1.35 P-0-0040, Velocity feedforward evaluation

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** By means of the velocity feedforward that can be freely set via "P-0-0040, Velocity feedforward evaluation", it is possible to set the lag error to a desired percentage value at constant velocity. The minimum (ideally = 0) is at 100%. The degree of feedforward can be set in the range of **0%...120%**.



Activating the lagless operation (cf. S-0-0032, S-0-0033, S-0-0034, S-0-0035) causes a feedforward value determined from the position command value (= velocity command value) to be added to the velocity command value at the position controller output.

### P-0-0040 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2

Input	min./max.	Default value
MPB:	0,00 / 120,00	100,00
MPC:	0,00 / 120,00	100,00
MPE:	0,00 / 120,00	100,00
MPM:	0,00 / 120,00	100,00

## 5.1.36 P-0-0041, Position command average value filter time constant

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** The parameter "P-0-0041" makes a filtering of the position command value on the input of the position loop with a sliding average filter possible. There-with can the position command value profile be filtered and the acceleration or the jerk be minimized. This is necessary for some mechanics, to avoid an excitation of machine resonance due to command value characteristics.

See also Functional Description "Position Control with Cyclic Command Value Input"

**Use** The parameter "P-0-0041" is only used for cyclic position control to parameterize the jerk.

The following aspects have to be taken into account:

## Product-Specific Parameters

- The effective filter order M is always displayed in "P-0-0042, Current position command average value filter order" (P-0-0042 = P-0-0041/ TNcyc)
- The NC-cycle time TNcyc (see S-0-0001) and the position loop clock are dependend from the performance (see Functional Description / Performance Details)

### Further basics

For this filter type, the changes on the output at constant input are always equal.

$$\Delta Y = \frac{X}{M}$$

Fig.5-12: Position Command Value on the Filter Output

The filter output Y rises at constant input size X linear and has reached after this time its final value on the filter output:

$$t = M \cdot T_A$$

Fig.5-13: Time Period of Average Filter



Therewith, this filter type does not show the typical "creep behavior" (filter output rises and falls after an e-function) of the usual VZ1 or VZ2 filters.

#### P-0-0041 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0 / s. Text		0		
<b>MPC:</b>	0 / s. Text		0		
<b>MPE:</b>	0 / s. Text		0		
<b>MPM:</b>	0 / s. Text		0		

### 5.1.37 P-0-0042, Current position command average value filter order

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Function</b>	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** The effective filter order M of the position command value filter designed as a moving average filter (cf. P-0-0041) is always displayed in "P-0-0042, Current position command average value filter order".



The user cannot change P-0-0042 directly!

See also Functional Description "Position Control With Cyclic Command Value Input"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Controlled Positioning"

**Use** The filter effect of the position command value filter depends on the following data:

Product-Specific Parameters

- **Filter order M** (cf. P-0-0042)
- **Active operation mode and performance**  
(See also chapter Performance Data)

We distinguish the following cases:

- **Cycl. position control:** P-0-0042 = P-0-0041/TNcyc  
→ Parameterization of P-0-0041! (max. filter order **M = 64**)
- **Interpolation mode:** P-0-0042 = S-0-0260/S-0-0193/\*TA,TNcyc  
→ Parameterization of S-0-0260, S-0-0193!
- **Positioning block mode:** P-0-0042 = P-0-4008/P-0-4009/\*TA,TNcyc  
→ Parameterization of P-0-4008, P-0-4009!

For interpolation modes, the calculated filter order is limited, the maximum value is **M = 512**).



For further details on the filter properties and the parameter setting, see the description of "P-0-0041, Position command average value filter time constant"!

**P-0-0042 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.1.38 P-0-0043, Torque-generating current, actual value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Display parameter for the torque-generating component of the measured actual current value. The value is updated with the current loop cycle time.



The phase currents of the three-phase AC motor are measured. The resulting torque-generating content of the total current is calculated internally and displayed by means of this parameter.

**P-0-0043 - Attributes**

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	A eff	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.1.39 P-0-0044, Flux-generating current, actual value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Product-Specific Parameters

	<b>Funct. package(s):</b>	"open loop", "closed loop"
	<b>Device parameter:</b>	axis-specific
<b>Function</b>	Display parameter for the content of the measured actual current value that generates the magnetic flux in the motor. The value is updated with current loop cycle time.	



The phase currents of the three-phase AC motor are measured. The resulting flux-generating content of the total current is calculated internally and displayed by means of this parameter.

## P-0-0044 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	A eff	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.1.40 P-0-0045, Control word of current controller

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to configure the current loop.

See also Functional Description "Motor Control"

**Structure**

Bit	Designation/function	Comment
0	<b>Field weakening with synchronous motors</b> 0: Switched off 1: Enabled	
1	<b>Maximum motor voltage (with U/f operation of asynchronous motors)</b> 0: DC bus voltage unfiltered 1: DC bus voltage filtered	
2	<b>Magnetization of asynchronous motors (operating principle of P-0-0532)</b> 0: Load-dependent 1: Independent of load (controlled)	
3	<b>Method of control for field weakening operation of the asynchronous machine</b> 0: (Default) standard method active 1: Alternative method active	
4	<b>Monitoring with regard to interruption of motor power cable</b> 0: Active 1: Switched off	

Product-Specific Parameters

Bit	Designation/function	Comment
5	<b>Compensation in power output stage (not with U/f operation of asynchronous motors)</b> 0: Switched off 1: Enabled	
6	<b>Manual command value input for flux-generating current</b> 0: Switched off 1: Enabled	
7	<b>Type of PWM clocking</b> (adjustable through bit 11/7)	As of MPB-16V04; as of MPC-17V02; not for MPE/MP
8	<b>Enable velocity search mode (with U/f and FXC operation of asynchronous motors)</b> 0: Search mode switched off 1: Search mode enabled	MPB-17V02
9	<b>Configuration velocity search mode (only with U/f operation of asynchronous motors)</b> 0: Search mode after "AF", only with the same sign of n_cmd 1: Search mode after "AF", bidirectional	MPB-17V02
10	<b>Reserved</b>	
11	<b>Type of PWM clocking</b> (adjustable through bit 11/7) 00: Static PWM 01: Load-dependent PWM switchover As of MPx-17VRS 10: Velocity-dependent PWM switchover 11: Reserved	As of MPB-16V04; as of MPC-17V02; not for MPE/MPM
12	<b>Enable stall protection loop (with U/f operation of asynchronous motors)</b> 0: Switched off 1: Enabled	

## Product-Specific Parameters

Bit	Designation/function	Comment
13	<b>Selection of U/f characteristic (with U/f operation of asynchronous motors)</b> 0: Linear 1: Square	
15/14	<b>Selection of motor operation</b> 00: Current control with motor encoder 01: U/f-controlled operation (only asynchronous motor) 10: Reserved 11: Flux-controlled motor operation, sensorless (FXC; synchronous and asynchronous motors)	

Tab.5-14: Current Loop Configuration

**Use** The following aspects have to be taken into account:

- **Bit 1:** With open-loop U/f control, the motor voltage is by default limited to the unfiltered DC bus voltage. In this way, maximum motor power can be reached in the field weakening range. This voltage, however, is relatively unstable due to the rectifier and other effects. If this causes too much instability in the motor current (high harmonics component, unexpectedly high rise in motor temperature, already in no-load operation), the maximum motor voltage can be limited to the filtered DC bus voltage. This clearly stabilizes the motor current. But it also reduces the maximum motor power in the field weakening range.
- **Bit 2:** This function can be switched off with bit 2 = 1. Only applies to closed-loop control of asynchronous motors.  
See also "P-0-0532, Premagnetization factor"
- **Bit 3:** If problems, which cannot be solved by manual adjustment of motor control parameters (e.g., F8078 when decelerating), occur during operation of asynchronous motors in the field weakening range, it is advisable to activate the "alternative" method of control for asynchronous motors.

Activation of the alternative control method requires the following:

- For Rexroth motors, execute "C4600 Command Calculate motor control parameters".
- For third-party motors, proceed as follows:
  - Enter the type plate data in "P-0-4032, Motor type plate data".
  - "Execute C3200, Command Calculate motor data."
  - "Execute C3600, Command Motor data identification."



If the motor does not yet run optimally after the above commands were executed, the motor control parameters can be changed manually.

- **Bit 5:** It is recommended that you activate this function, if there are problems in motor operation with small velocities. Particularly with sensorless field-oriented control, the operating behavior is clearly improved – motor runs in a more stable way, maximum torques are higher. In case of field-oriented control with encoder, the operating behavior can be improved as regards the dynamic response of the control loop in the cur-

## Product-Specific Parameters

rent loop or the torque ripple content, for example. In the case of open-loop U/f control, this setting is without effect.

- **Bit 6:** Manual command value input is recommended, if you want to add a command value jump within the scope of optimization activities without thereby accelerating the motor. This results in a reluctance effect and field weakening in all motors except synchronous motors!

### P-0-0045 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	Grp. 5

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.1.41 P-0-0046, Status word of current controller

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter indicates states which have an effect on the proper behavior of the current controller.

### Structure

Bit	Designation/function	Comment
0	Internal drive enable active 0: No 1: Yes	
1	Absolute value of actual current > 1.2 times the allowed output current 0: No 1: Yes	
2	Overvoltage in DC bus 0: No 1: Yes	
3	Voltage limitation active in current controller 0: No 1: Yes	
4	Closed loop output - integrated flow-generating content in pos. limitation 0: No 1: Yes	
5	Closed loop output - integrated flow-generating content in neg. limitation 0: No 1: Yes	

## Product-Specific Parameters

Bit	Designation/function	Comment
6	Closed loop output - integrated torque/flow-generating content in positive limitation 0: No 1: Yes	
7	Closed loop output - integrated torque/flow-generating content in negative limitation 0: No 1: Yes	
11... 8	Reserved	
12	Open loop stall protection controller active 0: Not in engagement 1: In engagement	
13	Open loop current limitation controller active 0: Not in engagement 1: In engagement	
14	Reserved	
15	FXC control: Rotor standstill 0: Rotor speed less than standstill window 1: Rotor speed greater than standstill window Otherwise: Irrelevant	
23... 16	Reserved	
24	Regenerative voltage limitation 0: No 1: Yes	
25	Motive voltage limitation - torque-generating component greater than flow-generating component 0: No 1: Yes	
26	Motive voltage limitation - torque-generating component equal to flow-generating component 0: No 1: Yes	
27	Motive voltage limitation - torque-generating component less than flow-generating component 0: No 1: Yes	
28	Status of automatic PWM frequency switching 0: Higher PWM frequency active 1: Lower PWM frequency active	

Product-Specific Parameters

Bit	Designation/function	Comment
29	<b>Short-circuit braking</b>  1: Active  At least for 100 ms; if there is no current flowing during short-circuit braking, for at least 200 ms.  0: Other states	
31/30	<b>Reserved</b>	

Tab.5-15: Relevant Bits of the Current Controller Status Word

**Use** The current controller status word can be configured in the AT. It is therefore possible to apply the status messages to a digital output or have them evaluated by the higher-level control.

<b>P-0-0046 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.1.42 P-0-0047, Position command value control

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
		Device parameter:			
		axis-specific			

**Function** In the "position control" mode the control unit by means of "S-0-0047" and in the clock of its interpolation cycle time writes the cyclic position command values to the drive.

If required, these position command values coming directly from the control unit can be read via "P-0-0047, Position command value control"!



The interpolation cycle time of the control unit (cf. "S-0-0001") can be a multiple of the communication cycle time (cf. "S-0-0002") so that "P-0-0047" is also updated on the same time base!

See also Functional Description "Position Control with Cyclic Command Value Input"

<b>P-0-0047 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.1.43 P-0-0048, Effective velocity command value

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** By means of this parameter it is possible to display the velocity command value at the summing point of the velocity controller.



At the summing point the actual velocity value is subtracted from the effective velocity command value. The result of this calculation (control difference) is the input of the speed controller.

See also Functional Description "Velocity Loop"

See also Functional Description "Synchronization Modes"

**P-0-0048 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.1.44 P-0-0049, Effective torque/force command value

**Allocation**

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
<b>Funct. package(s):</b>	closed loop			
<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to display the torque/force command value after static torque/force limitation by means of S-0-0082 and S-0-0083.

See also Functional Description "Torque/Force Control"

See also Functional Description "Velocity Loop"

See also Functional Description "Current and Torque/Force Limitation"

**Use** When using the parameter, observe the following aspects:

- Possibly effective additive torque command value components (cf. P-0-0455) of the optional cogging torque compensation and acceleration feedforward are not contained in P-0-0049.
- The torque command value contained in P-0-0049 is again limited by the subsequent dynamic torque/current limitation. The result is "P-0-0038, Torque-generating current, command value" which results from multiplication with "P-0-0051, Torque/force constant" and is transmitted to the current loop.



By simultaneously considering P-0-0049, P-0-0038 and P-0-0445, you can determine all intermediate values.

**P-0-0049 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

Product-Specific Parameters

## 5.1.45 P-0-0051, Torque/force constant

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The torque/force constant indicates the relation of the motor torque/force and the associated torque-generating current of the motor, if the motor is not in the field weakening range.

If the motor is in the field weakening range, the actually effective torque/force constant is reduced in relation to the speed/velocity. The value in this parameter, however, remains unchanged (relation to operation without field weakening).



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

See also Functional Description "Torque/Force Control"

See also Functional Description "Motor, Mechanical Axis System Measuring Systems"

**Use** Unit, decimal places

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor (rotary or linear) entered in "P-0-4014, Type of construction of motor".

Unit for type of constr. of motor (P-0-4014)		Decimal places for type of constr. of motor (P-0-4014)	
Rotary	Linear	Rotary	Linear
Nm/A <sub>eff</sub>	N/A <sub>eff</sub>	2	2

Tab.5-16: Unit and Decimal Places Depending on P-0-4014

P-0-0051 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Nm/A eff	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0,01 / 655,35	1,00
MPC:	0,01 / 655,35	1,00
MPE:	0,01 / 655,35	1,00
MPM:	0,01 / 655,35	1,00

## 5.1.46 P-0-0052, Actual position value of measuring encoder

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»


## Product-Specific Parameters

Hardware	--		
Funct. package(s):	Servo(compensation), synchronisation (ELS)		
Device parameter:	axis-specific		

Function

This parameter indicates the current position of the measuring encoder at the measuring gear output. Initialization depends on the type of measuring encoder used.

---



Depending on "P-0-0330, Control word of measuring encoder, bit 2", the unit and the number of decimal places of the parameter are changed:

**Bit 2 = 0:** The unit of the parameter is increments and the parameter is shown without decimal places.

**Bit 2 = 1:** The unit of the parameter is degrees and the parameter is shown with 4 decimal places.

---

See Functional Description "Measuring Encoder"

See also Functional Description "Synchronization Modes"

Use

If measuring encoders have position feedback values which are not homed (P-0-0331, Status of measuring encoder, bit 0 = 0), the internal position feedback value of the particular measuring encoder is always set to zero after progressing to phase 4. Parameter "P-0-0052" is generated by adding the internal position feedback value of the measuring encoder by means of "P-0-0087, Actual position value offset of measuring encoder".

Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.1.47 P-0-0053, Master axis position

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			
Function	The master axis position as actual position of a master axis is used for command value input for the synchronous operation modes.				
	The master (e.g. MLD) presets it cyclically in equidistant intervals (NC clock) to the drive as (virtual) master axis.				
	In the following operation modes, this parameter is used for command value input for the drive:				
	<ul style="list-style-type: none"><li>• Velocity synchronization</li><li>• Phase synchronization</li><li>• Electronic cam</li><li>• Electronic motion profile</li><li>• Position synchronization</li></ul>				
	See also Functional Description "Operation Modes for Synchronization"				

Product-Specific Parameters

<b>P-0-0053 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Incr	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.1.48 P-0-0054, Additive master axis position

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
		<b>Device parameter:</b>	axis-specific		

**Function** Parameter "P-0-0054" can be used to add a "Master axis position offset" to the following master axis positions:

- P-0-0053, Master axis position
- P-0-0052, Actual position value of measuring encoder
- P-0-0761, Master axis position for slave axis
- P-0-0787, Group axis 1 position

See also Functional Description "Synchronization Modes"

See Parameter Description "P-0-0775, Resulting Master Axis Position"

**Use** When using the parameter, observe the following aspects:

- Any change in "P-0-0054" is traveled with a 2nd order interpolator, taking parameters "P-0-0688, Additive master axis position, positioning velocity" and "P-0-0689, Additive master axis position, positioning acceleration" into account.
- The minimum/maximum value of "P-0-0054" corresponds to the master axis cycle ( $P-0-0750 * 2^{P-0-0084}$ ).



If parameter "P-0-0750, Master axis revolutions per master axis cycle" equals zero, the resulting maximum value for parameter "P-0-0054" is  $(2^{31} - 1)$  increments and the minimum value is  $-2^{31}$  increments.

<b>P-0-0054 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Incr	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	s. Text / s. Text		---	
		MPC:	s. Text / s. Text		---	
		MPE:	s. Text / s. Text		---	
		MPM:	s. Text / s. Text		---	

## 5.1.49 P-0-0055, Return distance

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation)			
		<b>Device parameter:</b>	axis-specific		

**Function** In the case of error it is possible to set the "return" error reaction, depending on the setting of the "Best possible deceleration" parameter. The drive gener-

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ates a position command value profile for the return distance, in consideration of the adjustable return velocity and return acceleration and complying with the position limit values. The return distance is entered in parameter P-0-0055. A positive return distance will cause positive motion with reference to the selected coordinate system. The P-0-0055, Return distance parameter can be transmitted in the cyclic telegram (MDT).

See also Functional Description "Best Possible Deceleration"

<b>P-0-0055 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPC:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPE:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPM:</b>	S-0-0076 / S-0-0076	0,0000

## 5.1.50 P-0-0056, Return velocity

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** In the case of error it is possible to set the "return" error reaction, depending on the setting of the "Best possible deceleration" parameter. The drive generates a position command value profile for the return distance, in consideration of the adjustable return velocity and return acceleration and complying with the position limit values. The return velocity is entered in parameter P-0-0056.

See also Functional Description "Best Possible Deceleration"

<b>P-0-0056 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	S-0-0044 / S-0-0044	10,0000
<b>MPC:</b>	S-0-0044 / S-0-0044	10,0000
<b>MPE:</b>	S-0-0044 / S-0-0044	10,0000
<b>MPM:</b>	S-0-0044 / S-0-0044	10,0000

## 5.1.51 P-0-0057, Return acceleration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** In the case of error it is possible to set the "return" error reaction, depending on the setting of the "Best possible deceleration" parameter. The drive generates a position command value profile for the return distance, in consideration of the adjustable return velocity and return acceleration and complying with the position limit values. The return acceleration is entered in parameter P-0-0057.

See also Functional Description "Best Possible Deceleration"

<b>P-0-0057 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV

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Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0160 / S-0-0160		1000,000		
MPC:	S-0-0160 / S-0-0160		1000,000		
MPE:	S-0-0160 / S-0-0160		1000,000		
MPM:	S-0-0160 / S-0-0160		1000,000		

### 5.1.52 P-0-0058, Return jerk

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	Servo(compensation)				
	Device parameter:	axis-specific				
Function	In the case of error it is possible to set the "return" error reaction, depending on the setting of the "Best possible deceleration" parameter. The drive generates a position command value profile for the return distance, in consideration of the adjustable return velocity and return acceleration and complying with the position limit values. In addition, the position command values can be smoothed by a position command value average filter. The return jerk is entered in parameter P-0-0058. It affects the effect of the position command value average filter.					
	See also Functional Description "Best Possible Deceleration"					
P-0-0058 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	S-0-0160 / S-0-0160		1000,000		
	MPC:	S-0-0160 / S-0-0160		1000,000		
	MPE:	S-0-0160 / S-0-0160		1000,000		
	MPM:	S-0-0160 / S-0-0160		1000,000		

### 5.1.53 P-0-0059, Additive position command value, controller

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	<p>This parameter serves to add an additional (additive) position command value to the position command value generated by command value adjustment. This additional command value is not subject to any limitation or change. This is why the user has to make sure that absolute value, characteristic and the derived variables are within their allowed ranges of values!</p> <p>See also Functional Description "Position Control With Cyclic Command Value Input", "Drive-Internal Interpolation", "Drive-Controlled Positioning" and "Positioning Block Mode".</p>				
Use	<p>Feedforward values (velocity feedforward, acceleration feedforward) are derived from the position command value characteristic. In "P0-0556, Config word of axis controller", you can set whether the values of "P0-0059, Additive position command value, controller" are included in the generation of the feedforward values or whether they are afterwards added to the position command value generated by command value adjustment. Parameter "P-0-0059, Additive position command value, controller" is overwritten with "0" if there is an internal error reaction in the drive.</p>				

## Product-Specific Parameters



If the values of "P-0-0059" have been used for generating the feedforward values, the time at which the additive position command value takes effect is delayed by 1 position clock!

"P-0-0059" can only be used in position-controlled operation modes, such as cyclic position control, drive-internal interpolation, drive-internal positioning and positioning block mode.



The actually effective position command value (addition of position command value from command value adjustment of current operation mode and "additive position command value, controller") is displayed in parameter "P0-0434, Position command value of controller".

This parameter is used, for example, by the drive firmware to set command values from the firmware-internal command value generator without limitation and deformation (noise generator for control loop analysis). It can, for example, also be used by the control master for adding feedforward values!

## P-0-0059 - Attributes

Function:	Par	Editable:	OM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0076 / S-0-0076		---		
MPC:	S-0-0076 / S-0-0076		---		
MPE:	S-0-0076 / S-0-0076		---		
MPM:	S-0-0076 / S-0-0076		---		

## 5.1.54 P-0-0060, Filter time constant additive position cmd value

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** This parameter serves for parameterization of the filter effect for the additive position command value (see P-0-0692), which is filtered via a VZ1 filter (PT1).

See also Functional Description "Basic Functions of the Synchronization Modes"

**Use** When using the parameter, observe the following aspects:

- Either the parameter "P-0-0691, Additive position command value, process loop " or "S-0-0048, Additive position command value " is filtered.
- Bit 0 of "P-0-0155, Synchronization mode " decides for which parameter the filter is used for. Is bit "0 = 0", the parameter "P-0-0691" is filtered, otherwise the parameter "S-0-0048".

## P-0-0060 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	0,00 / 655,35		0,00		
MPC:	0,00 / 655,35		0,00		
MPE:	0,00 / 655,35		0,00		
MPM:	0,00 / 655,35		0,00		

Product-Specific Parameters

### 5.1.55 P-0-0061, Angle offset begin of table

Allocation	Contained in 16VRS:		«MPB»	«-»	«MPM»	
	Contained in 17VRS:		«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This is the angle by which the access to the access to the cam table or MotionProfile is offset in negative direction in relation to the master axis position (P-0-0776).					
P-0-0061 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,0000 / 359,9999			0,0000	
	MPC:	0,0000 / 359,9999			0,0000	
	MPE:	0,0000 / 359,9999			0,0000	
	MPM:	0,0000 / 359,9999			0,0000	

### 5.1.56 P-0-0063, Torque-generating voltage, actual value

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	Display parameter for the torque-generating component of the voltage output by the current loop. The value is updated with the current loop cycle time.					
P-0-0063 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V eff	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.1.57 P-0-0064, Flux-generating voltage, actual value

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	Display parameter for the flux-generating component of the voltage output by the current loop. The value is updated with the current loop cycle time.					
P-0-0064 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V eff	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

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## 5.1.58 P-0-0065, Absolute voltage value, actual value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter displays the absolute value of the voltage output by the current loop which consists of the voltage components  $U_d$  and  $U_q$ .



The displayed voltage value corresponds to the measured value available at the motor terminals (conductor reference) and is updated with the current loop cycle time!

See also Functional Description "Motor Control"

P-0-0065 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	V eff	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.1.59 P-0-0067, Phase current U, actual value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to display the actual current value in the motor phase U measured in the current loop clock ( $T_{A, \text{current}}$ ).

See also Functional Description "Performance Data"

P-0-0067 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	A	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.1.60 P-0-0068, Phase current V, actual value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to display the actual current value in the motor phase V measured in the current loop clock ( $T_{A, \text{current}}$ ).

See also Functional Description "Performance Data"

P-0-0068 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	A	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.1.61 P-0-0070, Effective additive torque/force command value

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter displays the additive torque/force command value effective in the drive.

The value of the parameter is applied from the torque/force command value in an additive way (S-0-0081). Usually, this is done without any delay. If the external acceleration feedforward control function is used, however, application of the value from parameter "Delay of add. command values" (P-0-0458) is delayed.

See also Functional Description "Velocity Loop"

P-0-0070 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.1.62 P-0-0071, C3100 Command Recalculate actual value cycle

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPM»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** By means of the command C1300, it is possible in the operating mode (OM, bb, Ab) to recalculate the actual value cycle depending on the parameter "P-0-0155, Synchronization mode", bit 4 "generation of actual value cycle". After the command has been completed, it is necessary to start the command "C0300 Set absolute position procedure command" (S-0-0447) in order to initialize the actual position values.

See also Functional Description "Synchronization Modes"

P-0-0071 - Attributes	Function:	Cmd	Editable:	OM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.1.63 P-0-0072, Cam table 1

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPM»
	Contained in 18VRS:	«MPB»	«-»	«MPM»

Product-Specific Parameters

Hardware	--
Funct. package(s):	"open loop", "closed loop"
Device parameter:	axis-specific

**Function** Parameter "P-0-0072" contains a table with data points tab ( $\varphi$ ) for the profile of cam 1.

Rexroth IndraDrive supports up to 8 cam tables which can be divided into the following groups:

- 4 cam tables with 3 to 1024 data points (P-0-0072, P-0-0092, P-0-0780, P-0-0781)
- 4 cam tables with 3 to 128 data points (P-0-0782, P-0-0783, P-0-0784, P-0-0785)



The individual data points of the table are interconnected by means of cubic spline interpolation.

See also Functional Description "Electronic Cam With Real/Virtual Master Axis"

**Structure** The parameter has the following structure:

- The first element in the table is the data point for  $\varphi = 0^\circ$ .
- The last element in the table is the data point for  $\varphi = 360^\circ$ . (old standard) or  $\varphi = 360^\circ$  (new standard).

Table value	$\varphi = 360^\circ - d\varphi$ (old standard)	$\varphi = 360^\circ$ (new standard)
0	0	0
1	25	33,33
2	50	66,66
3	75	100

Tab.5-17: Example of a Linear Cam Table (0 - 100% With 4 Data Points) With Old and New Standard

- The actual values of the cam table are percentage values. They can be between  $-799.999999\%$  and  $799.999999\%$ .
- A value of 100% results in a position that corresponds to the active distance (P-0-0093 or P-0-0073). The position of the slave axis is determined by means of the positions determined in this way.

**Use** When using the parameter, observe the following aspects:

- When the table is used for the cam mode, the values are always mapped to one master axis revolution ( $360^\circ$ ).
- When the table is used for a motion step of the MotionProfile mode, the table applies from the master axis initial angle of this step to the master axis initial angle of the following step.
- The data point distance  $d\varphi$  depends on whether the last table value is to apply to the end angle of the table or to the end angle -  $d\varphi$ . This information on the table format must be set in bit 8 of "P-0-0086, Configuration word synchronous operation modes".

If the last table value applies to the end angle, the relationship is as follows:

$$\text{Data point distance } \Delta \varphi = \frac{\text{Master axis range}}{(\text{Number of data points} - 1)}$$

Fig.5-18: Data Point Distance for  $\varphi = 360^\circ$

If the last table value applies to the end angle -  $d\varphi$ , the relationship is as follows:

$$\text{Data point distance } \Delta \varphi = \frac{\text{Master axis range}}{(\text{Number of data points})}$$

Fig.5-19: Data Point Distance for  $\varphi = 360^\circ - d\varphi$



When you use the table in the "MotionProfile" mode, the first table value must be "0". The last table value must be for the master axis end angle (bit 8, P-0-0086 = 1)!

#### P-0-0072 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	-799,999999 / 799,999999		s. Text		
MPC:	-799,999999 / 799,999999		s. Text		
MPE:	-799,999999 / 799,999999		s. Text		
MPM:	-799,999999 / 799,999999		s. Text		

## 5.1.64 P-0-0073, Cam distance 2

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** The distance 2 is used for the function "clocked pull roll". The function is activated via bit 2 = 1 in the parameter "P-0-0086, Configuration word synchronous operation modes "

This means that if the difference between the new cam table value and the old cam table value is negative, the profile of the cam is multiplied with distance 2 (function "clocked pull roll").

See also Functional Description "Electronic Cam With Real/Virtual Master Axis"

#### P-0-0073 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0076 / S-0-0076		360,0000		
MPC:	S-0-0076 / S-0-0076		360,0000		
MPE:	S-0-0076 / S-0-0076		360,0000		
MPM:	S-0-0076 / S-0-0076		360,0000		

## Product-Specific Parameters

## 5.1.65 P-0-0074, Encoder type 1 (motor encoder)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to inform the controller about the encoder type which is to be evaluated as motor encoder.

**Structure**

Value of P-0-0074	Motor encoder used	Basic and multi-axis device	Economy device
0	No encoder (sensorless operation)	X	X
2 (16*)	Encoder with sine signals (1Vss, 5V or 12V supply); code number for motor type code field "Encoder" = "C_"	X	X
4	Encoder with sine signals and HIPERFACE <sup>1)</sup> interface (1Vss, 12V supply); code number for motor type code field "Encoder" = "S1", "M1", "_3", "_5"	X	X
5 (18*)	Encoder with square-wave signals (TTL, 5V or 12V supply)	X	X
6 (8*)	Encoder with sine signals and EnDat2.1 interface (1Vss, 5V or 12V supply); code number for motor type code field "Encoder" = "_2", "_6"	X	X
9	Encoder of MSM motors (digital)	X	X
10	Resolver encoder (5Vss, 10Vss supply/8kHz) without data memory	X	X
13	Encoder combination: Encoder with square-wave signals (TTL, 5V or 12V supply) and Hall sensor encoder SHL02 (12V supply) or MCL motor with Hall unit "L1" (MCP...-L1...)	X	
15	Encoder combination: Encoder with sine signals (1Vss, 5V or 12V supply) and Hall sensor encoder SHL02 (12V supply) or MCL motor with Hall unit "L1" (MCP...-L1...)	X	
19	"NYCe encoder" (digital)	X	X
23	Encoder combination: Encoder with sine signals (1Vss, 5V or 12V supply) and digital Hall sensors (12V supply) or MCL motor with Hall unit "L0" (MCP...-L0...), connection via SHL03	X	X
26	sercos encoder (digital)	X	X

- \* Still possible for compatibility reasons  
 1) Use can only be made of HIPERFACE encoders with type ID "FF" or of the HIPERFACE encoders released by Rexroth, see "DE\_EN\_FAQ\_IndraDrive\_unterstützte\_Geber"

Tab.5-20: Assignment of Motor Encoder to Value of P-0-0074



The encoder input for the motor encoder is defined in "P-0-0077, Assignment motor encoder -> optional slot".

See also Functional Description "Motor, Mechanical Axis System, Measuring Systems"

See also Project Planning Manual "Drive System With HCS01"



Encoders with square-wave signals should not be used as motor encoders. When encoders with sine signals are used, the drive characteristics are better than with square-wave signals.

Product-Specific Parameters

P-0-0074 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			0 / 26	4	
<b>MPC:</b>			0 / 26	4	
<b>MPE:</b>			0 / 26	4	
<b>MPM:</b>			0 / 18	4	

## 5.1.66 P-0-0075, Encoder type 2 (optional encoder)

Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	closed loop			
Device parameter:	axis-specific			

Function

This parameter is used to inform the controller about which encoder type is to be evaluated as optional (external) encoder.

See also Functional Description "Motor, Mechanical Axis System, Measuring Systems"

See also Project Planning Manual "Drive System With HCS01"

Structure

Value in P-0-0075	Optional encoder used
0	No encoder
1	Reserved
2 (16*)	Encoder with sine signals (1Vss, 5V or 12V supply)
3	Reserved
4	Encoder with sine signals and HIPERFACE <sup>1)</sup> interface (1Vss, 12V supply)
5 (18*)	Encoder with square-wave signals (TTL, 5V or 12V supply)
6 (8*)	Encoder with sine signals and EnDat2.1 interface (1Vss, 5V or 12V supply)
7	Reserved
10	Reserved

\* Still possible for compatibility reasons

1) Use can only be made of HIPERFACE encoders with type ID "FF" or of the HIPERFACE encoders released by Rexroth, see "DE\_EN\_FAQ\_IndraDrive\_unterstützte\_Geber"

Tab.5-21: Assignment of Optional Encoder to Value of P-0-0074



The encoder input for the external encoder is determined in "P-0-0078, Assignment optional encoder -> optional slot"!

P-0-0075 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			0 / 26	0	
<b>MPC:</b>			0 / 26	0	
<b>MPE:</b>			0 / 26	0	
<b>MPM:</b>			0 / 18	0	

## Product-Specific Parameters

## 5.1.67 P-0-0076, Encoder type 3 (measuring encoder)

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter is used to inform the controller about the encoder type which is to be evaluated as measuring encoder.

See also Functional Description "Measuring Encoder"

See also Project Planning Manual "Drive System With HCS01"

**Structure**

Value in P-0-0076	Measuring encoder used
0	No encoder
2 (16*)	Encoder with sine signals (1Vss, 5V or 12V supply)
4	Encoder with sine signals and HIPERFACE <sup>1)</sup> interface (1Vss, 12V supply)
5 (18*)	Encoder with square-wave signals (TTL, 5V or 12V supply)
6 (8*)	Encoder with sine signals and EnDat2.1 interface (1Vss, 5V or 12V supply)
18	Encoder with square-wave signals (TTL, 12V supply)

\* Still possible for compatibility reasons

1) Use can only be made of HIPERFACE encoders with type ID "FF" or of the HIPERFACE encoders released by Rexroth, see "DE\_EN\_FAQ\_IndraDrive\_unterstützte\_Geber"

Tab.5-22: Assignment of Measuring Encoder to Value of P-0-0076



The encoder input for the measuring encoder must be determined in "P-0-0079, Assignment measuring encoder→optional slot"!

**P-0-0076 - Attributes**

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 18	0
MPC:	0 / 18	0
MPE:	0 / 18	0
MPM:	0 / 18	0

## 5.1.68 P-0-0077, Assignment motor encoder-&gt;optional slot

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter determines which interface is destined for the motor encoder connection.

**Use** Basic

Product-Specific Parameters

P-0-0077	Interface for the motor encoder connection
0	None
1	X4 (option 1 => preferred slot for motor encoder)
2	X8 (option 2)
3	X10 (option 3)

Tab.5-23: Determining the Interface for the Motor Encoder

Multi-axis

P-0-0077	Interface for the motor encoder connection
0	None
1	X4.1 (option 1 => preferred slot for motor encoder axis 1)
2	X4.2 (option 2 => preferred slot for motor encoder axis 2)
3	X4.3 (option 3 => preferred slot for motor encoder axis 3)
4	X4.4 (option 4 => preferred slot for motor encoder axis 4)
5	X8 (option 5) only for opt. encoder

Tab.5-24: Determining the Interface for the Motor Encoder

Motor dependence



In the case of motors without encoder data memory (2AD, ADF, rotary and linear kit motors), this parameter must be set manually!

P-0-0077 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
Input			min./max.	Default value	
MPB:			0 / 10	1	
MPC:			0 / 10	1	
MPE:			0 / 10	1	
MPM:			0 / 6	s. Text	

## 5.1.69 P-0-0078, Assignment optional encoder->optional slot

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter determines which interface is destined for the optional (external) encoder.

Basic

P-0-0078	Interface for connection of ext. encoder
0	None
1	X4 (option 1)
2	X8 (option 2)
3	X10 (option 3)

Tab.5-25: Determining the Interface for the External Encoder

## Product-Specific Parameters

## Multi-axis

P-0-0078	Interface for connection of ext. encoder	Note
0	None	
1	X4.1 (option 1)	Only MPx-16VRS
2	X4.2 (option 2)	Only MPx-16VRS
3	X4.3 (option 3)	Only MPx-16VRS
4	X4.4 (option 4)	Only MPx-16VRS
5	X8 (option 5)	

Tab.5-26: Determining the Interface for the External Encoder



**As of MPM-17VRS:** Interface X8 (option 5) can be parameterized as optional encoder or as measuring encoder at no more than one axis.

**MPx-16VRS:** Any interface can be parameterized as optional encoder. There isn't any assignment (preferred slots) to the axes.

## P-0-0078 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 6	0
MPC:	0 / 6	0
MPE:	0 / 1	0
MPM:	0 / 6	0

## 5.1.70 P-0-0079, Assignment measuring encoder-&gt;optional slot

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

## Function Basic

P-0-0079	Interface for connection of measuring encoder
0	None
1	X4 (option 1)
2	X8 (option 2)
3	X10 (option 3)

Tab.5-27: Determining the Interface for the Measuring Encoder

## Multi-axis

P-0-0079	Interface for connection of measuring encoder	Note
0	None	
1	X4.1 (option 1)	Only MPx16-VRS
2	X4.2 (option 2)	Only MPx-16VRS
3	X4.3 (option 3)	Only MPx-16VRS

Product-Specific Parameters

P-0-0079	Interface for connection of measuring encoder	Note
4	X4.4 (option 4)	Only MPx-16VRS
5	X8 (option 5)	

Tab.5-28: Determining the Interface for the Measuring Encoder



**As of MPM17:** Interface X8 (option 5) can be parameterized as optional encoder or as measuring encoder at no more than one axis.

**MPx16:** Any interface can be parameterized as measuring encoder. There isn't any assignment (preferred slots) to the axes.

See Functional Description "Measuring Encoder"

P-0-0079 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 6	0
MPC:	0 / 6	0
MPE:	0 / 1	0
MPM:	0 / 6	0

## 5.1.71 P-0-0083, Gear ratio fine adjustment

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The gear ratio of the electronic gear is changed by this percentage.

See also Functional Description "Synchronization Modes"

**Use** The values can be between – 799,999999% and 799,999999%.

gear ratio (GR) = gear ratio \* (1 + P-0-0083)

**Example:**

P-0-0083 = 100% -> GR = GR \* 2

P-0-0083 = – 100% -> GR = GR \* 0

P-0-0083 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-799,999999 / 799,999999	0,000000
MPC:	-799,999999 / 799,999999	0,000000
MPE:	-799,999999 / 799,999999	0,000000
MPM:	-799,999999 / 799,999999	0,000000

## 5.1.72 P-0-0084, Number of bits per master axis revolution

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter sets the resolution of the master axis.

## Product-Specific Parameters

The default setting for this parameter is 20. One master axis revolution thus corresponds to 2<sup>20</sup> (1048576) increments. The resolution can be increased by entering a value greater than 20. Every increase by 1 results in the doubling of the resolution. A value greater than 20 makes sense when big slave axis distances are traveled at very low master axis velocities. Negative consequences of quantization effects are reduced by a higher resolution. This parameter does not only set the format of all master axis positions. The resolution of "P-0-0052, Actual position value of measuring encoder" is influenced, too.



Master axis positions exchanged between control unit and drive or between drives must have the same resolution. This, too, applies to the actual position value of measuring encoder (P-0-0052) of a real master axis.

If a control unit, which transmits master axis positions or receives the actual position value of a real master axis, does not have any possibility for setting the resolution, P-0-0084 must be set to 20 in all axes.

See also Functional Description "Synchronization Modes"

### P-0-0084 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	16 / 31		20		
<b>MPC:</b>	16 / 31		20		
<b>MPE:</b>	--- / ---		20		
<b>MPM:</b>	16 / 31		20		

## 5.1.73 P-0-0085, Dynamic angle offset

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** With this parameter it is possible to dynamically offset the effective master axis position according to the following equation:

$$\varphi_{\text{Effective\_internal master axis position}} = \varphi_{\text{Internal master axis position}} + \frac{V_{\text{Internal master axis velocity}}}{K_v\text{-factor}} \cdot \text{Dyn. angle offset}$$

Fig. 5-29: Effective Internal Master Axis Position

Example:

Assumption: Electronic gear 1:1 and fine adjustment = 0

Master axis velocity = 1000 rpm

Dynamic angle offset = 100%

Position loop Kv-factor (S-0-0104) = 1

## Product-Specific Parameters

$$\varphi_{\text{Effective\_internal master axis position}} = \varphi_{\text{Internal master axis position}} + \frac{1000 \text{ rpm} * 2^{P-0-0084} \text{ incr / rev} * 1}{1 * 1000 / \text{min}}$$

$$\varphi_{\text{Effective\_internal master axis position}} = \varphi_{\text{Internal master axis position}} + 2^{P-0-0084} \text{ incr}$$

Fig.5-30: Example for Calculating an Effective Internal Master Axis Position

In this example the internal master axis position is offset by  $2^{P-0-0084}$  incr. The figure below illustrates the offset position command value and actual position value with  $P-0-0085 = 100\%$ :

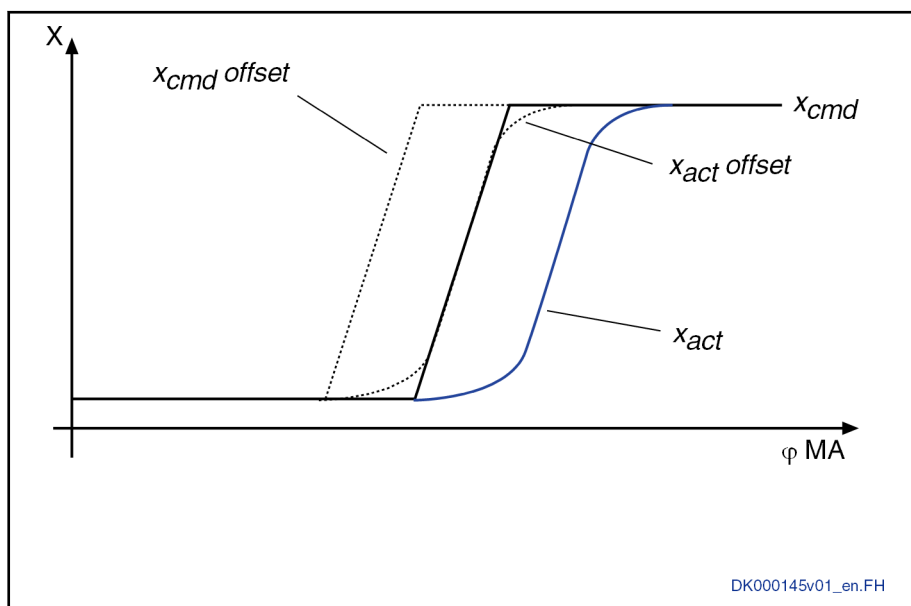


Fig.5-31: Offset Position Command Value and Actual Position Value With  $P-0-0085 = 100\%$



This function is available in the operation modes "cam" and "MotionProfile".

### P-0-0085 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 600	0
MPC:	0 / 600	0
MPE:	0 / 600	0
MPM:	0 / 600	0

## 5.1.74 P-0-0086, Configuration word synchronous operation modes

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** This parameter serves to make various basic settings for synchronization operation modes.

## Product-Specific Parameters

See also Functional Description "Synchronization Modes"

Structure

Bit	Designation/function	Comment
0	<b>Distance switching</b> 0: Distance switching at distance switch angle / cam table switching 1: Distance switching at once	
1	<b>Gear switching</b> 0: The change takes immediate effect 1: The change takes place on distance switching / cam table switching	
2	<b>Special case: clocked pull roll</b> 0: Clocked pull roll deactivated 1: Clocked pull roll activated	
3	<b>Reference for distance 1 and gear switching</b> 0: Distance switching is reference for bits 0&1 1: Cam table switching is reference for bits 0&1	
4	<b>Gear reduction path for cam function</b> 0: Not active 1: Active	
7	<b>Cam table interpolation type</b> 0: Cubic spline interpolation 1: Linear interpolation	
8	<b>Cam table 1 format</b> 0: Last value in the table for 360°-dφ (old) 1: Last value in the table for 360° (new)	
9	<b>Cam table 2 format</b> 0: Last value in the table for 360°-dφ (old) 1: Last value in the table for 360° (new)	
10	<b>Cam table 3 format</b> 0: Last value in the table for 360°-dφ (old) 1: Last value in the table for 360° (new)	
11	<b>Cam table 4 format</b> 0: Last value in the table for 360°-dφ (old) 1: Last value in the table for 360° (new)	
12	<b>Cam table 5 format</b> 0: Last value in the table for 360°-dφ (old) 1: Last value in the table for 360° (new)	
13	<b>Cam table 6 format</b> 0: Last value in the table for 360°-dφ (old) 1: Last value in the table for 360° (new)	

Product-Specific Parameters

14	<b>Cam table 7 format</b> 0: Last value in the table for 360°-dφ (old) 1: Last value in the table for 360° (new)	
15	<b>Cam table 8 format</b> 0: Last value in the table for 360°-dφ (old) 1: Last value in the table for 360° (new)	

Tab.5-32: P-0-0086, Configuration word synchronous operation modes

- Use**
- **Bit 0:** Allows selecting whether new values for the cam distance (P-0-0093) take immediate effect or not before the distance switch angle is crossed or the cam table is switched.
  - **Bit 1:** Allows selecting whether new values for the master drive gear (P-0-0093) take immediate effect or not before the distance switch angle is crossed or the cam table is switched.
  - **Bit 2:** Allows switching between cam distance 1 (P-0-0093) and cam distance 2 (P-0-0073) via bit 2 = 1 and in relation to the slope of the cam table. If the gradient of the cam table is positive, cam distance 1 (P-0-0093) is active; with negative gradient, cam distance 2 (P-0-0073) is active.
  - **Bit 3:** Defines the reference point for the delayed acceptance of changes (distance switch angle or cam table switching).

The examples below illustrate the cooperation among the bits:

Bit 3	Bit 0	Bit 1	Significance
0	0	0	A new master drive gear (P-0-0156/P-0-0157) takes immediate effect. A new "P-0-0093, Cam distance" is applied only after the "P-0-0144, Cam distance switch angle" is exceeded in positive or negative direction.
0	1	1	A change in "P-0-0093, Cam distance" is immediately applied and therefore the master drive gear as well.

- **Bit 4:** This bit allows activating a linear phase-synchronous path in the cam and MotionProfile position synchronization modes.
- **Bit 7:** In case of endless cams where module overflow does not take place between the start and end values of the cam table, switching to linear interpolation is required.



Bit 7 may only be changed in parameter mode (PM).

- **Bits 8... 15:** These bits specify the format of the respective cam table (see P-0-0072, P-0-0092, P-0-0780 to P-0-0785). If a table is to be used for the MotionProfile, the last value in the table must be at the end angle and the related bit must be set.

P-0-0086 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0x0 / 0xFFFF	0x0
<b>MPC:</b>	0x0 / 0xFFFF	0x0
<b>MPE:</b>	0x0 / 0xFFFF	0x0
<b>MPM:</b>	0x0 / 0xFFFF	0x0

## Product-Specific Parameters

## 5.1.75 P-0-0087, Actual position value offset of measuring encoder

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The evaluation of the measuring encoder results in a position feedback value of the measuring encoder.

Parameter "P-0-0087" can be used to apply an offset to the feedback position.



Depending on "P-0-0330, Control word of measuring encoder, bit 2 measuring encoder scaling type", the unit and the number of decimal places of the parameter are changed:

**Bit 2 = 0:** The unit of the parameter is increments and the parameter is shown without decimal places.

**Bit 2 = 1:** The unit of the parameter is degrees and the parameter is shown with 4 decimal places.

See also Functional Description "Measuring Encoder"

See also Functional Description "Shifting the Position Data Reference"

P-0-0087 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>				<b>Default value</b>
	MPB:	s. Text / s. Text				0
	MPC:	s. Text / s. Text				0
	MPE:	s. Text / s. Text				0
	MPM:	s. Text / s. Text				0

## 5.1.76 P-0-0088, Control word synchronization modes

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter can be used to control execution of the operation mode in operating mode.



"P-0-0088" can be configured in the cyclic command value telegram.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	<b>2... 0</b>	<b>Selection of active cam table</b> 0 0 0: Cam table 1 (P-0-0072) 0 0 1: Cam table 2 (P-0-0092) 0 1 0: Cam table 3 (P-0-0780) 0 1 1: Cam table 4 (P-0-0781) 1 0 0: Cam table 5 (P-0-0782) 1 0 1: Cam table 6 (P-0-0783) 1 1 0: Cam table 7 (P-0-0784) 1 1 1: Cam table 8 (P-0-0785)	
	<b>5/ 4</b>	<b>Active position synchronization mode</b> 0 0: Phase synchronization 0 1: Electronic cam 1 0: MotionProfile	
	<b>7/6</b>	<b>Selection of master axis</b> 00: External virtual master axis (P-0-0053) 01: Internal virtual master axis (P-0-0761) (as of MPx-17V06) 10: Real master axis (P-0-0052) 11: Group axis 1 position (P-0-0787) (as of MPx-17V06)	
	<b>8</b>	<b>Repeated synchronization</b> With active operation mode, a bit toggle triggers repeated synchronization.	
	<b>9</b>	<b>Set selection (MotionProfile)</b> 0: Set 0 1: Set 1	
	<b>10</b>	<b>Position data processing (MotionProfile)</b> 0: Absolute 1: Relative	
	<b>11</b>	<b>Generation of "In Synchronization" bit with inactive synchronous operation mode</b> 0: For position synchronization mode 1: For velocity synchronization mode	

Tab.5-33: P-0-0088, Control word synchronization modes

- Use**
- **Bits 0/1/2:** "Bit 0" to "bit 2" are used to select the cam table from which the table values are to be taken in "cam" mode. With active operation mode, the drive does not accept the preselection before the table access angle exceeds "P-0-0094, Cam switch angle". The active cam table can be taken from bits 0, 1 and 2 of parameter "P-0-0089, Status word synchronization modes".
  - **Bits 5/4:** If "position synchronization" mode is active, these bits specify the kind of synchronization.
  - **Bits 6/7:** If "position synchronization" or "velocity synchronization" mode is active, these bits determine with which master axis the position or ve-

## Product-Specific Parameters

locity command values are generated. There are the 2 options: "external virtual master axis" and "real master axis".

- **Bit 8:** With active "position synchronization" mode, toggling this bit causes dynamic synchronization to be restarted.
- **Bit 9:** This bit takes effect when the "MotionProfile" mode (analytically defined cam) is active. One of the two possible parameter sets is selected. Any change causes the parameter set to be switched, when the master axis (table access angle) passes the master axis switching position (P-0-0700). The active set is acknowledged in bit 3 of "P-0-0089".
- **Bit 10:** This bit defines the processing mode in "MotionProfile" mode (analytically defined cam). In case of absolute processing, the sum of the distances of a set must be "0" or, in case of modulo position scaling, a multiple of the modulo value. In this case, the slave axis initial position parameterized in "P-0-0701" is reached every time the master axis position (table access angle) is "0". In case of relative processing, a motion step begins at the point where the previous one ends.
- **Bit 11:** While synchronization mode is inactive, this bit defines the synchronization mode for which the "In Synchronization" bit (P-0-0089: Bit 8) is generated. If bit 11 is set, the "In Synchronization" bit is generated for velocity synchronization mode. Otherwise, the "In Synchronization" bit is generated for position synchronization mode which is specified in more detail with bits 4 and 5.

P-0-0088 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0x0 / 0xFFFF			0x0	
	MPC:	0x0 / 0xFFFF			0x0	
	MPE:	0x0 / 0xFFFF			0x0	
	MPM:	0x0 / 0xFFFF			0x0	

## 5.1.77 P-0-0089, Status word synchronization modes

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			
Function	The parameter delivers useful status information regarding execution of synchronous operation modes and is evaluated together with "P-0-0086, Configuration word synchronous operation modes".				
	See also Functional Description "Synchronization Modes"				
Structure	The status parameter is a bit string with the following construction:				

Product-Specific Parameters

Bit	Designation/function	Comment
2... 0	<b>Feedback active cam shaft</b> 0 0 0: Cam table 1 active (P-0-0072) 0 0 1: Cam table 2 active (P-0-0092) 0 1 0: Cam table 3 active (P-0-0780) 0 1 1: Cam table 4 active (P-0-0781) 1 0 0: Cam table 5 active (P-0-0782) 1 0 1: Cam table 6 active (P-0-0783) 1 1 0: Cam table 7 active (P-0-0784) 1 1 1: Cam table 8 active (P-0-0785)	
3	<b>Active set (MotionProfile)</b> 0: Set 0 active 1: Set 1 active	
4	<b>Position status of actual position value in actual value cycle</b> 0: Not homed 1: Homed	
5	<b>Status distance switching</b> 0: Latest distance value not active 1: Latest distance value active	
6	<b>Status positioning the parameter P-0-0054</b> 0: Positioning active 1: Positioning completed	
7	<b>Acknowledgement master axis selection</b> 0: Virtual master axis active 1: Real master axis active	
8	<b>Synchronous Mode in Synchronization</b> 0: Slave axis has not been synchronized 1: Slave axis has been synchronized	
10/9	<b>Active synchronous mode</b> 00: Angle synchronization 01: Electronic cam 10: MotionProfile	
12	<b>Profile check carried out, set 0 (MotionProfile)</b> 0: Not carried out 1: Carried out	
13	<b>Profile check ok, set 0 (MotionProfile)</b> 0: Failure or not carried out 1: Without failure	

## Product-Specific Parameters

Bit	Designation/function	Comment
14	<b>Profile check carried out, set 1</b> (MotionProfile) 0: Not carried out 1: Carried out	
15	<b>Profile check ok, set 1</b> (MotionProfile) 0: Failure or not carried out 1: Without failure	

Tab.5-34: P-0-0089, Status word for synchronous operation modes

**Use** When using/interpreting the parameter, observe the following aspects:

- **Bit 0... 2:** The drive signals from which cam table the table values are taken.
- **Bit 3:** Indicates which of the two sets of the MotionProfile is active.
- **Bit 4:** Displays the position status of "P-0-0753, Position actual value in actual value cycle ". Is the position status equal one, an absolute synchronization can take place.
- **Bit 5:** When a new distance 1 is parameterized in "P-0-0093", bit 5 is deleted. If the new value is accepted as active distance, bit 5 is set to 1.
- **Bit 6:** The additive master axis position (P-0-0054) is travelled with a 2. order interpolator. During the travel motion this bit is 0. It is set to 1 when the interpolator has reached the final value.
- **Bit 7:** Acknowledges the master axis selection (virtual/real).
- **Bit 8:** Indicates whether the axis is within the synchronization window or not. Depending to the operation mode, there are different conditions.
  - Velocity Synchronization: see "S-0-0183, Velocity synchronization window"
  - Position synchronization: see "S-0-0228, Position synchronization window"

When activating the synchronization mode "P-0-0089, Bit 8" is always set to "0" until the synchronization is completed. This is valid, when before the new synchronization mode was activated, "P-0-0089, Bit 8" was set.

- **Bit 10/9:** Acknowledge in the operation mode: "Position synchronization" the selection of the operating mode by the bits 5/4 of "P-0-0088, Control word synchronization modes ".
- **Bit 13/12:** For set 0 of MotionProfile.  
Bit 12 indicates, if the parameterized profile of set 0 was checked. Then select the check result from bit 13. "P-0-0702, MotionProfile, diagnosis, set 0" contains more detailed information on negative check results.
- **Bit 15/14:** For set 1 of MotionProfile. Bit 14 indicates, if the parameterized profile of set 1 was checked. Then select the check result from bit 15. "P-0-0709, MotionProfile, diagnosis, set 1" contains more detailed information on negative check results.

## P-0-0089 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0xFFFF	---
MPC:	0x0 / 0xFFFF	---

Product-Specific Parameters

MPE:	0x0 / 0xFFFF	---
MPM:	0x0 / 0xFFFF	---

## 5.1.78 P-0-0090, Travel range limit parameter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In this parameter, the signal behavior of the travel range limit switch inputs and the behavior of the drive with regard to the travel range exceedance are determined.

See also functional description "Position limitation/travel range limit switch"

See also functional description "Digital inputs/outputs"

**Structure**

Bit	Designation/function	Comment
0	<b>Signal behavior travel range limit switch inputs</b> 0: Not inverted, 24 V ⇒ travel range has been exceeded 1: Inverted, 0 V ⇒ travel range has been exceeded	
1	<b>Travel range limit switch activation</b> 0: No 1: Yes  Bit 0 and Bit 1 of parameter "P-0-0222" must be assigned digital inputs. Otherwise, the bit cannot be written in the operating mode.	
2	<b>Handling of a travel range exceedance</b> 0: As error (according to error reaction) 1: As fatal warning (shutdown)	

Tab.5-35: Relevant bits of P-0-0090, Travel range limit switch parameters

**P-0-0090 - Attributes**

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0x7	0x0
MPC:	0x0 / 0x7	0x0
MPE:	0x0 / 0x7	0x0
MPM:	0x0 / 0x7	0x0

## 5.1.79 P-0-0091, Position/travel range limit status

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter displays the status of position limitation and travel range limit switch monitoring.

The status of position limitation and travel range limit switch monitoring is displayed even if monitoring has been deactivated.

See also Functional Description "Position Limitation/Travel Range Limit Switch"

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
0	0: Positive position limit value not exceeded 1: Positive position limit value exceeded	
1	0: Negative position limit value not exceeded 1: Negative position limit value exceeded	
2	0: Positive travel range limit switch not exceeded 1: Positive travel range limit switch exceeded	
3	0: Negative travel range limit switch not exceeded 1: Negative travel range limit switch exceeded	

Tab.5-36: Relevant Bits of P-0-0091, Position/travel range limit status

## P-0-0091 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.1.80 P-0-0092, Cam table 2

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** Parameter P-0-0092 contains a table with data points tab ( $\phi$ ) for the profile of cam 2.

See also Parameter Description "P-0-0072, Cam table 1"

Rexroth IndraDrive supports up to 8 cam tables which can be divided into the following groups:

- 4 cam tables with 3 to 1024 data points (P-0-0072, P-0-0092, P-0-0780, P-0-0781)
- 4 cam tables with 3 to 128 data points (P-0-0782, P-0-0783, P-0-0784, P-0-0785)



The individual data points of the table are interconnected by means of cubic spline interpolation.

See also Functional Description "Electronic Cam With Real/Virtual Master Axis"

## P-0-0092 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-799,999999 / 799,999999	s. Text
MPC:	-799,999999 / 799,999999	s. Text
MPE:	-799,999999 / 799,999999	s. Text
MPM:	-799,999999 / 799,999999	s. Text

Product-Specific Parameters

## 5.1.81 P-0-0093, Cam distance

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter determines the cam distance with which the profile of the cam is multiplied.					
	See also Functional Description "Electronic Cam With Real/Virtual Master Axis"					
P-0-0093 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	S-0-0076 / S-0-0076			360,0000	
	MPC:	S-0-0076 / S-0-0076			360,0000	
	MPE:	S-0-0076 / S-0-0076			360,0000	
	MPM:	S-0-0076 / S-0-0076			360,0000	

## 5.1.82 P-0-0094, Cam switch angle

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	When the master axis position exceeds this angle in position or in negative direction, switching to that cam table takes place which was preselected by parameter "P-0-0088, Control word synchronization modes".					
	The parameter "P-0-0089, Status word synchronization modes" then is set to the activated cam table. When the drive is initialized for the first time, the cam set in P-0-0088 is activated. In this case, too, the parameter P-0-0089 is set.					
	See also Functional Description "Electronic Cam With Real/Virtual Master Axis"					
P-0-0094 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,0000 / 360,0000			0,0000	
	MPC:	0,0000 / 360,0000			0,0000	
	MPE:	0,0000 / 360,0000			0,0000	
	MPM:	0,0000 / 360,0000			0,0000	

## 5.1.83 P-0-0095, Absolute encoder monitoring window for motor encoder

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	When switching on a drive with an absolute motor encoder, a check is run to determine if the current actual position value differs from the actual position value at the time the drive was switched off the last time.				
	If the difference exceeds the value determined in this parameter, the "F2074 Actual pos. value 1 outside absolute encoder window" error message is out-				

## Product-Specific Parameters

put. When switchin ghe drive off, the current encoder data of the absolute motor encoder are saved in "P-0-0177, Absolute encoder buffer 1 (motor encoder)".



The monitoring can be switched off, while the parameter is written with the value "0".

See also Functional Description "Monitoring of Measuring Systems"

## P-0-0095 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		1,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		1,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		1,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		1,0000		

## 5.1.84 P-0-0096, Absolute encoder monitoring window for opt. encoder

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** When switching on a drive with an absolute optional (external) encoder, a check is run to determine if the current actual position value of the encoder differs from the actual position value at the time the drive was switched off the last time.

If the difference exceeds the value determined in this parameter, the "F2075 Actual pos. value 2 outside absolute encoder window" error message is output. When switchin ghe drive off, the current encoder data of the absolute encoder are saved in P--0-0178, Absolute encoder buffer 2 (external encoder).



The monitoring can be switched off, while the parameter is written with the value "0".

See also Functional Description "Monitoring of Measuring Systems"

## P-0-0096 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		1,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		1,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		1,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		1,0000		

## 5.1.85 P-0-0097, Absolute encoder monitoring window for measuring encoder

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

## Product-Specific Parameters

**Function** When switching on a drive with an absolute measuring encoder, a check is run to determine whether the current position feedback value of the encoder differs from the position feedback value at the time the drive was switched off the last time.

If the difference exceeds the value defined in this parameter, error message F2076 is output. When the drive is switched off, the current encoder data of the absolute encoder is stored in "P-0-0179, Absolute encoder buffer 3 (measuring encoder)".



Depending on "P-0-0330, Control word of measuring encoder, bit 2 measuring encoder scaling type", the unit and the number of decimal places of the parameter are changed:

**Bit 2 = 0:** The unit of the parameter is increments and the parameter is shown without decimal places.

**Bit 2 = 1:** The unit of the parameter is degrees and the parameter is shown with 4 decimal places.

See Functional Description "Measuring Encoder"

### P-0-0097 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Incr	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0 / 2147483647	100
MPC:	0 / 2147483647	100
MPE:	0 / 2147483647	100
MPM:	0 / 2147483647	100

## 5.1.86 P-0-0098, Max. model deviation

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** In operation modes with drive-internal position control, the position control loop is also monitored in the drive. For this purpose, an "model position feedback value" is calculated and compared with the real position feedback value (cf. S-0-0051 and S-0-0053). The maximum value of the deviation is stored in "P-0-0098" and helps define the value of the following error monitoring window (S-0-0159).



Before the "test run" for an axis is started, P-0-0098 must be set to "0".

See also Functional Description "Position Controller (with Respective Feed-forward Functions and Actual Value Adjustment)"

**Use** There are two different cases for the "model position feedback value":

- **Position control (or interpolation) with lag error**

The model position feedback value is the difference between the position command value and the temporal derivative of the position command value curve, divided by the position controller Kv factor (if an additive velocity command value (S-0-0037) is added, it is also divided by the position controller Kv factor and subtracted from the position command value).

- **Lagless position control (or interpolation)**

## Product-Specific Parameters

In this case, the model position feedback value corresponds to the position command value (if an additive velocity command value (S-0-0037) is added, it is also divided by the position controller Kv factor and subtracted from the position command value).

See also: DE\_FAQ\_IndraDrive\_Lageregelung\_Überwachung/  
Anzeige\_Schleppabstand

## P-0-0098 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
<b>Input</b>					
		<b>min./max.</b>		<b>Default value</b>	
MPB:		S-0-0076 / S-0-0076		---	
MPC:		S-0-0076 / S-0-0076		---	
MPE:		S-0-0076 / S-0-0076		---	
MPM:		S-0-0076 / S-0-0076		---	

## 5.1.87 P-0-0099, Position command smoothing time constant

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
Device parameter:		axis-specific		

**Function** The position command smoothing time constant determines the maximum jerk possible in the case of operation modes with position control.

The maximum jerk is calculated from:

$$\text{max.jerk} = \frac{2^{\text{nd}} \text{derivation of the position command values}}{\text{P-0-0099, Pos. command smoothing time constant}}$$

Fig. 5-37: Maximum jerk



The parameter "P-0-0099, Position command smoothing time constant" is only effective with the linear fine interpolator having been activated (P-0-0187 = 0). The filter is deactivated by writing the value 0 to this parameter.

See also Functional Description "Command Value Processing in Position Control"

## P-0-0099 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
<b>Input</b>					
		<b>min./max.</b>		<b>Default value</b>	
MPB:		0,00 / 655,35		0,00	
MPC:		0,00 / 655,35		0,00	
MPE:		0,00 / 655,35		0,00	
MPM:		0,00 / 655,35		0,00	

## 5.1.88 P-0-0100, Position command value extension

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPM»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
Device parameter:		axis-specific		

## Product-Specific Parameters

**Function** The parameter "P-0-0100, Position command value extension" extends the parameter "S-0-0047" by 16 bits to 48 bits. This increases the resolution by 4 decimal places.

See also Parameter Description "S-0-0047, Position command value"

<b>P-0-0100 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.2 P-0-0101 to P-0-0200 General Functions

### 5.2.1 P-0-0101, Configuration STO/SBC

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter configures the behavior of safety options "L3" and "L4".  
See also Functional Description "Integrated Safety Technology"

#### Structure

Bit	Designation/function	Comment
0	<b>Diagnosis on selection in AF mode:</b> 0: Diagnosis with fatal error <b>F8027</b> (default) 1: Diagnosis with fatal warning <b>E8027</b>	As of MPx-17V08
1	<b>Diagnosis output:</b> 0: Full diagnosis output (default) 1: Restricted diagnosis output	As of MPx-17V08

Tab.5-38: P-0-0101, Configuration STO/SBC

<b>P-0-0101 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0x0		
	MPC:	--- / ---		0x0		
	MPE:	--- / ---		0x0		
	MPM:	--- / ---		0x0		

### 5.2.2 P-0-0105, Time stamp for list of diagnostic message numbers

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter contains a list of the points of time at which the diagnostic drive message was changed. At each change of "S-0-0390 Diagnostic message number", the respective point of time (value from "P-0-0190, Operating hours control section") is recorded. The last point of time at which the diagnostic message was changed is entered in the first line of the list. All entries

## Product-Specific Parameters

already existing are moved down by one line. The list is full after 50 entries, each other entry causes the oldest value to get lost.



The list from "S-0-0375, Diagnostic numbers list" corresponds with the parameter P-0-0105. These parameters in the same line contain the diagnostic message number corresponding to the respective point of time.



The numbers of the diagnostic error messages and the respective points of time of the error events are only applied in S-0-0375 and P-0-0105 by clearing the error message!

## P-0-0105 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.2.3 P-0-0106, Operating status STO/SBC

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter provides binary status signals regarding the current state of safety options "L3" and "L4".

See also Functional Description "Integrated Safety Technology"

**Structure** The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
0	<b>Diagnostic message:</b> 0: Limited 1: Complete	
1	<b>Operating status STO/SBC:</b> 0: Normal operation (NO) 1: Special mode (STO/SBC)	
2	<b>Status of output stage:</b> 0: Output stage enabled by STO 1: Output stage locked by STO	
3	<b>Error status</b> 0: No error 1: Error	

STO Safe torque off

SBC Safe brake control

Tab.5-39: Operating Status STO/SBC

## P-0-0106 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.2.4 P-0-0108, Master drive polarity

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The polarity of the master axis position is inverted acc. to the electronic gear-box with this parameter. Therewith, an inverted electronic gearbox is realized.

See also Functional Description: "Synchronization Modes"

**Structure**

Bit	Designation/function	Comment
0	Master axis position 0: Polarity positive 1: Polarity negative	

Tab.5-40: P-0-0108, Master drive polarity

**P-0-0108 - Attributes**

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0x1	0x0
MPC:	0x0 / 0x1	0x0
MPE:	0x0 / 0x1	0x0
MPM:	0x0 / 0x1	0x0

## 5.2.5 P-0-0109, Torque/force peak limit

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Torque/force limit value that acts on the sum of all torque/force command values:

- Command values from the acceleration feedforward controls (S-0-0348, P-0-1126)
- Command values from the velocity loop (P-0-0049)

See also Functional Description "Torque/Force Limitation"

**Use**

The parameter has a bipolar effect, i.e., positive and negative command values are limited to the entered value. It does not allow cyclic write access and therefore serves to absolutely define the maximum allowed drive torque and/or the maximum allowed drive force.

This limit value should be defined according to the machine limits. It acts during drive-controlled deceleration, i.e., during the drive-controlled error reaction as well.

The unit for the values of this parameter depends on the scaling that has been set (S-0-0086, Torque/force data scaling type).

## Product-Specific Parameters



The effective limit value is displayed in "P-0-0444, Actual value peak torque limit". This value can be less than "P-0-0109" if, e.g., the value of "S-0-0092" is less than that of "P-0-0109" or if load-dependent current limitation by motor or controller is active.

The torque limit values (S-0-0082, S-0-0083, S-0-0092) for limiting the torque during the machining process do not have any effect during drive-controlled deceleration.

## P-0-0109 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 3
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0086 / S-0-0086		400,0		
<b>MPC:</b>	S-0-0086 / S-0-0086		400,0		
<b>MPE:</b>	S-0-0086 / S-0-0086		400,0		
<b>MPM:</b>	S-0-0086 / S-0-0086		400,0		

## 5.2.6 P-0-0112, Actual velocity value of motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays the motor velocity irrespective of scaling and velocity mix factor

If velocity scaling is set to load reference, the motor velocity is displayed without consideration of the gear and the feed constant. The unit is rpm or mm/min in case of linear motors.



Parameter "S-0-0040, Velocity feedback value" allows for the load gear and the feed constant.

## P-0-0112 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	s. Text	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	s. Text
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.2.7 P-0-0113, Bipolar velocity limit value of motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter serves to limit the motor velocity. The load gear and the feed constant are not allowed for. The parameter is not affected by the scaling of the velocity data. The parameter has the same effect as "S-0-0113, Maximum motor speed", however, its value can be parameterized for all customer motor types.

Product-Specific Parameters



"S-0-0113, Maximum motor speed" is overwritten on switchover of motors with motor data memory.

P-0-0113 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	s. Text	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	s. Text
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	+
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			s. Text / s. Text	0,0000	
<b>MPE:</b>			s. Text / s. Text	0,0000	
<b>MPM:</b>			s. Text / s. Text	0,0000	

## 5.2.8 P-0-0114, Undervoltage threshold

Allocation

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

Function

This parameter can be used to configure the undervoltage threshold for the DC bus voltage. The active undervoltage threshold results from the operation mode of the converter and the value in P-0-0114.

Active undervoltage threshold

Converter operation mode (cf. P-0-0860) <sup>1)</sup>	$0 \leq P-0-0114 \leq U_{DC\_min\_default}$	$P-0-0114 > U_{DC\_min\_default}$
Converter mode	$U_{DC\_min\_default}$	P-0-0114
Inverter mode	Undervoltage threshold of the converter <sup>2)</sup>	Undervoltage threshold of the converter <sup>2)</sup>
Converter mode with energy store	P-0-0114	P-0-0114

$U_{DC\_min\_default}$

Default undervoltage threshold 75% (3-phase operation) or 66% (1-phase operation) of the line crest value from P-0-0815.

1)

2)

Configuration is achieved via P-0-0860 bit 14 and bit 0. P-0-0114 does not have any effect; the controller evaluates the state information of the module bus ("DC bus not ok" or "DC bus ok", P-0-0461), i.e. the undervoltage threshold of the converter is effective.

Tab.5-41:

Active Undervoltage Threshold For the DC Bus Voltage Subject To the Converter Configuration



If the feedback value of the DC bus voltage (S-0-0380) is below the active undervoltage threshold, undervoltage is detected in the DC bus and the drive reaction defined in "P-0-0118" bit 5... 3 is executed.

Use

- Individual raising of the undervoltage threshold in "converter mode" (default configuration). "P-0-0114" is only effective if the parameterized value is greater than the default undervoltage threshold.
- In "inverter mode", "P-0-0114" does not have any effect.
- Adjustment of the undervoltage threshold to the output voltage of the energy store in "converter mode with energy store". The value in "P-0-0114" must be parameterized such that it is less than the output voltage of the energy store.

P-0-0114 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV

## Product-Specific Parameters

Unit:	V	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		0 / 500		0	
MPC:		0 / 500		0	
MPE:		0 / 500		0	
MPM:		0 / 500		0	

## 5.2.9 P-0-0115, Device control: Status word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter can be used to read the drive status (device control), independent of the master communication that is used.

See also Functional Description "Operation Modes"

See also Functional Description "Master Communication"

See also Functional Description "Drive Halt"

**Structure** The individual bits have the following significance:

Bit	Designation/function	Comment
0	<b>Drive without error/BB relay state</b> 0: No/BB relay contact open 1: Yes/BB relay contact closed BB relay state only if the "converter in inverter mode" is parameterized (P-0-0860, bit 0 = 1).	
1	Ready signal 1: Drive ready (ready for power output)	
2	<b>Drive warning</b> 1: Warning (class 2 diagnostics) is present	
3	<b>Status of ext. cmd val. processing</b> (primary op. mode + secondary op. modes 1-7) 0: Drive ignores ext. Command Value Input 1: Drive follows ext. Command Value Input	
4	<b>Drive Halt acknowledgment</b> 1: Drive Halt is active and axis is in standstill	
5	<b>Command change bit</b> 0: No change in command status 1: Command status has changed	
6	<b>Status of int. cmd val. processing</b> (secondary op. modes 8-15 of PLC) 0: Drive ignores int. command value input of PLC 1: Drive follows int. command value input of PLC	

Product-Specific Parameters

Bit	Designation/function	Comment
7	<b>Operation mode initialized</b> 1: Primary op. mode or secondary op. mode active and initialization completed, otherwise 0	
11-8	<b>Actual operation mode</b> 0000: Primary operation mode is active 0001: Secondary oper. mode 1 is active 0111: Secondary oper. mode 7 is active 1000: 1st internal secondary oper. mode is active 1111: 8th internal secondary oper. mode is active	
12	<b>Command value reached</b> 1: Drive has reached command value input (see Detailed information (bit 12))	
13	<b>Drive error</b> 0: No error 1: Drive error	
15/14	<b>Ready for operation</b> 00: Control section and power section not ready for operation (e.g., drive error or phase 2) 01: Control section ready for operation (bb) 10: Control section and power section ready for operation (Ab) 11: Drive with torque (AF)	

Tab.5-42: Device Control: Status Word

**Use Detailed information regarding command value processing (bit 6/3)**

Secondary operation modes 4... 7 can only be used via "sercos interface" while secondary operation modes 8... 15 (internal secondary operation modes 1... 8) can only be used with the internal PLC (IndraMotion MLD-S with temporary control) and in easy startup mode.

By combining bit 6 and bit 3, the following cases can be unequivocally distinguished:

Bit 6	Bit 3	Status	Comment
0	0	Drive carries out internal deceleration	Failure; safety technology: drive-controlled transfer *1
0	1	Drive follows command value of external control unit in active operation mode	Normal operating state
1	0	Internal PLC controls drive via an MC function block	
1	1		Not possible

\*1 If safety technology is activated and drive-controlled transition is configured and, in addition, bit 2 is 0 and bit 13 is 0, then the safety function is selected with subsequent drive-controlled stopping process.

Tab.5-43: Cases to be Distinguished for Bit 3 and Bit 6

## Product-Specific Parameters



In easy startup mode, bit "6 = 0" and "bit 3 = 1" are set, too, as the drive follows the command value input in this case!

**Detailed information "command value reached" (bit 12)**

As described in the table, bit 12 "command value reached" is generated depending on the active operation mode:

Active operation mode	Bit 12 "Command value reached"
None	0
Torque control	No message
Velocity control	<b>n<sub>feedback</sub> = n<sub>command</sub></b> (S-0-0330)
Cycl. position control	<b>IN_POSITION</b> (S-0-0336)
Drive-internal interpolation	<b>IN_TARGET POSITION</b> (S-0-0437, bit 1)
Drive-controlled positioning	<b>IN_TARGET POSITION</b> (S-0-0338 or S-0-0437, bit 2: IZP)
Positioning block mode	<b>End position reached</b> (P-0-4061, bit 4) S-0-0338 In_Target Position && no sequential block
Position and velocity synchronization	<b>In Synchronization</b> (P-0-0089, bit 8)

**P-0-0115 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

**5.2.10 P-0-0116, Device control: Control word**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter shows the effective input of the drive control word. The value written to this parameter is the respective drive control word of the active master communication of easy startup mode or the MLD.

Analog interface, parallel interface: P-0-4028

Profibus, CanOpen, DeviceNet and Interbus: P-0-4077 and/or P-0-4068

ProfiNet, Ethernet IP: P-0-4077 and/or P-0-4068

sercos and EtherCat: S-0-0134

Easy Startup mode: P-0-0120

Or by the drive-internal MLD

**Function**

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	12/11/ 9/8	<b>Command operation mode</b> 0000: Primary operation mode 0001: Secondary operation mode 1 0010: Secondary operation mode 2, etc. 0111: Secondary operation mode 7 1000: Secondary operation mode 8 ... 1111: Secondary operation mode 15 Bit 12 activates the internal secondary operation modes 8 to 15 which are used by the MLD and in easy startup mode.	
	13	<b>Drive Halt</b> 0: Drive Halt active. The drive was decelerated while maintaining maximum acceleration (S-0-0138) if bits 14 and 15 were → "1" with 1 → "0" war. 1: Drive Halt inactive.	
	14	<b>Drive enable</b> 0: Drive enable inactive; the driving torque was switched off without delay if the drive was active with 1 → 0. 1: Drive enable active	
	15	<b>Drive ON</b> 0: Drive ON inactive; the drive was decelerated in the best possible manner if bit 14 was → "1" with 1 → "0". 1: Drive ON active	

Tab.5-44: Relevant Bits of P-0-0116

**Use** The control bits (8 and 9) contained in parameter "P-0-0116" are also contained in the control words depending on the master communication (S-0-0134, P-0-4077, P-0-4068 and P-0-4028) and can therefore be written via the control words.

<b>P-0-0116 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.2.11 P-0-0117, Activation of control unit reaction on error

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter allows activating an error reaction controlled by the control unit. When error reaction controlled by the control unit is active, the control unit (external control/NC or local MLD) still can input command values for the

## Product-Specific Parameters

drive for 30 s. This allows realizing an error reaction coordinated by the control unit in the case of an error.



After 30 seconds, the error reaction set in "P-0-0119, Best possible deceleration" is carried out.

## Structure

See also Functional Description "NC reaction on Error"

Bit	Designation/function	Comment
0	<b>NC error reaction</b> 0: Deactivated 1: Activated	
1	<b>MLD error reaction</b> 0: Deactivated 1: Activated	

Tab.5-45: P-0-0117, Activation of NC reaction on error

**Use** Observe the following aspects for using the function:

- Using the NC error reaction is only possible when non-fatal errors (F2xxx, F3xxx) occurred.
- Using the MLD error reaction is only possible when non-fatal errors (F2xxx, F3xxx) or interface errors occurred.
- The MLD error reaction is only possible at active function package ("ML") via IndraMotion MLD (drive-PLC). If a fatal error occurs, the error reaction can be done from an external control unit, too.
- A selection of NC error reaction and MLD error reaction at the same time is impossible.



The MLD error reaction is only done at active function package ("ML").

## P-0-0117 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0x0		
<b>MPC:</b>	--- / ---		0x0		
<b>MPE:</b>	--- / ---		0x0		
<b>MPM:</b>	--- / ---		0x0		

## 5.2.12 P-0-0118, Power supply, configuration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In parameter "P-0-0118", settings with regard to error messages and error reactions are made for drives that are interconnected via the DC bus and the module bus (drive system). In addition, the handling of DC bus undervoltage is determined.

Product-Specific Parameters



A "non-fatal error" does not necessarily cause power on the DC bus (power bus) to be switched off. This can be changed by parameterization.

See also Functional Description "Power Supply"

Structure

The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
0	<b>Package reaction (power off on error)</b> <b>0:</b> No reaction <b>1:</b> Reaction: "Best possible deceleration" (see P-0-0119), diagnostic message E8058 <b>Exception:</b> In the case of braking resistor overload, power is always switched off!	
1	<b>Signaling of own drive errors</b> This bit determines whether a drive signals its own errors via the module bus in the drive system. <b>0:</b> No signaling: No "package reaction" triggered in case of an error (passive axis), power on of supply unit is possible irrespective of drive status. <b>1:</b> Signaling: "Package reaction" triggered in case of error (active axis), power on of supply unit only with readiness for operation (Bb)	
5-3	<b>Behavior in the case of undervoltage in DC bus or mains failure</b> These bits determine how the drive reacts to undervoltage in the DC bus. <b>000:</b> Non-fatal error (F2026 / F2819), see P-0-0119, Best possible deceleration <b>001:</b> Fatal warning (E8026 / E8819), motive torque switched off. <b>100:</b> Non-fatal warning (E2026 / E2819), no error reaction of drive	
6	<b>Automatic clearing</b> of "F2026 Undervoltage in power section" <b>0:</b> No, error must be cleared (S-0-0099) <b>1:</b> Yes, error is cleared by switching drive enable off and on (P-0-0116, bit 15)	
7	<b>Power off on error</b> Determines whether the drive initiates disconnection from power supply when errors occur: <b>0:</b> Disconnection from power supply only in case of F28xx supply errors <b>1:</b> Disconnection from power supply with any error	
15	<b>Reserved</b>	

Tab.5-46: Relevant Bits of P-0-0118, Power supply, configuration

P-0-0118 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	0x3
MPC:	--- / ---	0x3
MPE:	--- / ---	0x3
MPM:	--- / ---	0x3

## 5.2.13 P-0-0119, Best possible deceleration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter determines the way the drive is decelerated.

Deceleration type	Purpose	Parameterizable deceleration in reaction to		
		<ul style="list-style-type: none"> <li>- Non-fatal errors (F2xxx)</li> <li>- Non-fatal safety technology errors (F3xxx)</li> <li>- Interface errors (F4xxx)</li> <li>- Fatal warnings E8034, E8058<sup>*4)</sup></li> <li>- Removal of drive enable<sup>*5)</sup></li> <li>- Drive-contr. transition to special mode standstill SS1ES/SS1</li> </ul>	<ul style="list-style-type: none"> <li>- Travel range errors F6xxx</li> <li>- Safety technology errors F7xxx as of MPx-18VRS</li> </ul>	Fatal errors F8xxx <sup>*3)</sup>
<b>Emergency stop</b> Velocity Command Value Reset	Fastest possible deceleration	□□□0 <sub>hex</sub>	□□0□ <sub>hex</sub>	Not possible
<b>Emergency stop</b> Velocity command value reset with ramp and filter	Deceleration preventing damage to mechanical system while maintaining emergency stop properties	□□□4 <sub>hex</sub>	□□4□ <sub>hex</sub>	Not possible
<b>Quick stop</b> Velocity command value reset with ramp and filter	Deceleration preventing damage to mechanical system while maintaining quick stop properties	□□□2 <sub>hex</sub>	Not possible	Not possible
<b>Return motion</b> as of MPx-18VRS	For targeted return motion in case of an error	□□□3 <sub>hex</sub>	Not possible	Not possible

Product-Specific Parameters

Deceleration type	Purpose	Parameterizable deceleration in reaction to		
		<ul style="list-style-type: none"> <li>- Non-fatal errors (F2xxx)</li> <li>- Non-fatal safety technology errors (F3xxx)</li> <li>- Interface errors (F4xxx)</li> <li>- Fatal warnings E8034, E8058<sup>4)</sup></li> <li>- Removal of drive enable<sup>5)</sup></li> <li>- Drive-contr. transition to special mode standstill SS1ES/SS1</li> </ul>	<ul style="list-style-type: none"> <li>- Travel range errors F6xxx</li> <li>- Safety technology errors F7xxx as of MPx-18VRS</li> </ul>	Fatal errors F8xxx <sup>3)</sup>
<b>Emergency stop</b> by means of motor winding short-circuit <sup>1)</sup>	Deceleration of the axis in case of fatal errors where control is not possible	Not possible	Not possible	□1□□ <sub>hex</sub> <sup>2)</sup>
<b>Torque disable</b>	For slave axes provided they are bonded to the master axis	□□□1 <sub>hex</sub>	□□1□ <sub>hex</sub>	Torque disable even if □1□□ <sub>hex</sub> has been set

- 1) The braking effect cannot be controlled and, where appropriate, is lower in case of non-fatal errors.  
2) □0□□<sub>hex</sub> leads to torque disable  
3) In case of F8000, F8060 and F8067, deceleration by means of motor winding short-circuit is **not** possible.  
4) Only possible with return motion.  
5) Not possible with return motion.  
P-0-0119 Best possible deceleration  
Tab.5-47: Options to Parameterize Best Possible Deceleration (P-0-0119)

See also Functional Description "Error Reactions"

See also Functional Description "Best Possible Deceleration"

Structure

Nibbling	Parameterization and description of error reaction	Comment
□□□■ <sub>hex</sub>	<p><b>Parameterizable best possible deceleration as error reaction to</b></p> <ul style="list-style-type: none"> <li>• Non-fatal errors <b>F2xx</b></li> <li>• Non-fatal safety technology errors <b>F3xx</b></li> <li>• Interface errors <b>F4xx</b></li> <li>• Fatal warning <b>E8034</b></li> <li>• Removal of drive enable</li> <li>• Drive-contr. transition to special mode standstill SS1ES/SS1</li> </ul> <p><b>0<sub>hex</sub>: Velocity command value reset (emergency stop)</b></p> <ul style="list-style-type: none"> <li>• The controlled servo motor is decelerated taking parameter "P-0-0109" into account (<math>v_{cmd} = 0</math>). Acceleration is not limited.</li> </ul>	

## Product-Specific Parameters

Nibbling	Parameterization and description of error reaction	Comment
	<ul style="list-style-type: none"> <li>"P-0-0109" is used for deceleration with open-loop U/f control only if the stall protection controller is activated (P-0-0045). Maximum deceleration is determined by parameter "P-0-0569".</li> </ul> <p>The maximum braking time to be expected under the most unfavorable operating conditions is entered in "S-0-0273, Maximum drive off delay time".</p> <p>After "S-0-0273" has elapsed:</p> <ul style="list-style-type: none"> <li>In case of servo drives ("servo brake" function, P-0-0525), the holding brake is activated and drive enable is internally switched off after "S-0-0207".</li> <li>In case of main spindle drives (main spindle brake function, P-0-0525), drive enable is internally switched off and the holding brake is activated, if the velocity has fallen below 10 rpm.</li> </ul> <p><b>1<sub>hex</sub>: Torque disable</b></p> <p>In case of an error, drive torque is disabled, i.e. the drive "coasts to stop". The drive is only decelerated by friction torque. If the drive additionally features a motor holding brake, this brake is</p> <ul style="list-style-type: none"> <li>immediately activated in case of servo drives ("servo brake" function, P-0-0525),</li> <li>only activated at a velocity of less than 10 rpm in case of main spindle drives ("main spindle drive" function, P-0-0525).</li> </ul> <p><b>2<sub>hex</sub>: Velocity command value reset with ramp and filter (quick stop)</b></p> <p>In case of an error, the controlled servo drive (in velocity control mode) or the controlled drive (in U/f mode) is decelerated with a command value ramp, determined by "S-0-0372" and the jerk limit value "S-0-0349". If the value of S-0-0327 = "0", the value is effective in "S-0-0138". Torque/force limitation is derived from parameter "P-0-0109". <b>Note:</b> With open-loop U/f control, the maximum deceleration is given by the value entered in "P-0-0569".</p> <p><b>3<sub>hex</sub>: Not possible</b></p> <p><b>4<sub>hex</sub>: Velocity command value reset with ramp and filter (emergency stop)</b></p> <p>In case of an error, the controlled servo drive (in velocity control mode) or the controlled drive (in U/f mode) is decelerated with a command value ramp, determined by "S-0-0429, Emergency halt deceleration" and "S-0-0349, Bipolar jerk limit". If the value of "S-0-0429" = "0", the value is effective in "S-0-0138, Bipolar acceleration limit value". Torque/force limitation is derived from parameter "P-0-0109".</p> <p><b>Note:</b> With open-loop U/f control, the maximum deceleration is given by the value entered in "P-0-0569, Maximum stator frequency slope".</p>	
□□■ hex	<p><b>Parameterizable best possible deceleration as error reaction to</b></p> <ul style="list-style-type: none"> <li>Travel range errors <b>F6xxx</b></li> <li>Safety technology errors <b>F7xx</b> as of <b>MPx-18VRS</b></li> </ul> <p><b>0<sub>hex</sub>: Velocity command value reset (emergency stop)</b></p> <ul style="list-style-type: none"> <li>The controlled servo motor is decelerated taking parameter "P-0-0109, Torque/force peak limit" into account (<math>v_{cmd} = 0</math>). Acceleration is not limited.</li> </ul>	<p><b>Torque disable:</b> Only combinable with 1 in □□■ hex</p>

Product-Specific Parameters

Nibbling	Parameterization and description of error reaction	Comment
	<ul style="list-style-type: none"> <li>"P-0-0109" is used for deceleration with open-loop U/f control only if the stall protection controller is activated (P-0-0045). Maximum deceleration is determined by parameter "P-0-0569".</li> </ul> <p>The maximum braking time to be expected under the most unfavorable operating conditions is entered in "S-0-0273, Maximum drive off delay time".</p> <p>After S-0-0273 is over:</p> <ul style="list-style-type: none"> <li>In case of servo drives ("servo brake" function, P-0-0525), the holding brake is activated and drive enable is internally switched off after "S-0-0207".</li> <li>In case of main spindle drives (main spindle brake function, P-0-0525), drive enable is internally switched off and the holding brake is activated, if the velocity has fallen below 10 rpm.</li> </ul> <p><b>1<sub>hex</sub>: Torque disable</b></p> <p>In case of an error, drive torque is disabled, i.e. the drive "coasts to stop". The drive is only decelerated by friction torque. If the drive additionally features a motor holding brake, this brake is</p> <ul style="list-style-type: none"> <li>immediately activated in case of servo drives ("servo brake" function, P-0-0525),</li> <li>only activated at a velocity of less than 10 rpm in case of main spindle drives ("main spindle drive" function, P-0-0525).</li> </ul> <p><b>2<sub>hex</sub>: Not possible</b></p> <p><b>3<sub>hex</sub>: Not possible</b></p> <p><b>4<sub>hex</sub>: Velocity command value reset with ramp and filter (emergency stop)</b></p> <p>In case of an error, the controlled servo drive (in velocity control mode) or the controlled drive (in U/f mode) is decelerated with a command value ramp, determined by "S-0-0429" and the jerk limit value "S-0-0349". If the value of "S-0-0429" = "0", the value is effective in "S-0-0138". Torque/force limitation is derived from parameter "P-0-0109".</p> <p><b>Note:</b> With open-loop U/f control, the maximum deceleration is given by the value entered in "P-0-0569, Maximum stator frequency slope".</p> <p><b>Exception:</b> In case of fatal warnings E8029, E8030, E8042, E8043, E8044 and probe quick stop (AR), the drive is decelerated with the ramp "S-0-0138, Bipolar acceleration limit value" if the value parameterized in parameter <b>P-0-0119</b> is <math>\square\square4\square_{\text{hex}}</math>.</p> <p>If parameterization is <b>P-0-0119</b> <math>\square\square\square\square_{\text{hex}} \neq 4_{\text{hex}}</math>, the drive reacts by resetting the velocity command value (vcmd = 0) without taking any acceleration limitation into account. The available torque is determined by parameter "P-0-0109, Torque/force peak limit".</p>	
$\square\square\square\square_{\text{hex}}$	<p><b>Activation of motor phase short circuit in the case of F8 errors</b></p> <p><b>0<sub>hex</sub>:</b> No Motor phase short-circuit</p> <p><b>1<sub>hex</sub>:</b> Motor phase short-circuit if possible</p>	

Tab.5-48: Setting the Way the Drive is Decelerated With the Above Criteria

Use

## Product-Specific Parameters

Type of deceleration	Torque/ Force limit	Acceleration limit values				Jerk limit values	
	P-0-0109	S-0-0138	S-0-0429	S-0-0372	P-0-0057	S-0-0349	P-0-0058
<b>Emergency stop</b> Velocity command value reset	■	Acceleration limitation not active				Jerk limitation not active	
<b>Emergency stop</b> Velocity command value reset with ramp and filter	■	■	■	-	-	■ <sup>1</sup>	-
<b>Quick stop</b> Velocity command value reset with ramp and filter	■	■	-	■	-	■ <sup>2</sup>	-
<b>Emergency stop</b> By means of motor winding short circuit	No limitations active						-
<b>Torque disable</b>	<b>Servo brake:</b> Friction torque of holding brake  <b>With main spindle brake:</b> Not defined  <b>Without motor brake:</b> Not defined	Acceleration limitation not active				Jerk limitation not active	
<b>Return motion</b>	■	-			■	-	■ <sup>3)</sup>

1) Filter time constant calculated from S-0-0349 and S-0-0429; when S-0-0429 = 0, S-0-0138 is used.

2) Filter time constant calculated from S-0-0349 and S-0-0372; when S-0-0372 = 0, S-0-0138 is used.

3) Filter time constant calculated from P-0-0057 and P-0-0058.

S-0-0138 Bipolar acceleration limit value

S-0-0349 Bipolar jerk limit

S-0-0372 Drive Halt acceleration bipolar

S-0-0429 Emergency halt deceleration

P-0-0109 Torque/force peak limit

Tab.5-49: *Effective Limitation Parameters*

## P-0-0119 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.2.14 P-0-0120, Control word easy startup

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In the "easy startup" mode, this parameter is used to control the drive.



It is not necessary to configure the bits 14 and 13, they are set initially.

Bit 12 is set automatically when the command "easy startup" mode is started. If bit 12 is cleared during the "easy startup" mode, the operation modes 0-8 can be addressed.

See also Functional Description "Master Communication"

See also Functional Description "Initial Start in Easy Startup Mode"

See also Functional Description "Operation Modes"

### Structure

Bit	Designation/function	Comment
12/11/9/8	<b>Command operation mode</b> <b>10x00:</b> Internal secondary oper. mode (velocity control) <b>10x01:</b> Internal secondary oper. mode (torque control) <b>10x10:</b> Internal secondary oper. mode (synchronization) <b>10x11:</b> Internal secondary oper. mode (drive-controlled positioning) <b>11x00:</b> Internal secondary oper. mode (velocity synchronization)	Bit 12 is automatically set.
13	<b>Drive Halt</b> <b>1-0 change:</b> Deceleration of drive while maintaining max. acceleration (S-0-0372) (only possible when bits 14 and 15 = 1)	
14	<b>Drive enable</b> <b>1-0 change:</b> Torque disable without delay (independent of bit 15 or 13)	
15	<b>Drive ON</b> <b>1-0 change:</b> Best possible deceleration (only possible if bit 14 = 1)	

Tab.5-50: Relevant Bits from Control Word Easy Startup

### P-0-0120 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.2.15 P-0-0121, Gear 1 motor-side (motor encoder)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In specific cases a mechanical gearbox can be used between motor encoder and motor.

The **gear ratio** is defined as follows:

$$\frac{\text{P-0-0122 gear 1 encoder side}}{\text{P-0-0121 gear 1 motor-side}}$$

Fig. 5-51: Gear ratio motor encoder gear (gear 1)

Example:

5 motor revolutions result in 2 motor encoder revolutions

→ P-0-0121 : 5

→ P-0-0122 : 2

See also Functional Description "Motor, Axis System, Measuring Systems"



For synchronous motors with an absolute motor encoder that can be evaluated, the advantage of a uniquely adjustment of the commutation offset can only be used for an appropriate ratio.

## P-0-0121 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Rev	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	1 / 65535	1
MPM:	1 / 65535	1

## 5.2.16 P-0-0122, Gear 1 encoder-side (motor encoder)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In specific cases a mechanical gearbox can be used between motor encoder and motor.

The **gear ratio** is defined as follows:

$$\frac{\text{P-0-0122 gear 1 encoder side}}{\text{P-0-0121 gear 1 motor-side}}$$

Fig. 5-52: Gear Ratio Motor Encoder Gearbox (Gearbox 1)

Product-Specific Parameters

*Example:*

5 motor revolutions result in 2 motor encoder revolutions

→ P-0-0121 : 5

→ P-0-0122 : 2

See also Functional Description "Motor, Axis System, Measuring Systems"



For synchronous motors with an absolute motor encoder that can be evaluated, the advantage of an uniquely adjustment of the commutation offset can only be used for an appropriate ratio.

**P-0-0122 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Rev	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	1 / 65535		1		
<b>MPE:</b>	1 / 65535		1		
<b>MPM:</b>	1 / 65535		1		

## 5.2.17 P-0-0123, Feed constant 2 (optional encoder)

**Allocation**

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»
<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
<b>Hardware</b>	--		
<b>Funct. package(s):</b>	closed loop		
<b>Device parameter:</b>	axis-specific		

**Function**

This parameter is only active if "feed constant 2" has been activated in parameter P-0-0185, Control word of encoder 2 (optional encoder). The value of this parameter is the length of the distance that is covered in linear form per revolution of a rotary position sensor (e.g. measuring wheel).



The unit depends on bit 4 of "S-0-0076, Position data scaling type".

The following applies:

S-0-0076 bit 4 = 0 -> mm/rev

S-0-0076 bit 4 = 1 -> inch/rev

See also Functional Description "E-Stop Function"

**P-0-0123 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	S-0-0076 / S-0-0076		10,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		10,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		10,0000		

## 5.2.18 P-0-0124, Gear 2 load-side (optional encoder)

**Allocation**

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»
<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
<b>Hardware</b>	--		
<b>Funct. package(s):</b>	closed loop		
<b>Device parameter:</b>	axis-specific		

## Product-Specific Parameters

**Function** If necessary, a mechanical gear can be used between load and optional encoder.

The **gear ratio** is defined as follows:

$$\frac{\text{P-0-0125 gear 2 encoder-side}}{\text{P-0-0124 gear 2 load-side}}$$

Fig.5-53: Gear ratio of gear 2 (optional encoder)

Example:

2 load revolutions result in 5 encoder revolutions

→ P-0-0124 : 2

→ P-0-0125 : 5

See also Functional Description "Mechanical Axis System and Measuring Systems"

## P-0-0124 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Rev	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	1 / 65535	1
MPM:	1 / 65535	1

## 5.2.19 P-0-0125, Gear 2 encoder-side (optional encoder)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** If necessary, a mechanical gear can be used between load and optional encoder.

The **gear ratio** is defined as follows:

$$\frac{\text{P-0-0125 gear 2 encoder-side}}{\text{P-0-0124 gear 2 load-side}}$$

Fig.5-54: Gear ratio of gear 2 (optional encoder)

Example:

2 load revolutions result in 5 encoder revolutions

→ P-0-0124 : 2

→ P-0-0125 : 5

See also Functional Description "Mechanical Axis System and Measuring Systems"

## P-0-0125 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Rev	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Product-Specific Parameters

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	1 / 65535	1
MPM:	1 / 65535	1

## 5.2.20 P-0-0127, Input revolutions of measuring gear

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** If necessary, a mechanical gear can be used between load and measuring encoder.

The **gear ratio** is defined as follows:

$$\frac{\text{P-0-0127, Input revolutions of measuring gear}}{\text{P-0-0128, Output revolutions of measuring gear}}$$

Fig. 5-55: Gear ratio gear 3 (measuring encoder)

Example:

2 load revolutions result in 5 encoder revolutions

→ P-0-0128: 2

→ P-0-0127: 5

See also Functional Description "Measuring Encoder"

### P-0-0127 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 4294967295	1
MPC:	1 / 4294967295	1
MPE:	1 / 4294967295	1
MPM:	1 / 4294967295	1

## 5.2.21 P-0-0128, Output revolutions of measuring gear

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** If necessary, a mechanical gear can be used between load and measuring encoder.

The **gear ratio** is defined as follows:

$$\frac{\text{P-0-0127, Input revolutions of measuring gear}}{\text{P-0-0128, Output revolutions of measuring gear}}$$

Fig. 5-56: Gear ratio gear 3 (measuring encoder)

## Product-Specific Parameters

*Example:*

2 load revolutions result in 5 encoder revolutions

→ P-0-0128: 2

→ P-0-0127: 5

See also Functional Description "Measuring Encoder"

**P-0-0128 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Rev	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	1 / 4294967295	1
MPC:	1 / 4294967295	1
MPE:	1 / 4294967295	1
MPM:	1 / 4294967295	1

**5.2.22 P-0-0129, Internal position data format**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays the internal position resolution. The position resolution refers to one revolution of the motor shaft (increments/revolution) in the case of rotary motors and to the pole pair distance (increments/pole pair distance) of the primary part in the case of linear motors.



The value of P-0-0129 depends on "S-0-0278, Maximum travel range". The higher the value selected for S-0-0278 the lower the value of P-0-0129 becomes!

**Example:**

P-0-0129 = 1048576

The result is an internal position resolution of:

360degrees/1048576 = 0.34mdegrees (in the case of rotary motors).

**P-0-0129 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

**5.2.23 P-0-0130, Position switch signal selection list**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter represents the list of reference signals. The following signals are available:

- "S-0-0000, Position switch switched off"

Product-Specific Parameters

- "S-0-0051, Position feedback value 1"
- "S-0-0053, Position feedback value 2"
- "P-0-0052, Actual position value of measuring encoder"
- "P-0-0434, Position command value controller"
- "P-0-0775, Resulting master axis position"
- "P-0-0776, Effective master axis position"
- "P-0-0778, Synchronous position command value"

It is not possible to make any input in this parameter, it represents the possible input for the following parameter "P-0-0131".

P-0-0130 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.2.24 P-0-0131, Position switch signal selection

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** In this parameter, one of the signals made available in parameter "P-0-0130"

- "S-0-0000, Position switch switched off"
- "S-0-0051, Position feedback value 1"
- "S-0-0053, Position feedback value 2"
- "P-0-0052, Actual position value of measuring encoder"
- "P-0-0434, Position command value of controller"
- "P-0-0775, Resulting master axis position"
- "P-0-0776, Effective master axis position"
- "P-0-0778, Synchronous position command value"

is selected.

**Use** It is only allowed to enter signals from the above list (P-0-0130), otherwise the drive reacts with an error message. When the position switch is not used, it makes sense to switch it off by selecting "S-0-0000" in order to avoid unnecessary calculating time of the axis processor.

P-0-0131 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## Product-Specific Parameters

## 5.2.25 P-0-0132, Position switch switch-on threshold

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	Servo(compensation), synchronisation (ELS)				
	Device parameter:	device-specific				
Function	The position switch allows realizing 8 independent position switch points. Each position switch point is characterized by a switch-on threshold, a switch-off threshold and a lead time, as well as the result, the cam status. The 8 switch-on thresholds are entered in this parameter. The input unit and limit is taken over by the selected reference signal.					
P-0-0132 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

## 5.2.26 P-0-0133, Position switch switch-off thresholds

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	Servo(compensation), synchronisation (ELS)				
	Device parameter:	device-specific				
Function	The position switch allows realizing 8 independent position switch points. Each position switch point is characterized by a switch-on threshold, a switch-off threshold and a lead time, as well as the result, the cam status. The 8 switch-off thresholds have to be entered in this parameter. The input unit and limit is taken over by the selected reference signal.					
P-0-0133 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

## 5.2.27 P-0-0134, Position switch lead times

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	device-specific			
Function	The position switch allows realizing 8 independent position switch points. Each position switch point is characterized by a switch-on threshold, a switch-off threshold and a lead time, as well as the result, the cam status. The 8 lead times have to be entered in this parameter. By setting a lead time				

## Product-Specific Parameters

the delay of an external switch element that is controlled by a position switch bit can be compensated. To do this, a theoretical correction value for the respective switch-on and switch-off thresholds is calculated from the programmed lead time and the current drive velocity. The position switch bit switches by the lead time before reaching the corresponding threshold.



When using a lead time, the velocity of the drive in the (time) range between theoretical and actual switch-on and switch-off threshold should be constant.

### P-0-0134 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		s. Text		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

## 5.2.28 P-0-0135, Position switch status word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	device-specific			

**Function** The position switch allows realizing 8 independent position switch points. Each position switch point is characterized by a switch-on threshold, a switch-off threshold and a lead time, as well as the result, the cam status (status word).

This parameter represents the result; when the position is within the range defined by switch-on threshold and switch-off threshold, the corresponding bit is set in the status word. This parameter can only be read, it is impossible to make any input.

### P-0-0135 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.2.29 P-0-0136, Oscilloscope: Manual trigger signal

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The parameter "P-0-0136, Oscilloscope: Manual trigger signal" can be used as alternatively external trigger signal. Especially, if the parameter "P-0-0036, Oscilloscope: External trigger signal" is configured as real-time control bit in a several-device-measuring .

See also Parameter Description "P-0-0036, Oscilloscope: External trigger signal"

See also Functional Description: "Oscilloscope Function".

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
0	Manual trigger signal 0: Manual trigger signal = Low 1: Manual trigger signal = High	

Tab.5-57: P-0-0036, Oscilloscope: Manual trigger signal

## P-0-0136 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.2.30 P-0-0139, Analog output 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter indicates the voltage value that is output via the analog output 1 of the drive controller.

See also Functional Description "Analog Outputs"

## P-0-0139 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-10,000 / 10,000	0,000
MPC:	-10,000 / 10,000	0,000
MPE:	-10,000 / 10,000	0,000
MPM:	-10,000 / 10,000	0,000

## 5.2.31 P-0-0140, Analog output 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter indicates the voltage value that is output via the analog output 2 of the drive controller.

See also Functional Description "Analog Outputs"

## P-0-0140 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-10,000 / 10,000	0,000
MPC:	-10,000 / 10,000	0,000
MPE:	-10,000 / 10,000	0,000
MPM:	-10,000 / 10,000	0,000

## 5.2.32 P-0-0141, Thermal drive load

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
				«MPC»

## Product-Specific Parameters

<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

**Function** The parameter "P-0-0141, Thermal drive load" is used to check the thermal load of the amplifier, 0% of the chip overtemperature corresponding to 0 kelvin, 100% corresponding to the maximum chip overtemperature. Given the correct dimensioning of the drive, the thermal load should not exceed the value of 80% for the intended processing cycles.

See also Functional Description "Current Limitation"

**Use** The typical period of time for the temperature rise of the controller output stage to its final temperature is approx. 10 minutes. To check the thermal load of a drive at the time of commissioning without having to run processing cycles, it is possible to preset the controller load to 80%. This can be done by writing any value to the parameter "P-0-0141, Thermal drive load".



- Due to the switching losses of the inverter, P-0-0141 will always display a value > 0 at drive enable, even if the output current "P-0-0440, Actual output current value (absolute value)" equals zero. The basic load value depends on "P-0-0001, Switching frequency of the power output stage".
- At a work load of approx. 97% the amplifier current limit takes effect. This is displayed by the warning "E8057 Amplifier overload, current limit active".

### P-0-0141 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,0 / 100,0	---
MPC:	0,0 / 100,0	---
MPE:	0,0 / 100,0	---
MPM:	0,0 / 100,0	---

## 5.2.33 P-0-0142, Synchronization acceleration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter contains the value of the acceleration or deceleration with which the synchronous velocity is reached during dynamic synchronization (velocity adjustment).

It is used in the synchronization modes and in the operation mode "position control drive-controlled".

See also Functional Description "Synchronization Modes"

See also Functional Description "Position Control With Cyclic Command Value Input"

### P-0-0142 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	S-0-0160 / S-0-0160	100,000

## Product-Specific Parameters

MPC:	S-0-0160 / S-0-0160	100,000
MPE:	S-0-0160 / S-0-0160	100,000
MPM:	S-0-0160 / S-0-0160	100,000

## 5.2.34 P-0-0143, Synchronization velocity

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter contains the value of the positioning velocity with which, during dynamic synchronization, the distance to absolute synchronization is traveled (position adjustment).

It is used in the synchronization modes and in the operation mode "position control drive-controlled".

See also Functional Description "Synchronization Modes"

See also Functional Description "Position Control With Cyclic Command Value Input"

P-0-0143 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	10,0000
MPC:	S-0-0044 / S-0-0044	10,0000
MPE:	S-0-0044 / S-0-0044	10,0000
MPM:	S-0-0044 / S-0-0044	10,0000

## 5.2.35 P-0-0144, Cam distance switch angle

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** A new value for "P-0-0093, Cam distance" will not become active before the current table access angle (P-0-0227, Cam table, access angle) passes the value entered in P-0-0144.



Only effective in "Cam" mode!

See also Functional Description "Electronic Cam With Real/Virtual Master Axis"

P-0-0144 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,0000 / 360,0000	0,0000
MPC:	0,0000 / 360,0000	0,0000
MPE:	0,0000 / 360,0000	0,0000
MPM:	0,0000 / 360,0000	0,0000

## 5.2.36 P-0-0145, Oscilloscope: List of measured values 3

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Product-Specific Parameters

Hardware

Funct. package(s):

Device parameter:

--

"open loop", "closed loop"

axis-specific

Function

The measured values of channel 3 of the oscilloscope function are stored in chronological order in parameter "P-0-0145, Oscilloscope: list of measured values 3". The oldest measured value is the first element of the list of measured values.

The recorded signal is the one identified by means of the IDN entered in "P-0-0147, Oscilloscope: signal selection 3".

Attribute, unit etc. are automatically adjusting to this selected signal.

See also Functional Description "Oscilloscope Function"

P-0-0145 - Attributes

Function:

Memory:

Unit:

Cycl. tra.:

Par

--

--

--

Editable:

Validity ch.:

Extr. val. ch.:

Comb. check:

--

--

--

--

Data length:

Format:

Decim. pl.:

Set-depend.:

4Byte var.

DEC\_MV

4

--

Input

MPB:

MPC:

MPE:

MPM:

min./max.

---

---

---

---

Default value


---

---

---

---

### 5.2.37 P-0-0146, Oscilloscope: List of measured values 4

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	<p>The measured values of channel 4 of the oscilloscope function are stored in chronological order in parameter "P-0-0146, Oscilloscope: list of measured values 4". The oldest measured value is the first element of the list of measured values.</p> <p>The recorded signal is the one identified by means of the IDN entered in "P-0-0148, Oscilloscope: signal selection 4".</p>					
<hr/>						
<div> Attribute, unit etc. are automatically adjusting to this selected signal.</div> <hr/>						
See also Functional Description "Oscilloscope Function"						
P-0-0146 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	<hr/>					
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

### 5.2.38 P-0-0147, Oscilloscope: Signal selection 3

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

## Product-Specific Parameters

**Function** The IDN entered in "P-0-0147" defines the signal that is to be recorded by channel 1. Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated with the input "0" or "S-0-0000".

When the recording is over, the recorded measured values are contained in parameter "P-0-0145, Oscilloscope: List of measured values 3".

See also Functional Description "Oscilloscope Function".

**P-0-0147 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.2.39 P-0-0148, Oscilloscope: Signal selection 4

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The IDN entered in "P-0-0148" defines the signal that is to be recorded by channel 1. Only such IDNs are allowed that are contained in the list "P-0-0149, Oscilloscope: Signal selection list".



The measuring channel is deactivated with the input "0" or "S-0-0000".

When the recording is over, the recorded measured values are contained in parameter "P-0-0146, Oscilloscope: List of measured values 4".

See also Functional Description "Oscilloscope Function".

**P-0-0148 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.2.40 P-0-0149, Oscilloscope: Signal selection list

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter "P-0-0149, Oscilloscope: Signal selection list" contains all parameters that are suitable as trigger signal (P-0-0026) or measuring signal (P-0-0023, P-0-0024, P-0-0147, P-0-0148).

See also Functional Description "Oscilloscope Function"

Product-Specific Parameters

<b>P-0-0149 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.2.41 P-0-0150, Oscilloscope: Number of valid measured values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> axis-specific			

**Function** When the oscilloscope feature has been activated, the signal to be recorded is continuously transmitted to a measured values memory. When the trigger event occurs, the recording is stopped and the list of measured values can be read. The oldest measured value is the first element of this list, the latest measured value is the last element.

If the trigger event occurs before this measured value memory is completely filled, a number of measured values at the beginning of the list is invalid. The number of valid measured values before the trigger event is made available in the "P-0-0150, Oscilloscope: number of valid measured values" parameter.

See also Functional Description "Oscilloscope Function"

<b>P-0-0150 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.2.42 P-0-0151, Synchronization window for modulo format

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
		<b>Device parameter:</b> axis-specific			

**Function** In the second step of dynamic synchronization (position adjustment), a distance is determined that has to be traveled for transition to absolute synchronization. If the position difference is greater than the "synchronization window for modulo format" (P-0-0151), the direction of synchronization is determined by parameter "P-0-0154, Synchronization direction". If the position difference is smaller than the value of parameter P-0-0151, synchronization takes place over the shortest distance.

See also Functional Description for the operation mode "Phase Synchronization With Real/Virtual Master Axis"

See also Functional Description "Synchronization Modes"

<b>P-0-0151 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	10,0000
MPC:	S-0-0076 / S-0-0076	10,0000
MPE:	S-0-0076 / S-0-0076	10,0000
MPM:	S-0-0076 / S-0-0076	10,0000

## 5.2.43 P-0-0152, Synchronization completed

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** In the case of the NC-controlled or drive-controlled change of operation modes, the parameter "P-0-0152, Synchronization completed" confirms that the drive is controlled by the cyclic position command value again.

In the case of the operation modes "phase synchronization" and "cam", bit 0 is set to "1" after the first synchronization when the distance up to absolute or relative synchronization was traveled. Once bit 0 has been set, it depends on parameter P-0-0155 (bit 0) whether the bit is cleared, in case parameter "S-0-0048, Additive position command value" is changed, until the position difference resulting from it was traveled. If bit 0 is set to "1" in parameter "P-0-0155, Synchronization mode", bit 0 remains set to "1".

See also Functional Description "Synchronization Modes"

See also Functional Description "Phase Synchronization With Real/Virtual Master Axis"

P-0-0152 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.2.44 P-0-0153, Optimum distance home switch-reference mark

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** During the commands for "homing procedure", the distance between the switch edge or blocking detection (positive stop) and the reference mark is monitored when the home switch, travel range limit switch or positive stop (axis-side additional device for homing) are evaluated and when the encoder reference marks are evaluated. The optimum distance provided for reference marks with equal distances is half the reference mark distance. The optimum distance has to be entered in parameter "P-0-0153, Optimum distance home switch-reference mark" in accordance with the table below.

See also Functional Description "Establishing the Position Data Reference"

Product-Specific Parameters

Structure	Encoder	P-0-0153	Function
	Rotary	0	The distance is monitored. The optimum distance is calculated internally and is 1/2 encoder revolution in the case of HSF (MHD, MSK, MAD, MAF, 2AD, ADF motors) or incr. rotary encoders, respectively 1/2 encoder revolution / "S-0-0116, Feedback 1 Resolution" in the case of resolvers (MKD, MKE motors).
	Rotary	(Value)	The distance is monitored. Half the reference mark distance has to be entered in "P-0-0153, Optimum distance home switch-reference mark".
	Linear	0	The distance is not monitored. The linear encoder does not possess reference marks with a constant distance between them. You have to make sure that the actual distance between switch edge or blocking detection and reference mark is enough to ensure unequivocal detection of the same reference mark edge.
	Linear	(Value)	The distance is monitored. Half the reference mark distance has to be entered in "P-0-0153, Optimum distance home switch-reference mark".

Tab.5-58: Determining the Value for P-0-0153

P-0-0153 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 5.2.45 P-0-0154, Synchronization direction

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** In the second step of dynamic synchronization (position adjustment) a distance is determined that has to be traveled for transition to absolute synchronization.

In the case of modulo axes, the drive can move in positive or negative direction. The synchronization direction determines in which direction the drive is to move.

See also Functional Description "Synchronization Modes"

Structure	P-0-0154	Function
	0	shortest distance
	1	positive direction
	2	negative direction

Tab.5-59: Synchronization Direction

## Product-Specific Parameters

**Use** If the shortest distance to absolute synchronization, however, is smaller than "P-0-0151, Synchronization init window for modulo format", the shortest distance is traveled and the preset synchronization direction is ignored.

**P-0-0154 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0x0 / 0x2	0x0
<b>MPC:</b>	0x0 / 0x2	0x0
<b>MPE:</b>	0x0 / 0x2	0x0
<b>MPM:</b>	0x0 / 0x2	0x0

## 5.2.46 P-0-0155, Synchronization mode

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** After activation of a synchronous operation mode with outer position control loop, the drive automatically carries out dynamic synchronization. In this case, the drive generates additive position command values until absolute or relative synchronization has been reached.

See also Functional Description "Synchronization Modes"

**Structure**

Bit	Designation/function	Comment
<b>0</b>	<b>Processing of S-0-0048</b> 0: P-0-0060, Filter time constant active 1: Trapezoidal velocity profile	
<b>1</b>	<b>Synchronization</b> 0: Absolute synchronization 1: Relative synchronization	
<b>3/2</b>	<b>Synchronization range</b> 00: Modulo range of slave axis (load revolution) 01: Command value cycle of slave axis 10: Division of command value cycle	
<b>4</b>	<b>Generation of actual value cycle</b> 0: Actual value cycle depending on P-0-0752 1: Actual value cycle = command value cycle	
<b>5</b>	<b>Synchronization in velocity synchronization</b> 0: Only when operation mode activated 1: Always active	
<b>6</b>	<b>Single-step synchronization</b> 0: Not active 1: Active	
<b>7</b>	<b>Single-step synchronization mode</b> 0: Synchronous with master axis 1: Not synchronous with master axis	

Product-Specific Parameters

Bit	Designation/function	Comment
8	<b>Optimized double-step synchronization</b> 0: Not active 1: Active	
9	<b>Optimization of synchronization path</b> 0: No optimization 1: Optimization	Only effective when bit 6 = 1

Tab.5-60: Synchronization Mode

**Use Filter time constant active (register controller: bit 0 = 0)**

After absolute or relative synchronization has been reached, subsequent changes in "S-0-0048, Additive position command value" are smoothed by a 1st order filter. The time constant of the filter is set in parameter "P-0-0060, Filter time constant additive position cmd value".

**Bit 0: Trapezoidal velocity profile (default: bit 0 = 1)**

Means that a distance is determined at every change in "S-0-0048, Additive position command value" and traveled with a 2nd order interpolator taking "P-0-0686, Additive position command value, positioning velocity" and "P-0-0687, Additive position command value, positioning acceleration" into account.



When operation mode is active, any change of 1 → 0 in bit 0 is without effect after absolute or relative synchronization has been reached.

**Bit 1: Synchronization**

**Absolute synchronization (bit 1 = 0)**

The position established in relation to the master axis is always absolute.

**Relative synchronization (bit 1 = 1)**

The only action is an adjustment of the velocity.

**Bit 3/2: Synchronization range**

Synchronization can be set in the modulo range, in the command value cycle or in the division of the command value cycle. The distance to be traveled is then limited to this range. The actual position value used for calculating the distance must be unequivocal in the range in which synchronization is to take place. The actual value cycle must therefore be defined such that it is a multiple of the synchronization range.

**Bit 4: Generation of actual value cycle**

If **bit 4 = 0**, the actual value cycle in which there is "P-0-0753, Position actual value in actual value cycle" is generated depending on "P-0-0752, Load revolutions per actual value cycle slave axis".

If **bit 4 = 1**, the actual value cycle is set equal to the command value cycle (P-0-0754).

**Bit 5: Synchronization in velocity synchronization**

**Synchronization on activation of operation mode (bit 5 = 0)**

If velocity adjustment is to be carried out only once in velocity synchronization mode, bit 5 must be set to "0". All following velocity changes are carried out with max. acceleration.

**Synchronization always active (bit 5 = 1)**

# Product-Specific Parameters

In velocity synchronization mode, every change in velocity is limited to "P-0-0142, Synchronization acceleration". The velocity change can be caused by changing the master axis speed (P-0-0764), the master drive gear (P-0-0156, P-0-0157) or the fine adjust (P-0-0083).

## Bit 6: Single-step synchronization

As an alternative to double-step synchronization with velocity and position adjustment, this bit can be used to select single-step synchronization. Instead of "P-0-0142, Synchronization acceleration" and "P-0-0143, Synchronization velocity", parameters "P-0-0697, Synchronization, master axis synchronous position" and "P-0-0698, Synchronization, master axis synchronization range" are active in this case. During synchronization, the position command values are generated with a 5th order polynomial and added to the synchronous position command values.



Single-step synchronization is only possible with absolute synchronization (bit 1 = 0).

## Bit 7: Single-step synchronization

This bit is used to define whether single-step synchronization is to be synchronous with the master axis. In this case (bit 7 = 0), the synchronization process starts at a master axis start position which is calculated as the difference between the master axis synchronous position (P-0-0697) and the master axis synchronization range (P-0-0698). Synchronization is completed at the master axis synchronous position.

If synchronization is not synchronous with the master axis (bit 7 = 1), the synchronization process starts immediately after the operation mode has been activated. Synchronization is completed after the master axis synchronization range has been passed through, irrespective of the master axis synchronization position.

## Bit 8: Optimized double-step synchronization

This bit can be used to selected optimized double-step synchronization. When the synchronization type is started, the synchronization motion is added to the synchronous motion. The two steps of velocity and position adjustment are combined to one step. The synchronization profile is limited by "P0-0142, Synchronization acceleration" and "P0-0143, Synchronization velocity".



Optimized double-step synchronization is only possible with absolute synchronization (bit 1 = 0).

## Bit 9: Optimization of synchronization path (bit 9 = 1)

If single-step synchronization is set (bit 6 = 1), the required synchronization path of the secondary master axis is optimized by adding or subtracting synchronization ranges. This aims at preventing any turning point in the position curve in the added synchronization profile. In this case, there won't be any maximum in the velocity curve (overshooting) and no change of the acceleration sign.

Path optimization is only possible with modulo axes.

### P-0-0155 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>	--- / ---	0x0

Product-Specific Parameters

MPC:	---	---	0x0
MPE:	---	---	0x0
MPM:	---	---	0x0

## 5.2.47 P-0-0156, Master drive gear input revolutions

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** Together with the parameter "P-0-0157, Master drive gear output revolutions", this parameter determines the master drive gear.

See also Functional Description "Synchronization Modes"

**Use** The resulting "P-0-0775, Resulting master axis position" is multiplied with the electronic gear ratio before further processing and then limited to the standardized range of  $2^{\wedge}P-0-0084$ . The gear ratio results from the division of the value of P-0-0157 by the value of P-0-0156.

:

P-0-0156 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	1 / 65535	1
MPM:	1 / 65535	1

## 5.2.48 P-0-0157, Master drive gear output revolutions

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** Together with the parameter "P-0-0156, Master drive gear input revolutions", this parameter determines the master drive gear.

See also Functional Description "Synchronization Modes"

**Use** The resulting "P-0-0775, Resulting master axis position" is multiplied with the electronic gear ratio before further processing and then limited to the standardized range of  $2^{\wedge}P-0-0084$ . The gear ratio results from the division of the value of P-0-0157 by the value of P-0-0156.

P-0-0157 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	1 / 65535	1
MPM:	1 / 65535	1

## 5.2.49 P-0-0158, Angle offset change rate

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** In the "cam" mode, the parameter "P-0-0061, Angle offset begin of table" has an influence on the table access angle.

**Use** If this angle offset is to be changed by a large range, it is necessary, with a gradient in the active table, to make a slow approach to the new value, because every change implies a jump in position command value. A new value for parameter P-0-0061 doesn't take immediate effect. Starting with the current value, a ramp-like approximation of the new value is carried out. The approximation is carried out along the shortest possible path. The gradient of the ramp is set in parameter "P-0-0158, Angle offset change rate".

If the value "0" is preset for parameter P-0-0158, the angle offset is carried out immediately in one step.

**P-0-0158 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	rpm	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0,00 / 655,35	100,00
<b>MPC:</b>	0,00 / 655,35	100,00
<b>MPE:</b>	0,00 / 655,35	100,00
<b>MPM:</b>	0,00 / 655,35	100,00

**5.2.50 P-0-0159, Slave drive feed travel**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function Velocity Synchronization**

This parameter is used in the "velocity synchronization" mode with linear velocity scaling for converting the rotary master axis velocity to the linear slave axis velocity.

$$\text{slave axis velocity} = \text{P-0-0777} \cdot \text{P-0-0159}$$

P-0-0777 Effective master axis velocity (in rpm)  
P-0-0159 Slave drive feed travel (in mm/min)  
Slave axis velocity (in mm/min)

*Fig.5-61: Slave axis velocity*



The function and significance of this parameter depend on the operation mode!

**Synchronous operation mode with outer position control loop** (phase synchronization, cam, MotionProfile)

With linear absolute scaling, the slave axis moves by the feed travel, per output revolution of the master drive gear (including fine adjustment), parameterized in "P-0-0159". This means that if "P-0-0776, Effective master axis position" changes by  $2^{P-0-0084}$  increments, the slave axis moves a distance corresponding to "P-0-0159, Slave drive feed travel".

Observe the following restrictions:

- In the "cam" and "MotionProfile" modes, "P-0-0159" only takes effect in the linear gear reduction component.

## Product-Specific Parameters

- In the case of modulo scaling, the parameter "S-0-0103, Modulo value" assumes the task of parameter "P-0-0159"; in the case of linear scaling, for the synchronous operation modes with outer position control loop.

See also Functional Description "Operation Modes for Synchronization"

### P-0-0159 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	10,0000
MPC:	S-0-0076 / S-0-0076	10,0000
MPE:	S-0-0076 / S-0-0076	10,0000
MPM:	S-0-0076 / S-0-0076	10,0000

## 5.2.51 P-0-0161, Drive optimization: Periodic time

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter defines the periodic time of the sine function, which is effective when the inertia is determined in the "automatic setting of axis control".

**Use** When the inertia is determined in the "automatic setting of axis control", the drive travels a sine profile in velocity control mode. The parameter can be used to specify the periodic time of the sine function. A short periodic time results in high acceleration values and a long periodic time in low ones. This does not have any effect on the velocity amplitude and offset of the sine function.



We recommend using the "automatic setting of axis control" wizard in IndraWorks because then the periodic time calculated for inertia determination will be the optimal one.

See also Functional Description "Automatic Setting of Axis Control"

### P-0-0161 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	2 / 4194304	1000
MPC:	2 / 4194304	1000
MPE:	2 / 4194304	1000
MPM:	2 / 4194304	1000

## 5.2.52 P-0-0162, C1800 Command Drive optimization / command value box

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This command starts the drive-internal (master-independent) command value input.

The following functions can be activated by means of setting in "P-0-0165, Drive optimization, control word":

- Automatic calculation and kinematic optimization of the velocity and position control loops ("automatic control loop setting")

## Product-Specific Parameters

- Generation of a command value characteristic, defined by the user, in velocity or position control, e.g. for manual control loop optimization (drive-internal command value box)
- Automatic determination of the cogging torque compensation tables by drive-internal generation of the required command value characteristic, by means of a sufficient number of measuring cycles

**NOTICE**

**Property damage caused by non-observance of conditions when starting command C1800!**

Axis carries out independent movements! Ensure that the axis does not reach the collision area of machine contours via the drive-internal generated command value by setting the initial position!

See also Functional Description "Automatic Setting of Axis Control"

**P-0-0162 - Attributes**

<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.2.53 P-0-0163, Damping factor for autom. controller setting

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Parameter "P-0-0163" allows the user to manipulate the control loop dynamics achieved by the automatic controller setting.



P-0-0163 = 10  $\triangleq$  minimum dynamics

P-0-0163 = 0.5  $\triangleq$  maximum dynamics

See also Functional Description "Automatic Setting of Axis Control"

**P-0-0163 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0,5 / 10,0		2,5		
<b>MPC:</b>	0,5 / 10,0		2,5		
<b>MPE:</b>	0,5 / 10,0		2,5		
<b>MPM:</b>	0,5 / 10,0		2,5		

## 5.2.54 P-0-0164, Application for autom. controller setting

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In order to take application-related control strategies into account for automatic control loop setting, a selection list is made available to the operator

## Product-Specific Parameters

from which he can select the desired application. This allows, for example, completely switching off the I-component, if required, etc.

See also Functional Description "Automatic Setting of Axis Control"

**Structure** The data below are referring to the speed loop.

P-0-0164	Application	I-compo- nent	P-compo- nent
0	Machine tool → good load stiffness	With	Normal
1	Nibbling machine → short response times	Without, Tn = 0ms	Great
2	Following-on cutting device → rel. non- dynamic control loop setting	Without, Tn = 0ms	Normal
3	Roll feed → very high degree of load iner- tia	With	Great
4	Handling axis → oscillating systems	With	Small

Tab.5-62: Application-Dependent Speed Loop Setting



If required, Bosch Rexroth will extend the table.

The default value was set to machine tool.

### P-0-0164 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0 / 4		0		
<b>MPC:</b>	0 / 4		0		
<b>MPE:</b>	0 / 4		0		
<b>MPM:</b>	0 / 4		0		

## 5.2.55 P-0-0165, Drive optimization, control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	closed loop		
	<b>Device parameter:</b>	axis-specific		

**Function** When "P-0-0162, C1800 Command Drive optimization / command value box" is started, the drive becomes detached from the master-sided command value control and generates the required command value characteristic itself. The drive can execute different functions depending on the settings in parameter "P-0-0165":

- Automatic Setting of Axis Control
  - Calculation and optimization of the velocity and position control loop parameters
  - Determination of the load inertia and calculation of the acceleration feedforward control
  - Calculation of the maximum acceleration
- Generation of a command value characteristic, defined by the user, in velocity or position control mode, e.g., for manual control loop optimization (drive-internal command value box).

## Product-Specific Parameters

- Automatic determination of the cogging torque compensation tables by drive-internal generation of the required command value characteristic, by means of a sufficient number of measuring cycles.

The conditions for the command value that can be generated in the drive are determined.

See also Functional Description "Drive-Internal Command Value Box"

See also Functional Description "Cogging Torque Compensation"

See also Functional Description "Automatic Setting of Axis Control"

## Structure

Bit	Designation/function	Comment
0	<b>Controller optimization</b> 0: Off 1: On	Takes effect only if bit 1 or bit 2 is set.  As of MPx-17V06
1	<b>Velocity loop</b> 0: Calculate Kp and Tn 1: Calculate and optimize Kp and Tn	Up to MPx-17V04
1	<b>Calculate and store velocity loop parameters</b> 0: No 1: Yes (+ optimization with bit 0 = 1)	As of MPx-17V06
2	<b>Position loop</b> 0: Calculate Kv 1: Calculate and optimize Kv	Up to MPx-17V04
2	<b>Calculate and store position loop parameters</b> 0: No 1: Yes (+ optimization with bit 0 = 1)	As of MPx-17V06
3	<b>Determine acceleration feedforward</b> 0: No 1: Yes	
4	<b>Load inertia</b> 0: Use value of "P-0-4010" 1: Determine	
5	Reserved	
6	<b>Calculate maximum acceleration</b> 0: No 1: Yes	
7	Reserved	
9/8	<b>Operating mode command value box</b> 00: Reserved 01: Velocity control 10: Reserved 11: Position control	

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Bit	Designation/function	Comment
10	Command value generation for recording the cogging torque table	
11	<b>Offset (sine-wave method)</b> 0: Inactive 1: Active	As of MPx-18VRS
12	<b>Command value box: Periodic profile generation</b> 0: Active 1: Inactive	As of MPx-18VRS
13	<b>Direction of motion</b> (with motion always in one direction) 0: Left 1: Right	Only up to MPx-17VRS
14	<b>Motion</b> 0: Oscillating motion (reversing drive) 1: Motion always in one direction (stepper drive)	As of MPx-18VRS: Only command value box
15	<b>Determining travel range</b> 0: Input of limits 1: Input of travel distance	

Tab.5-63: Parameters Selectable For Drive Optimization / Command Value Box

**Use** The three available functions cannot be used simultaneously, even if they can be selected simultaneously with the corresponding bits.

The following priorities apply:

1. Recording of cogging torque compensation table (highest priority)
2. Drive-internal command value box (medium priority)
3. Automatic setting of axis control (lowest priority)

**Automatic Setting of Axis Control**

To achieve "automatic setting of axis control", bit 15 of "P-0-0165" serves to define whether a relative travel distance or the absolute limits will be used. Up to MPx-17VRS, bits 13 and 14 can be used to define the motion type and the motion direction. As of MPx-18VRS, this information is obtained from the configuration of the drive (S-0-0076 and S-0-0393).

The values for end positions or travel distance are set in other parameters:

- P-0-0166, Drive optimization, end position negative
- P-0-0167, Drive optimization, end position positive
- P-0-0165, Drive optimization, travel distance



Bits 10, 8 and 9 must be "0", as "automatic setting of axis control" has the lowest priority.

**Bits 2/1/0 (as of MPx-17V06)**

If bit 1 and/or bit 2 is/are equal to "1", the velocity and/or position controller parameters are calculated. If bit 0 is additionally set, the controller parameters are optimized, i.e., when command C1800 is started, the drive is internal-

## Product-Specific Parameters

ly set in motion and the velocity and/or position controller is/are optimized. Bits 13/14 (up to MPx-17VRS) and bit 15 are taken into account.

**Bits 2/1**

If the value of at least one of these bits is "1", the drive is internally set in motion when command C1800 is started, in order to determine the controller parameters. Otherwise, the values are calculated. Bits 14/13 (up to MPx-17VRS) and bit 15 are taken into account.

**Bit 4**

If the bit is set, the drive is internally set in motion when command C1800 is started, and the load inertia determined is entered in parameter "P-0-4010". Otherwise, the value entered in parameter "P-0-4010" is used for calculation.

**Bit 11**

If the bit is set, an offset is taken into account in the sine profile (inertia determination). This does not violate the maximum velocity entered in parameter "P-0-0171". This offset prevents a sign change in the velocity profile.

**Record cogging torque compensation table**

**Bit 10:** If the value is "1", the drive is internally set in motion when command C1800 is started, in order to determine the cogging torque compensation table.



The determination of the cogging torque compensation table takes priority over "automatic setting of axis control" and "drive-internal command value box".

**Bits 15/14/13:**

Bits 15, 14 and 13 are not taken into account when the cogging torque compensation table is recorded. The motion direction and motion type are obtained from the configuration of the drive (S-0-0076 and S-0-0393). The travel distance is internally defined in relative measured value recording mode. As of MPx-18VRS, the travel distance can be directly specified using relative measured value recording via parameters "P-0-1145" and "P-0-1146".

**Drive-internal command value box**

The only general requirement that can be set for the "drive-internal command value box" in "P-0-0165" is the motion type requirements (reversing duty or stepper mode). Further general requirements, such as end positions, effective acceleration, maximum travel velocity and dwell time between the motion phases, are directly set in other parameters:

- P-0-0166, Drive optimization, end position negative
- P-0-0167, Drive optimization, end position positive
- P-0-0165, Drive optimization, travel distance
- P-0-0170, Drive optimization, acceleration
- P-0-0171, Drive optimization, velocity
- P-0-0172, Drive optimization, dwell time

**Bits 9/8:** These two bits are used to define the operation mode of the "drive-internal command value box". The drive can work in velocity or position loop mode. Velocity control is carried out via the motor encoder, and position control via the position encoder selected in parameter "S-0-0520, Control word of axis controller".

**Bit 12:** Defines whether the motion profile is run through once or periodically.

## Product-Specific Parameters

**Bit 14:** Defines the kind of motion of the axis for "drive-internal command value box" mode:

- If "oscillating motion" is set, the absolute position limits are entered in "P-0-0166, Drive optimization, end position negative" and in "P0-0167, Drive optimization, end position positive".
- If "stepper mode" is set, the travel distance is entered in "P-0-0169, Drive optimization, travel distance". The sign of "P-0-0169" determines the direction of motion of the axis.



The "drive-internal command value box" has priority over "automatic setting of axis control".

### P-0-0165 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x16
MPC:	--- / ---	0x16
MPE:	--- / ---	0x16
MPM:	--- / ---	0x16

## 5.2.56 P-0-0166, Drive optimization, end position negative

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
Function	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter is used to enter the negative end position of the travel range within which the axis may move if the drive-internal command value is specified by "P-0-0162, C1800 Command Drive optimization".

"P-0-0166" is used when the following selection was made in the control word for C1800 (P-0-0165, Drive optimization, control word):

- Automatic setting of axis control, or
- Drive-internal command value box

See also Functional Description "Automatic Setting of Axis Control"

See also Functional Description "Drive-Internal Command Value Box"

"Automatic setting of axis control" requires value input only if "input of position limits" has been selected in parameter "P-0-0165, Drive optimization, control word" bit 15. Up to MPx-17VRS, the parameter is overwritten by the internally determined absolute position limit when the travel distance is defined after command C1800 has been started.

When the drive-internal command value box is used, the parameter defines the negative limit of the oscillating motion.

### ⚠ WARNING

The limit entered may be exceeded due to overshoots in velocity control mode or deceleration processes in position control mode.

The limit entered should not be equal to the maximum possible mechanical travel range.

## Product-Specific Parameters

## P-0-0166 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0076 / S-0-0076		0,0000		
MPC:	S-0-0076 / S-0-0076		0,0000		
MPE:	S-0-0076 / S-0-0076		0,0000		
MPM:	S-0-0076 / S-0-0076		0,0000		

## 5.2.57 P-0-0167, Drive optimization, end position positive

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	closed loop				
Device parameter:	axis-specific				

**Function** This parameter is used to enter the positive end position of the travel range within which the axis may move if the drive-internal command value is specified by "P-0-0162, C1800 Command Drive optimization".

"P-0-0167" is used when the following selection was made in the control word for C1800 (P-0-0165, Drive optimization, control word):

- Automatic setting of axis control, or
- Drive-internal command value box

See also Functional Description "Automatic Setting of Axis Control"

See also Functional Description "Drive-Internal Command Value Box"

**Use** "Automatic setting of axis control" requires value input only if "input of position limits" has been selected in bit 15 of parameter "P-0-0165, Drive optimization, control word". Up to MPx-17VRS, the parameter is overwritten by the internally determined absolute position limit when the travel distance is defined after command C1800 has been started.

When the drive-internal command value box is used, the parameter defines the positive limit of the oscillating motion.

**⚠ WARNING**

The limit entered may be exceeded due to overshoots in velocity control mode or deceleration processes in position control mode.

The limit entered should not be equal to the maximum possible mechanical travel range.

## P-0-0167 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0076 / S-0-0076		0,0000		
MPC:	S-0-0076 / S-0-0076		0,0000		
MPE:	S-0-0076 / S-0-0076		0,0000		
MPM:	S-0-0076 / S-0-0076		0,0000		

## 5.2.58 P-0-0168, Maximum acceleration to be parameterized

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				



## Product-Specific Parameters

- If, furthermore, the motion type selected in "P-0-0165" is "stepper mode", the axis travels stepwise for the value specified in "P-0-0169" into the motion direction selected in "P-0-0165".

As of MPx-18VRS:

- The motion type and motion direction are derived from the configuration of the drive (S-0-0076 and S-0-0393).
- If the motion direction can be selected as desired, the sign of the travel distance is evaluated.
- If the travel distance is in positive direction or the motion can only be made to the right, the travel range is spread in positive direction, starting at the current position.
- If the travel distance is in negative direction or the motion can only be made to the left, the travel range is spread in negative direction, starting at the current position.
- Since a safety reserve is taken into account, the actual travel range is less than the travel distance entered.

#### Use with "drive-internal command value box"

The value of "P-0-0169" is relevant only if stepper mode has been selected as "motion type" in "P-0-0165, Drive optimization, control word". When C1800 is started, the axis successively moves over the distance set in "P-0-0169" and always does so in only one direction. The direction depends on the sign of "P-0-0169".

#### P-0-0169 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000		
<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000		

## 5.2.60 P-0-0170, Drive optimization, acceleration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Function</b>	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

This parameter is active when the following preselection was made in the control word for C1800 ("P-0-0165, Drive optimization, control word"):

- automatic control loop setting or
- operating mode "drive-internal command value box"

In this parameter, enter the maximum acceleration with which the axis is moved after the start by "P-0-0162, C1800 Command Drive optimization / command value box" by a drive-internal position command value (only active in position control).



When the drive-internal command value box is used in velocity control, there isn't any acceleration limitation active, the velocity is input as command value jump! Any possibly required acceleration limitation can be achieved via the command value ramp parameters P-0-1201 etc. of velocity control!

Product-Specific Parameters

See also Functional Description "Automatic Setting of Axis Control"

See also Functional Description "Drive-Internal Command Value Box"

P-0-0170 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	S-0-0160 / S-0-0160	10,000
<b>MPC:</b>	S-0-0160 / S-0-0160	10,000
<b>MPE:</b>	S-0-0160 / S-0-0160	10,000
<b>MPM:</b>	S-0-0160 / S-0-0160	10,000

## 5.2.61 P-0-0171, Drive optimization, velocity

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is active when the following preselection was made in the control word for C1800 ("P-0-0165, Drive optimization, control word"):

- automatic control loop setting or
- operating mode "drive-internal command value box"

In this parameter, enter the maximum velocity with which the axis is moved after the start by "P-0-0162, C1800 Command Drive optimization / command value box" by the drive-internal command value.

See also Functional Description "Automatic Setting of Axis Control"

See also Functional Description "Drive-Internal Command Value Box"

P-0-0171 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	S-0-0044 / S-0-0044	10,0000
<b>MPC:</b>	S-0-0044 / S-0-0044	10,0000
<b>MPE:</b>	S-0-0044 / S-0-0044	10,0000
<b>MPM:</b>	S-0-0044 / S-0-0044	10,0000

## 5.2.62 P-0-0172, Drive optimization, dwell time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In this parameter, enter the dwell time during which the axis remains in stand-still at the end positions or at the end of the travel distance, after "P-0-0162, C1800 Command Drive optimization / command value box" was started.

This parameter is active when the preselection operating mode "drive-internal command value box" was made in the control word for C1800 ("P-0-0165, Drive optimization, control word").

P-0-0172 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	1,000
MPC:	--- / ---	1,000
MPE:	--- / ---	1,000
MPM:	--- / ---	1,000

## 5.2.63 P-0-0173, List of configurable axis-specific monitoring functions

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	---	---	---
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** The following error cases can be configured as warnings via this parameter:

List element	Error message (default)	Diagnostics (default)	Warning message (reconfigured)	Diagnostics (reconfigured)
0	0x000F2031	Encoder 1 error: Signal amplitude incorrect	0x000E2031	Encoder 1 warning: Signal amplitude incorrect
1	0x000F2037	Excessive position command difference	0x000E2037	Excessive position command difference warning
2	0x000F2042	Encoder 2: Encoder signals incorrect	0x000E2042	Encoder 2 warning: Encoder signals incorrect
3	0x000F2043	Measuring encoder: Encoder signals incorrect	0x000E2043	Measuring encoder warning: Encoder signals incorrect

Tab.5-64: P-0-0173, List of configurable axis-specific monitoring functions

The parameter has the following properties:

- It contains list elements with the complete diagnostic message consisting of diagnostic message number and diagnostic message name.
- Unless protected by a password, it is reset to the values on delivery when default values are loaded.
- It contains no other error events than those that can be changed.
- The list indexing of the error events remains compatible even if the version is upgraded.

**NOTICE**

Since the error case is configured as a warning, triggering of the monitoring function no longer results in a drive error reaction.

It is therefore the user's responsibility to select a plant-specific reaction to this monitoring function (error case). If the user fails to react, the plant/machine may be damaged or destroyed.

## P-0-0173 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.2.64 P-0-0174, Enabling of device-specific error reaction

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameter is used to define whether list parameter "P-0-0175, List of configurable device-specific monitoring functions" may be changed.					
P-0-0174 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	LT_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		0x0 / 0x1		---	
	MPC:		0x0 / 0x1		---	
	MPE:		0x0 / 0x1		---	
	MPM:		0x0 / 0x1		---	

## 5.2.65 P-0-0175, List of configurable device-specific monitoring functions

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The diagnostic message and therefore the reaction to specific error events which may result in a destruction of the controller/motor if operation is continued (e.g., F2018 Device overtemperature shutdown) can be configured by the user if this is enabled for a device by the manufacturer by means of parameter "P-0-0174, Enabling of device-specific error reaction". The error class of these error events is a device-specific property and can vary depending on the device.

The parameter has the following properties:

- It contains list elements with the complete diagnostic message in form of parameter "S-0-0390, Diagnostic message number" (error/warning class and number, e.g., "0xF2018", "0xE2yyy").
- When default values are loaded, it is reset to the values on delivery if
  - it is not protected by a password,
  - it was enabled via "P-0-0174",
  - it is invalid.
- On transition from PM to OM, it is automatically set to the default value if it is was not enabled via parameter "P-0-0174" or if parameter "P-0-0174" is invalid!
- It contains no other error events than those that can be changed.
- The list indexing of the error events remains compatible even if the version is upgraded.

### NOTICE

Since the error case is configured as a warning, triggering of the monitoring function no longer results in a drive error reaction.

It is therefore the user's responsibility to select a plant-specific reaction to this monitoring function (error case). If the user fails to react, the plant/machine may be damaged or destroyed.

## Product-Specific Parameters

<b>P-0-0175 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		s. Text		
	<b>MPC:</b>	--- / ---		s. Text		
	<b>MPE:</b>	--- / ---		s. Text		
	<b>MPM:</b>	--- / ---		s. Text		

## 5.2.66 P-0-0177, Absolute encoder buffer 1 (motor encoder)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** With an absolute motor encoder, current encoder data are saved when the drive is switched off. The data that have been saved are displayed in this parameter. They are used for repeated position initialization and monitoring when the drive is switched on next time (see also "P-0-0095, Absolute encoder monitoring window for motor encoder").

The data that have been saved are represented in a list and customers cannot interpret them. The data are used by the service and development staff for specific diagnostic purposes.

See also Functional Description "Monitoring the Measuring Systems"

See also Parameter Description "P-0-0095, Absolute encoder monitoring window for motor encoder"

<b>P-0-0177 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	RE-TAIN_KUNDE	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.2.67 P-0-0178, Absolute encoder buffer 2 (optional encoder)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** With an absolute optional (external) encoder, current encoder data are saved when the drive is switched off. The data that have been saved are displayed in this parameter. They are used for repeated position initialization and monitoring when the drive is switched on next time (see also "P-0-0096, Absolute encoder monitoring window for opt. encoder").

The data that have been saved are represented in a list and customers cannot interpret them. The data are used by the service and development staff for specific diagnostic purposes.

See also Functional Description "Monitoring the Measuring Systems"

See also Parameter Description "P-0-0095, Absolute encoder monitoring window for motor encoder"

Product-Specific Parameters

<b>P-0-0178 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	RE-TAIN_KUNDE	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.2.68 P-0-0179, Absolute encoder buffer 3 (measuring encoder)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** With an absolute measuring encoder, current encoder data are saved when the drive is switched off. The data that have been saved are displayed in this parameter. They are used for repeated position initialization and position monitoring when the drive is switched on the next time.

The data that have been saved are represented in a list and customers cannot interpret them. The data are used by the service and development staff for specific diagnostic purposes.

See also Functional Description "Measuring Encoder"

See also Parameter Description "P-0-0097, Absolute encoder monitoring window for measuring encoder"

<b>P-0-0179 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	RE-TAIN_KUNDE	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.2.69 P-0-0180, Acceleration feedforward smoothing time constant

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The parameter allows filtering of

- the twofold differentiated position command value (cyclic position control loop),
- the differentiated velocity command value (velocity control loop),

using a 1st order low-pass filter in order to achieve an acceleration feedforward control which does not result in any impermissibly high incitement of the system even if the position and/or velocity resolution is poor. The twofold differentiation may result in a very noisy feedforward control value which, in turn, is applied as additive torque command value.

Product-Specific Parameters

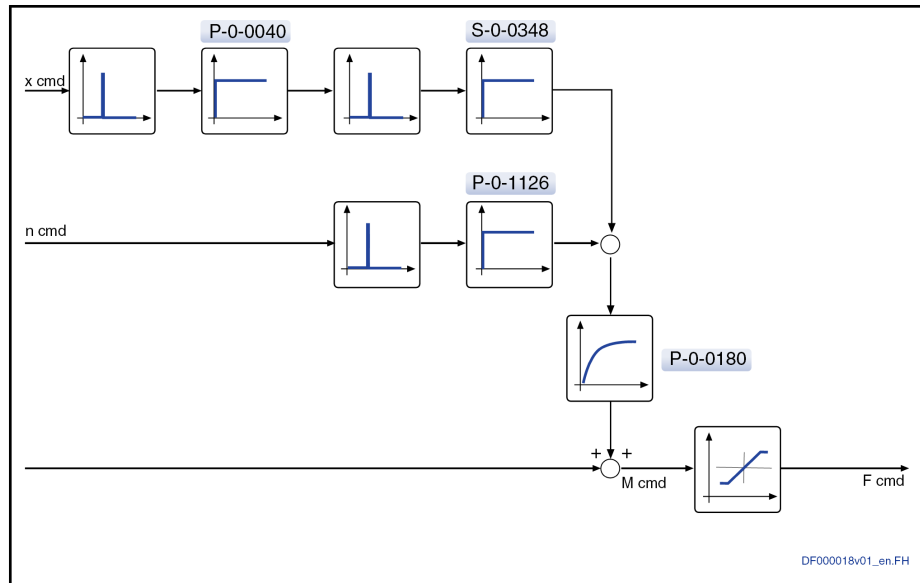


Fig.5-65: Parameterizable Filter Cascade

See also Functional Description "Closed-Loop Axis Control (Closed-Loop Operation)"

P-0-0180 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
MPB:	0 / 10000	0
MPC:	0 / 10000	0
MPE:	0 / 10000	0
MPM:	0 / 10000	0

## 5.2.70 P-0-0181, Drive optimization: Antiresonance frequency

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** Contains up to five antiresonance frequencies of the drive system, consisting of motor and mechanical system. These system frequencies are used when the control parameters are calculated in the "automatic setting of axis control" function.

See also Functional Description "Automatic Setting of Axis Control"

**Use** To execute command "P-0-0162, C1800 Command Drive optimization" when "automatic setting of axis control" is selected in "P-0-0165, Drive optimization, control word", the antiresonance frequencies of the system are required for determining the optimal control parameters. The antiresonance frequencies can be determined by means of a frequency response analysis. Antiresonance points usually occur briefly after resonance points in the frequency response and attenuate the amplitudes of the frequencies concerned.



It is recommended to have the antiresonance frequencies automatically determined by the "frequency response analysis" or by the "automatic setting of axis control" wizard in IndraWorks.

Product-Specific Parameters

P-0-0181 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Hz	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0,0 / 100000,0		s. Text		
<b>MPC:</b>	0,0 / 100000,0		s. Text		
<b>MPE:</b>	0,0 / 100000,0		s. Text		
<b>MPM:</b>	0,0 / 100000,0		s. Text		

## 5.2.71 P-0-0182, Drive optimization: Resonance frequency

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** Contains up to five resonance frequencies of the drive system, consisting of motor and mechanical system. These system frequencies are used when the control parameters are calculated in the "automatic setting of axis control" function.

See also Functional Description "Automatic Setting of Axis Control"

**Use** To execute command "P-0-0162, C1800 Command Drive optimization / command value box" when "automatic setting of axis control" is selected in "P-0-0165, Drive optimization, control word", the resonance frequencies of the system are required for determining the optimal control parameters. The resonance frequencies can be determined by means of a frequency response analysis. The resonance points should be attenuated by suitable filters of the velocity control loop.



It is recommended to have the resonance frequencies automatically determined by the "frequency response analysis" or by the "automatic setting of axis control" wizard in IndraWorks.

P-0-0182 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Hz	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0,0 / 100000,0		s. Text		
<b>MPC:</b>	0,0 / 100000,0		s. Text		
<b>MPE:</b>	0,0 / 100000,0		s. Text		
<b>MPM:</b>	0,0 / 100000,0		s. Text		

## 5.2.72 P-0-0184, Password-Motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** After a password has been entered, QSK motors can be operated on IndraDrive Cs and IndraDrive C/M.



The functional principle of the parameter is documented only internally. Changes or evaluations are reserved to customer support.

## Product-Specific Parameters

<b>P-0-0184 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.2.73 P-0-0185, Control word of encoder 2 (optional encoder)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter serves to make basic settings with regard to encoder 2 (optional encoder).

In addition to the obligatory motor encoder (encoder 1), this encoder 2 is an optional position encoder:

- Encoder 2 supports all operation modes.
- The position feedback value is shown in "S-0-0053, Position feedback value 2".
- The position control loop can be closed by means of encoder 2.

See also Functional Description "Monitoring the Measuring Systems"

See also Functional Description "Measuring Wheel Mode"

**Structure**

Bit	Designation/function	Comment
0	<b>Feed constant 2 (only for measuring wheel encoder; see bits 2/1)</b> 0: Not activated 1: Activated	
2/1	<b>Use of the external encoder</b> 00: Position control encoder 01: Spindle encoder 10: Measuring wheel encoder 11: (Not allowed!)	
3	<b>Redundant motor encoder</b> 0: Not activated 1: Activated	
4	<b>Commutation encoder</b> 0: Initialization of commutation via encoder 1 1: Initialization of commutation via encoder 2	

Product-Specific Parameters

Bit	Designation/function	Comment
5	<b>Position data reference</b> on activation of "measuring wheel mode" <b>0:</b> Encoder reference; position data reference of encoder 2 is cleared <b>1:</b> Position status of the encoder; position data reference of encoder 2 is preserved	
6	<b>Initialization of the position of the measuring wheel encoder</b> <b>0:</b> The position of the measuring wheel encoder is initialized through the motor encoder position on drive enable (AF) activation. When "AF" is deactivated and when the control is changed to velocity control, the motor encoder is initialized with the position of the measuring wheel encoder. <b>1:</b> The position feedback values of the motor or measuring wheel encoder are only initialized on changeover to the encoder currently used for position control (S-0-0520, bit 0), not on a change of the operation mode or activation of "AF", drive interlock, E-stop, etc.	

Tab.5-66: Relevant Bits of P-0-0185

**Use** Observe the following aspects for parameter setting:

- **Bits 2/1:**

- If encoder 2 is used as spindle encoder, encoder monitoring is deactivated to ensure that an error reaction is prevented from being triggered if the maximum allowed encoder input frequency (with high speeds) is exceeded.



If the maximum encoder input frequency reaches or exceeds the maximum frequency stored in the firmware, the reference is deleted. The position data reference must be restored before controller enable reactivation.

- If encoder 2 is used as measuring wheel encoder, any simultaneous "commutation via encoder 2" or "redundant motor encoder" is excluded. Where the "measuring wheel encoder" is concerned, it is mandatory that "feed constant 2" be activated and entered in "P-0-0123, Feed constant 2 (optional encoder)"!



"P-0-0123" only refers to the measuring wheel! If a rotary optional encoder is used as position control encoder for linear axes, "S-0-0123, Feed constant" is effective.



If "measuring wheel encoder" is selected, S-0-0521, bit 1 = "1" is automatically set!

- **Bit 3:** If "redundant motor encoder" is activated, NC-controlled deceleration or "best possible deceleration" can still be used after a motor encoder error has occurred! A "redundant motor encoder" cannot be used for any additional purposes according to "P-0-0185" (exclusive use only!).

## Product-Specific Parameters



If bit 3 = 1 is set, all other settings in "P-0-0185" are invalid. In other words, if the "redundant motor encoder" function is used, all other functions are excluded.

- **Bit 4:** If encoder 2 is used as "commutation encoder", the position of the optional encoder is used for initializing the commutation. This allows using a relative measuring system as motor encoder. It must be possible to subject encoder 2 to absolute evaluation via the axis travel range or via a pole pair or pole pair distance of the motor!



Encoder 2 can be used as "commutation encoder" only if there is a slipless connection between encoder 1 and encoder 2.

- **Bit 5:** The function of preserving the position data reference on activation/deactivation of measuring wheel mode can only be used if it is ensured that the mechanical reference of the actual position value from the measuring wheel encoder to the motor encoder or to the material to be measured is prevented from shifting.



There is the risk of machine damage or waste, if the position of the material is incorrectly reproduced due to slip effects between the material and the motor encoder.

- **Bit 6:** If this bit is set, the mode-dependent initialization of the motor or measuring wheel encoder does not take place in measuring wheel mode (P-0-0185, bit 2,1 = "1,0"; S-0-0520, bit 0 = "1"). That means that the motor or measuring wheel encoder is not re-initialized on change-over from position to velocity control (and vice versa) and activation of "AF", drive interlock, E-stop, etc. Each encoder is initialized with the position feedback value of the encoder that was the last one active for position control if position control is changed to the respectively other encoder (changeover in S-0-0520, bit 0).

### P-0-0185 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0x0		
<b>MPC:</b>	--- / ---		0x0		
<b>MPE:</b>	--- / ---		0x0		
<b>MPM:</b>	--- / ---		0x0		

## 5.2.74 P-0-0187, Position command processing mode

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** For jerk-free motion in "position control" mode, the position command values transmitted via the command value channel are fine interpolated.

Parameter "P-0-0187" can be used to select the following types of interpolation:

- Linear fine interpolation P-0-0187 = 0
- Cubic approximation P-0-0187 = 1
- Cubic fine interpolation according to contour P-0-0187 = 2

Product-Specific Parameters

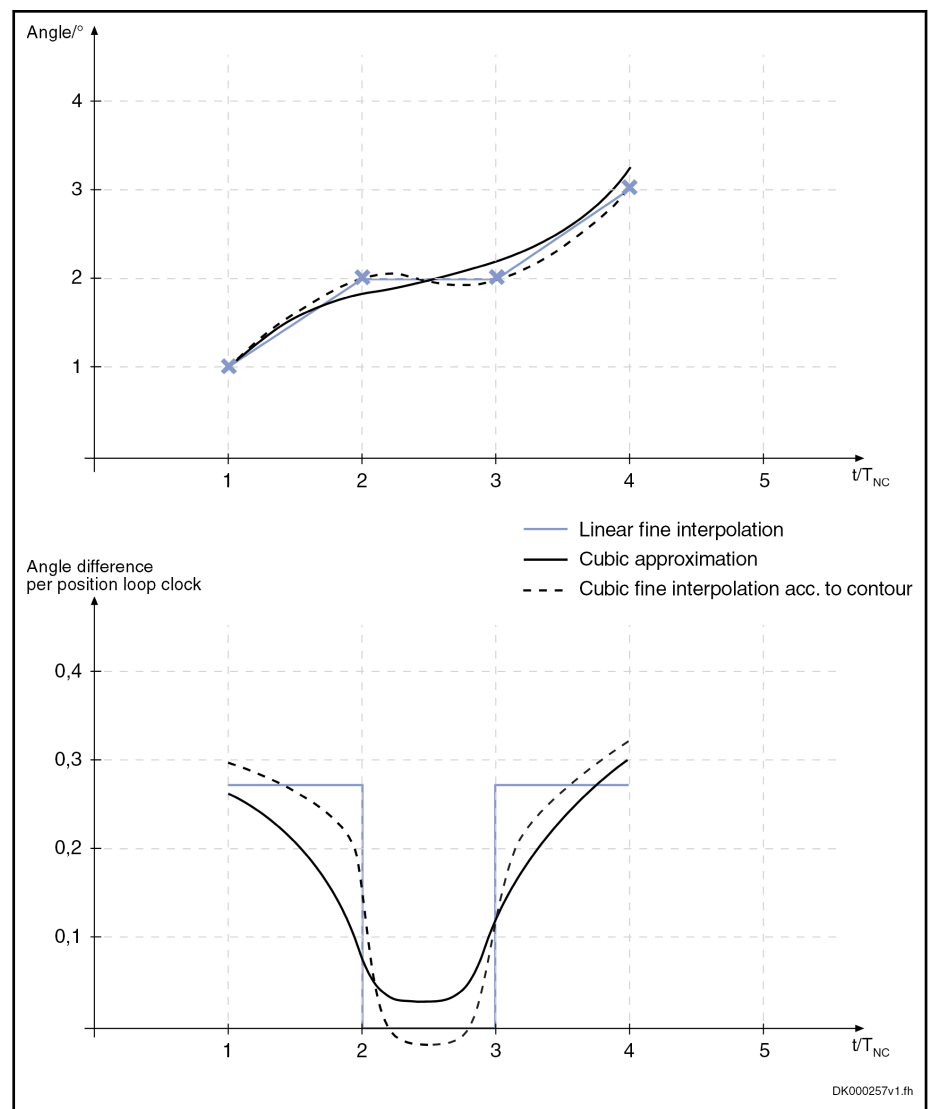


Fig. 5-67: Differences Between the Types of Interpolation

**Linear fine interpolation P-0-0187 = 0**

The cyclically transmitted position command values (S-0-0047) are interpreted as being connected straightly.



In case of this type of interpolation, the cyclically set position command value only takes effect one command value cycle after it was set at the position loop input. The downstream position command value filter (P-0-0099) only takes effect in case of linear interpolation!

**Cubic approximation P-0-0187 = 1 (default setting)**

The cyclically transmitted position command values (S-0-0047) are connected by a jerk-optimized polynomial. This can cause slight path deviations, because the main purpose of this type of interpolation is jerk limitation.

**Cubic fine interpolation according to contour P-0-0187 = 2**

The cyclically transmitted position command values (S-0-0047) are connected by a polynomial according to contour. In this case, it is impossible to generate a jerk-optimized path, because the main purpose is interpolation ac-

## Product-Specific Parameters

cording to contour. This means the fine-interpolated position command value curve runs exactly through the cyclically transmitted position command values (data points).



In case of "cubic approximation" and "cubic fine interpolation according to contour", only defined values are allowed for the clock ratio.

**Clock ratio** = NC cycle time/ $T_{a\_position}$

**Clock ratio (interpolation cycle to position clock)**

Clock ratio	Position clock 250 µs	Position clock 500 µs	Position clock 1000 µs
1 to 8 - steps of one	250 µs to 2 ms	500 µs to 4 ms	1000 µs to 8 ms
10 to 16 - steps of two	2.5 ms to 4 ms	5 ms to 8 ms	10 ms to 16 ms
20 to 32 - steps of four	5 ms to 8 ms	10 ms to 16 ms	20 ms to 32 ms

Tab.5-68: Clock Ratios (Interpolation Cycle to Position Clock)

Example for address 500 µs:

Clock ratio	Position clock 500 µs
1 to 8 - steps of one (1, 2, 3, 4, 5, 6, 7, 8)	500 µs, 1000 µs, 1500 µs, 2000 µs, 2500 µs, 3000 µs, 3500 µs, 4000 µs
10 to 16 - steps of two (10, 12, 13, 16)	5000 µs, 6000 µs, 7000 µs, 8000 µs
20 to 32 - steps of four (20, 24, 28, 32)	10000 µs, 12000 µs, 14000 µs, 16000 µs,

Tab.5-69: Position Clock

## P-0-0187 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0x0 / 0x2		0x1		
<b>MPC:</b>	0x0 / 0x2		0x1		
<b>MPE:</b>	0x0 / 0x1		0x1		
<b>MPM:</b>	0x0 / 0x2		0x1		

## 5.2.75 P-0-0189, Debug output: IDN list of parameters last saved

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter shows the IDNs for which storage jobs were generated. Here, it must be noted that storage jobs are only generated if "S-0-0269, Storage mode" is equal to "0". In addition, the generation of a storage job requires that the parameter value be actually changed.

The content of the parameter is presented as an IDN list with element 0 containing the latest entry and the end of the list containing the oldest entry. The entries in the IDN list are each made before the storage process is started.

Product-Specific Parameters

<b>P-0-0189 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.2.76 P-0-0190, Operating hours control section

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter displays the operating time of the drive's control section. By means of this parameter it is possible to display the total duty cycle of the control electronics since the delivery of the device. If a class 1 diagnostics error occurs, the content of this parameter at this point of time is stored at the first place in the "P-0-0193, Error memory operating hours of control section" parameter.



The value is displayed in seconds and is stored on the control section!

See also Functional Description "Operating Hours Counter"

<b>P-0-0190 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	RE-TAIN_GER-AET	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.2.77 P-0-0191, Operating hours power section

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter displays the operating hours of the power section since the delivery of the device. These operating hours are the time during which the drive has been operated with drive enable switched on.



The value is displayed in seconds and is stored on the power section!

See also Functional Description "Operating Hours Counter"

<b>P-0-0191 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	RE-TAIN_GER-AET	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.2.78 P-0-0192, Error memory of diagnostic numbers

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Func. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** When the drive diagnoses a class 1 diagnostics error, a bit is set in parameter "S-0-0011, Class 1 diagnostics". Bit 13 for "Error in class 1 diagnostics" is then set in the drive status word.

See also Functional Description "Error Memory (Power Section and Control Section)"

**Use** In order to allow a more detailed diagnosis

- the diagnostic number appears on the display and is stored in parameter "S-0-0390, Diagnostic message number",
- the plain text of diagnosis is stored in parameter "S-0-0095, Diagnostic message",
- the respective error number is stored in parameter "P-0-0009, Error number".

The diagnostic number that belongs to the error and is displayed in "S-0-0390, Diagnostic message number" is also stored in the "P-0-0192, Diagnostic numbers of error memory" parameter. In the form of a stack, this parameter contains, in chronological order, the diagnostic numbers of the last 50 errors occurred. The last error occurred is entered at the top.

The count of the "P-0-0190, Operating hours control section" parameter at the time the error is detected is stored in the "P-0-0193, Error memory operating hours of control section" parameter in the same order.



The parameter is stored on the control section.

P-0-0192 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	ON_BOARD_SP	Validity ch.:	PM->OM	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.2.79 P-0-0193, Error memory operating hours of control section

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** When the drive diagnoses a class 1 diagnostics error, a bit is set in parameter "S-0-0011, Class 1 diagnostics". Bit 13 for "Error in class 1 diagnostics" is then set in the drive status word.

## Product-Specific Parameters

See also Functional Description "Error Memory (Power Section and Control Section)"

**Use** In order to allow a more detailed diagnosis

- the diagnostic number appears on the display and is stored in parameter "S-0-0390, Diagnostic message number",
- the plain text of diagnosis is stored in parameter "S-0-0095, Diagnostic message",
- the respective error number is stored in parameter "P-0-0009, Error number".

The count of the "P-0-0190, Operating hours control section" parameter at the time the error is detected is stored in the "P-0-0193, Error memory operating hours of control section" parameter. In the form of a stack, this parameter contains, in chronological order, the hours-run meter counts of the last 50 errors occurred. The count of the last error occurred is entered at the top.

The diagnostic number belonging to the error in accordance with "S-0-0390, Diagnostic message number" is stored in the "P-0-0192, Diagnostic numbers of error memory" parameter in the same order.



The parameter is stored on the control section.

### P-0-0193 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	ON_BOARD_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.2.80 P-0-0194, Error memory power section

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** When the drive diagnoses a class 1 diagnostics error, a bit is set in parameter "S-0-0011, Class 1 diagnostics". In parameter "S-0-0135, Drive status word", the bit 13 is then set for "error in class 1 diagnostics". If the error only concerns the power section, it is additionally stored in the parameter "P-0-0194, Error memory of power section".

See also Functional Description "Error Memory (Power Section and Control Section)"

**Use** For errors attributed to the power section, the corresponding code is saved in P-0-0194 and stored on the power section. The error thereby remains clearly assigned to the power section, even for servicing, for example when the control section is replaced. The last 12 errors which occurred are stored in this parameter in coded form in consecutive order and so is the corresponding count of the operating hours counter:

- Bit 0...25: operating hours counter value of power section in seconds at the time of the error event
- Bit 26...31: code number of error

## Product-Specific Parameters

The last error occurred is entered at the top of the error memory list (P-0-0194). The parameter is stored on the power section.

Code no. of error	Assigned error diagnosis
2	F8091
3	F8060
4	F8069
5	F2022
6	F2018
7	F2040
8	F2836
9	F2816
10	F2821
11	F2820
12	F8838

Tab.5-70: Assignment of error diagnosis number to code number of error

P-0-0194 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	LT_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0x0 / 0xFFFFFFFF		---		
	MPC:	0x0 / 0xFFFFFFFF		---		
	MPE:	0x0 / 0xFFFFFFFF		---		
	MPM:	0x0 / 0xFFFFFFFF		---		

## 5.2.81 P-0-0195, IDN list of retain data (replacement of devices)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In this list, the IDNs of those parameters are stored the values of which are required for replacement of devices.

The parameter values of the IDNs listed in "P-0-0195":

- are only allowed to be loaded after a defective controller has been replaced and
- had to be saved directly before the device was replaced!

Otherwise the current parameter values of target position, absolute encoder, etc. are overwritten with old values which can cause incorrect drive behavior!

### NOTICE

Property damage caused by errors when controlling motors and moving parts!

After having loaded the parameter values according to the IDN list of retain data (P-0-0195), check the actual position values and the current target position!

See also Functional Description "Notes on How to Replace the Devices"

Product-Specific Parameters

<b>P-0-0195 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.2.82 P-0-0196, Build date and time

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	The build date and build time of the drive firmware can be read from this parameter as a text.					
	See also Functional Description "System Overview"					
P-0-0196 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.2.83 P-0-0197, System time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function**    Parameter "P-0-0197" contains a system time of the drive with a resolution of 100 ns. It can be used in conjunction with the parameters "P-0-0198" and "P-0-0199" to establish an axis-comprehensive time reference in the case of error.

In the case of drive errors, the drive stores the system time in parameter "P-0-0198, System time error memory ".

See Functional Description "Handling, Diagnostic and Service Functions"

**Structure**    Parameter "P-0-0197, System time" is a 64-bit value, its structure is a list with two 4-byte long elements.

Element		Content
1	Low Word	system time (fine)
2	High Word	system time (coarse)

*Tab.5-71:            Structure of P-0-0197, System Time*

**Use**    Observe the following for parameterizing or interpreting the parameter:

- The system time counter is activated when the second element of "P-0-0197" is written, i.e. the counter maintains the value "0" until it is

## Product-Specific Parameters

written by the control unit. The drive then transmits signals to the counter every 2 milliseconds.

- The parameter is stored in volatile form when switching off the control voltage, i.e. it is deleted after restart.
- The parameter contains the system time in Windows-File-Time format (elapsed time in 100 ns steps since 01.01.1601).

## P-0-0197 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.2.84 P-0-0198, System time error memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** The state of the parameter "P-0-0197, System time" is stored in the parameter "P-0-0198" when the error is detected. It can be used in conjunction with the parameters "P-0-0197" and "P-0-0199" to establish an axis-comprehensive time reference in the case of error.

See Functional Description "Handling, Diagnostic and Service Functions"

**Structure** This parameter is built in the form of a stack and contains the system meter reading of the latest 50 errors in chronologically continuous order. First you see the meter reading of the latest occurred error. The unit of the recorded times is [10<sup>2</sup> ns].



Hereby, 2 elements of a parameter result in a time stamp, as the system time is displayed with 64 bit (8 byte)!

Element		Content	Notes
1	Low Word	system time (fine)	Time for error (k)
2	High Word	system time (coarse)	
3	Low Word	system time (fine)	Time for error (k1)
4	High Word	system time (coarse)	
5	Low Word	system time (fine)	Time for error (k2)
6	High Word	system time (coarse)	
...	...	...	...
99	Low Word	system time (fine)	Time for error (k49)
100	High Word	system time (coarse)	

Tab.5-72: Construction of P-0-0198, System Time Error Memory

Product-Specific Parameters

P-0-0198 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	ON_BOARD_SP	Validity ch.:	PM->OM	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.2.85 P-0-0199, System time error code

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter "P-0-0199" contains the error number consistent to "P-0-0197, System time". It can be used in conjunction with the parameters "P-0-0197" and "P-0-0198" to establish an axis-comprehensive time reference in the case of error.



Therewith, via extracting the parameters from the old device and bringing in the parameters to the replaced device, the error history can remain on the installation when the device must be changed.

See Functional Description "Handling, Diagnostic and Service Functions"

P-0-0199 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	ON_BOARD_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.2.86 P-0-0200, Start position probe function 2 active

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The lower limit value of the "expectation window" for probe 2 is set in this parameter. The "expectation window" is limiting the position range of an axis or shaft within which probe signal edges cause measured values to be detected. The "expectation window" has to be activated in "P-0-0226, Probe, extended control word".



The "expectation window" cannot be used with "time measurement"!

See also Functional Description "Probe Function"

P-0-0200 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV

## Product-Specific Parameters

Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		0,0000		
MPC:	--- / ---		0,0000		
MPE:	--- / ---		0,0000		
MPM:	--- / ---		0,0000		

## 5.3 P-0-0201 to P-0-0500 General Functions

## 5.3.1 P-0-0201, End position probe function 2 active

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The upper limit value of the "expectation window" for probe 2 is set in this parameter. The "expectation window" is limiting the position range of an axis or shaft within which probe signal edges cause measured values to be detected. The "expectation window" has to be activated in "P-0-0226, Probe, extended control word".



The "expectation window" cannot be used with "time measurement"!

See also Functional Description "Probe Function"

## P-0-0201 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		0,0000		
MPC:	--- / ---		0,0000		
MPE:	--- / ---		0,0000		
MPM:	--- / ---		0,0000		

## 5.3.2 P-0-0202, Difference probe values 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter displays the absolute value of the difference between "S-0-0130, Probe value 1 positive edge" and "S-0-0131, Probe value 1 negative edge". The value is recalculated whenever a new probe value 1 is detected, whether positive or negative.

See also Functional Description "Probe Function"

**Use** When "P-0-0202" is determined, axes with finite travel range must be differentiated from axes with infinite travel range::

- Axes with finite travel range (e.g., linear axes, absolute position data format)

Product-Specific Parameters

$$P-0-0202 = | S-0-0130 - S-0-0131 |$$

Fig.5-73: Calculating P-0-0202 for Axes With Finite Travel Range

- Axes with infinite travel range (e.g., rotary axes, position data in modulo format). In this case, the difference between the probe values is limited to half the modulo value of the measuring signal. Calculation of "P-0-0202" depends on the absolute value of the probe value difference:

$$P-0-0202 = | S-0-0130 - S-0-0131 |$$

Fig.5-74: Calculating P-0-0202 for Axes With Infinite Travel Range if  $| S-0-0130 - S-0-0131 | \leq (\text{Modulo Value} / 2)$

$$P-0-0202 = || S-0-0130 - S-0-0131 | - \text{modulo value} |$$

Fig.5-75: Calculating P-0-0202 for Axes With Infinite Travel Range if  $| S-0-0130 - S-0-0131 | > (\text{Modulo Value} / 2)$

P-0-0202 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.3.3 P-0-0203, Difference probe values 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--	--	--
	Funct. package(s):	synchronisation (ELS)		
	Device parameter:	axis-specific		

**Function** This parameter displays the absolute value of the difference between "S-0-0132, Probe value 2 positive edge" and "S-0-0133, Probe value 2 negative edge". The value is recalculated whenever a new probe value 2 is detected, whether positive or negative.

See also Functional Description "Probe Function"

**Use** When "P-0-0203" is determined, axes with finite travel range must be differentiated from axes with infinite travel range::

- Axes with finite travel range (e.g., linear axes, absolute position data format)

$$P-0-0203 = | S-0-0132 - S-0-0133 |$$

Fig.5-76: Calculating P-0-0203 for Axes With Finite Travel Range

- Axes with infinite travel range (e.g., rotary axes, position data in modulo format).

In this case, the difference between the probe values is limited to half the modulo value of the measuring signal. Calculation of "P-0-0203" depends on the absolute value of the probe value difference:

## Product-Specific Parameters

$$P-0-0203 = | S-0-0132 - S-0-0133 |$$

Fig.5-77: Calculating P-0-0203 for Axes With Infinite Travel Range if | S-0-0132 - S-0-0133 | ≤ (Modulo Value / 2)

$$P-0-0203 = || S-0-0132 - S-0-0133 | - \text{modulo value} |$$

Fig.5-78: Calculating P-0-0203 for Axes With Infinite Travel Range if | S-0-0132 - S-0-0133 | > (Modulo Value / 2)

P-0-0203 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 5.3.4 P-0-0204, Start position probe function 1 active

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
Device parameter:		axis-specific			

**Function** The lower limit value of the "expectation window" for probe 1 is set in this parameter. The "expectation window" is limiting the position range of an axis or shaft within which probe signal edges cause measured values to be detected. The "expectation window" has to be activated in "P-0-0226, Probe, extended control word".



The "expectation window" cannot be used with "time measurement"!

See also Functional Description "Probe Function"

P-0-0204 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		--- / ---			0,0000	
MPC:		--- / ---			0,0000	
MPE:		--- / ---			0,0000	
MPM:		--- / ---			0,0000	

## 5.3.5 P-0-0205, End position probe function 1 active

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
Device parameter:		axis-specific			

**Function** The upper limit value of the "expectation window" for probe 1 is set in this parameter. The "expectation window" is limiting the position range of an axis or shaft within which probe signal edges cause measured values to be detected.

## Product-Specific Parameters

The "expectation window" has to be activated in **"P-0-0226, Probe, extended control word"**.



The "expectation window" cannot be used with "time measurement"!

See also Functional Description "Probe Function"

### P-0-0205 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0,0000		
<b>MPC:</b>	--- / ---		0,0000		
<b>MPE:</b>	--- / ---		0,0000		
<b>MPM:</b>	--- / ---		0,0000		

## 5.3.6 P-0-0206, Probe 1, max. number of marker failures

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** The value entered in this parameter is a threshold for the registered number of marker failures.

The number of successive times the expectation window is passed through without marker event is added and displayed in "P-0-0224, Probe 1, number of marker failures". When the value in P-0-0224 has reached the value of P-0-0206, this is signaled in the respective bit of "S-0-0179, Probe status".



The display in S-0-0179 only takes place if the marker failure monitor was activated in "P-0-0226, Probe, extended control word" for probe 1!

See also Functional Description "Probe Function"

### P-0-0206 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0		
<b>MPC:</b>	--- / ---		0		
<b>MPE:</b>	--- / ---		0		
<b>MPM:</b>	--- / ---		0		

## 5.3.7 P-0-0207, Probe 2, max. number of marker failures

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** The value entered in this parameter is a threshold for the registered number of marker failures.

See also Functional Description "Probe Function"

**Use** The number of successive times the expectation window is passed through without marker event is added and displayed in "P-0-0225, Probe 2, number

## Product-Specific Parameters

of marker failures". When the value in P-0-0225 has reached the value of P-0-0207, this is signaled in the respective bit of "S-0-0179, Probe status".



The display in S-0-0179 only takes place if the marker failure monitor was activated in "P-0-0226, Probe, extended control word" for probe 2!

## P-0-0207 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.3.8 P-0-0210, Analog input 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		«MPC»
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter can be used to read and display the input voltage currently applied to analog input 1 in volts.

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

**Use** The parameter content can be

- directly processed in the drive PLC,
- transferred cyclically to the control,
- or assigned to an internal drive parameter (assignment A or B).



The values are updated according to position controller clock.

## P-0-0210 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	V	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.9 P-0-0211, Analog input 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	--		«MPC»
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter can be used to read and display the input voltage in volts or input current in mA currently applied to analog input 1.

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

**Use** For example, the parameter content can be

## Product-Specific Parameters

- directly processed in the drive PLC,
- transferred cyclically to the control,
- or assigned to an internal drive parameter (assignment A, B or C).



The values are updated according to position controller clock.

### P-0-0211 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	V	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.3.10 P-0-0212, Analog input, list of assignable parameters

### Allocation

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

### Function

This list parameter contains the IDNs of the parameters that can be entered in "P-0-0213, Analog input, assignment A, target parameter" and "P-0-0236, Analog input, assignment B, target parameter". These parameters are available for assigning an analog input value.

See also Functional Description of firmware "Analog Interface"

See also Functional Description of firmware "Analog Inputs"

### P-0-0212 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.3.11 P-0-0213, Analog input, assignment A, target parameter

### Allocation

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

### Function

In this parameter, the IDN of that parameter is entered to which a value corresponding to the voltage at the respective analog input is to be written. The scaling is made via "P-0-0214, Analog input, assignment A, scaling per 10V full scale".



Only such IDNs can be entered in P-0-0213 that are contained in "P-0-0212, Analog input, list of assignable parameters".

See also Functional Description Analog Interface"

See also Functional Description Analog Inputs"

### P-0-0213 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		0		
MPC:	--- / ---		0		
MPE:	--- / ---		0		
MPM:	--- / ---		0		

## 5.3.12 P-0-0214, Analog input, assignment A, scaling

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to scale the analog input for assignment A (value range per 10 V or per 20 mA).

The unit, the decimal places and the data type are defined by the parameter assigned in "P-0-0213, Analog input, assignment A, target parameter".

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

P-0-0214 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.		Default value
MPB:	--- / ---		0
MPC:	--- / ---		0
MPE:	--- / ---		0
MPM:	--- / ---		0

## 5.3.13 P-0-0215, Analog input, assignment A, signal value at 0

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is used to make the reference definition of the analog input for assignment A (value: 0 V voltage or 0 mA current at analog input). As a result, an offset of the voltage at the analog input can be compensated for assignment A if necessary.

The unit, the decimal places and the data type are defined by the parameter assigned in "P-0-0213, Analog input, assignment A, target parameter".

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

P-0-0215 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.		Default value
MPB:	--- / ---		0
MPC:	--- / ---		0
MPE:	--- / ---		0
MPM:	--- / ---		0

### 5.3.14 P-0-0216, Analog input, assignment A, dead zone

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter can be used to define a value range within which the assignment outputs the value 0. The value is entered in the appropriate unit [V or mA]. The assigned value range results from "P-0-0214, Analog input, assignment A, scaling".					
	Dead zone value = P-0-0216 * P-0-0214/10 in volts or					
	Dead zone value = P-0-0216 * P-0-0214/20 in mA					
	The dead zone is a value range arranged symmetrically around the "0-signal". If the absolute amount of a value* calculated by the assignment is less than the dead zone value, the assignment outputs the value 0.					
	* (Input voltage* P-0-0214/10) + P-0-0215 or					
	* (Input current* P-0-0214/20) + P-0-0215					
	See also Functional Description "Analog Interface"					
	See also Functional Description "Analog Inputs"					
P-0-0216 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0,000 / 10,000		0,000		
	MPC:	0,000 / 10,000		0,000		
	MPE:	0,000 / 10,000		0,000		
	MPM:	0,000 / 10,000		0,000		

### 5.3.15 P-0-0217, Analog input 1, time constant input filter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	The analog input 1 is read by the drive firmware via a digital low-pass filter. The limit frequency of this filter can be set by this parameter.					
	The time constant of the input filter is at least 0.5 ms and can be set in steps of 0.5 ms.					
	See also Functional Description "Performance Data"					
	See also Functional Description "Analog Interface"					
	See also Functional Description "Analog Inputs"					
Use	<div><math display="block">f_{\text{limit}} = 1000 / (2 * \pi * T_{\text{input}})</math></div> <div><math>f_{\text{limit}}</math>limit frequency in Hz <math>T_{\text{input}}</math>time constant of input filter in ms</div> <div><i>Fig.5-79: Calculating the limit frequency of the analog input filter</i></div>					
P-0-0217 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Use

$$f_{\text{limit}} = 1000 / (2 * \pi * T_{\text{input}})$$

$f_{\text{limit}}$  limit frequency in Hz

$T_{\text{input}}$  time constant of input filter in ms

Fig. 5-79: Calculating the limit frequency of the analog input filter

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	0,250 / 60,000	0,250
MPC:	0,250 / 60,000	0,250
MPE:	0,250 / 60,000	0,250
MPM:	0,250 / 60,000	0,250

## 5.3.16 P-0-0218, Analog input, control parameter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used

- for controlling command "C2800 Analog input adjustment",
- for assigning the analog channels to "assignment analog channel A", "assignment analog channel B" and "assignment analog channel C".

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

**Structure**

Bit	Designation/function	Comment
0	<b>Zero point/amplitude adjustment</b> 0: Measurement of the voltage for command value = "0" → determines signal value at 0 V or 0 mA 1: Measurement of the voltage for command value = "P-0-0219" → determines signal value for [1/10 V] or [1/20 mA]	
2/1	<b>Channel selection for adjustment</b> Bit 1 is used to select the assignment to be adjusted. 00: Adjustment of assignment A. Values for parameters "P-0-0214" and "P-0-0215" are determined. 01: Adjustment of assignment B. Values for parameters "P-0-0237" and "P-0-0238" are determined. 10: Adjustment of assignment C. Values for parameters "P-0-0237" and "P-0-0238" are determined.	
7-4:	<b>Assignment analog channel A, selection of analog input</b> 0000: No analog channel selected, assignment A is not active (default value) 0001: Analog input 1 (not HCT/HCQ, KMS, KSM) 0010: Analog input 2 (only with CSB02.1B, CSH02.1B and CDB02.1B control sections) 0011: Analog input 3 (only with CSB02.1B, CSH02.1B control sections)	
11-8	<b>Assignment analog channel B, selection of analog input</b> 0000: No analog channel selected, assignment B is not active (default value) 0001: Analog input 1 (not HCT/HCQ, KMS, KSM) 0010: Analog input 2 (only with CSB02.1B, CSH02.1B and CDB02.1B control sections) 0011: Analog input 3 (only with CSB02.1B, CSH02.1B control sections)	
15-12	<b>Assignment analog channel C, selection of analog input</b> 0000: No analog channel selected, assignment C is not active (default value) 0001: Analog input 1 (not HCT/HCQ, KMS, KSM) 0010: Analog input 2 (only with CSB02.1B, CSH02.1B and CDB02.1B control sections) 0011: Analog input 3 (only with CSB02.1B, CSH02.1B control sections)	

Tab.5-80: P-0-0218, Analog input, control parameter

Product-Specific Parameters

**Use** With successive double execution of command "P-0-0220, C2800 Analog input adjustment command", the following automatic values can be set automatically:

- the scaling of voltage at the analog input
- reference value at 0 V



The respective voltage for the command value assigned by "P-0-0218" must have been steadily applied to the analog input during execution of the command!

**P-0-0218 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Input</b>					
		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		0x0	
<b>MPC:</b>		--- / ---		0x0	
<b>MPE:</b>		--- / ---		0x0	
<b>MPM:</b>		--- / ---		0x0	

### 5.3.17 P-0-0219, Analog input, maximum value for adjustment

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter makes available a defined command value for determining the values of

- P-0-0214, Analog input, assignment A, scaling per 10V full scale or
- P-0-0237, Analog input, assignment B, scaling per 10V full scale

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

**Use** By means of

- P-0-0218, Analog input, control parameter
- P-0-0219, Analog input, maximum value for adjust
- P-0-0220, C2800 Analog input adjust command

it is possible to carry out a zero point and gain adjust for the respective selected analog channel assignment (cf. P-0-0218).

By means of command **C2800** the values for

- P-0-0214, Analog input, assignment A, scaling per 10V full scale and
- P-0-0215, Analog input, assignment A, signal value at 0V

or

- P-0-0237, Analog input, assignment B, scaling per 10V full scale and
- P-0-0238, Analog input, assignment B, signal value at 0V

are automatically determined and stored.

**P-0-0219 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		0	
<b>MPC:</b>		--- / ---		0	

## Product-Specific Parameters

MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.3.18 P-0-0220, C2800 Analog input adjustment command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

- Function** By means of this command, together with
- P-0-0218, Analog input, control parameter
  - P-0-0219, Analog input, maximum value for adjust

it is possible to carry out a zero point and gain adjust for the respective selected analog input (cf. P-0-0218).

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

- Use** Thereby the values for assignment A (cf. P-0-0218, bit 1 = 0):
- P-0-0214, Analog input, assignment A, scaling per 10V full scale
  - P-0-0215, Analog input, assignment A, signal value at 0V
- or for assignment B (cf. P-0-0218, bit 1 = 1):
- P-0-0237, Analog input, assignment B, scaling per 10V full scale
  - P-0-0238, Analog input, assignment B, signal value at 0V

are automatically determined and stored.

P-0-0220 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.19 P-0-0222, Travel range limit switch inputs

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

- Function** In this parameter the signals of the travel range limit switch inputs are displayed. It is used to diagnose the travel range limit switch inputs.

See also Functional Description "Position Limitation/Travel Range Limit Switch"

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	0	signal "limit switch +" 0: 0 V 1: +24 V	
	1	signal "limit switch -" 0: 0 V 1: +24 V	

Tab.5-81: Relevant bits of P-0-0222, Travel range limit inputs



When the travel range limit switches are activated, the respective digital inputs at the control section must already have been assigned to the respective bits of P-0-0222 via P-0-0300 and P-0-0301. This was realized as the default setting!

P-0-0222 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.3.20 P-0-0223, E-Stop input

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The state of the E-stop input is mapped in this parameter. The parameter can be used to check the "E-stop input" or for visualization by means of a commissioning program.

See also Functional Description "E-Stop Function"

Structure	Bit	Designation/function	Comment
	0	E-stop input state 0: Activated (0 V) 1: Not activated (+24 V)	

Tab.5-82: Structure of Parameter "P-0-0223, E-Stop input"

**Use** 24 V must be applied to the hardware input to allow normal operation of the drive. If the "E-Stop function" is activated, "bit 0" of this parameter must be assigned to a digital input. The assignment to a digital input is made via the I/O configuration in parameter "P-0-0300, Digital inputs, assignment list".

Where the motor-integrated converter (IndraDrive Mi) is concerned, the E-stop signal can be connected to the supply unit (KCU). In this case, "P-0-0223" is not assigned to the digital inputs.

P-0-0223 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.21 P-0-0224, Probe 1, number of marker failures

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** It is possible to define an expectation window for probe 1; in order to be evaluated the probe edges have to be within this window.

With active expectation window a "marker failure monitor" can be activated in "P-0-0226, Probe, extended control word" which registers the fact that the expectation window is passed through without marker event and increments the content of "P-0-0224, Probe 1, number of marker failures".

See also Functional Description "Probe Function"

**Use** The content of "P-0-0224" is set to "0" again if

- a marker was detected within the expectation window,
- values are written to "P-0-0226, Probe, extended control word",
- "S-0-0170, Probing cycle procedure command" is started or
- probe enable is removed in "S-0-0405, Probe 1 enable"

P-0-0224 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.22 P-0-0225, Probe 2, number of marker failures

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** It is possible to define an expectation window for probe 2; in order to be evaluated the probe edges have to be within this window.

With active expectation window a "marker failure monitor" can be activated in "P-0-0226, Probe, extended control word" which registers the fact that the expectation window is passed through without marker event and increments the content of "P-0-0225, Probe 2, number of marker failures".

See also Functional Description "Probe Function"

**Use** The content of "P-0-0225" is set to "0" again if

- a marker was detected within the expectation window,
- values are written to "P-0-0226, Probe, extended control word",
- "S-0-0170, Probing cycle procedure command" is started or
- probe enable is removed in "S-0-0406, Probe 2 enable"

Product-Specific Parameters

P-0-0225 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.3.23 P-0-0226, Probe, extended control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The probe function specified according to sercos is configured and activated via "S-0-0169, Probe control parameter". "P-0-0226" can be used to configure extended manufacturer-specific functionalities of the probe function, such as:

- Time measurement
- Expectation window and marker failure monitoring
- Triggering of 2 probe evaluations by only one probe input
- Via this parameter, you can also activate the probe-triggered quick stop of an axis.

See also Functional Description "Probe Function"

See also Functional Description "Quick Stop via Probe Input".

**Structure**

Bit	Designation/function	Comment
0	<b>Activation of expectation window for probe 1</b> 0: Without expectation window 1: With expectation window	
1	<b>Marker failure monitoring for probe 1</b> 0: Failure monitor switched off 1: Failure monitor switched on	
2	<b>Activation of time measurement for probe 1</b> 0: Measurement of selected signals 1: Time measurement	
3	<b>Activation of quick stop at probe 1 configuration</b> 0: Not activated 1: Quick stop at probe 1 configuration activated. The signal edge for triggering the quick stop is selected in bit 10	As of MPx-18V08
4	<b>Activation of expectation window for probe 2</b> 0: Without expectation window 1: With expectation window	

## Product-Specific Parameters

Bit	Designation/function	Comment
5	<b>Marker failure monitoring for probe 2</b> 0: Failure monitor switched off 1: Failure monitor switched on	
6	<b>Activation of time measurement for probe 2</b> 0: Measurement of selected signals 1: Time measurement	
10	<b>Configuration of the signal edge for triggering the quick stop at probe 1</b> Requirement: Bit 3 is set and the subsequently selected signal edge is configured in "S-0-0169, Probe control parameter" 0: Switching to speed cmd value = 0 at a 0 -> 1 (positive) edge 1: Switching to speed cmd value = 0 at a 1 -> 0 (negative) edge See also configuration "P-0-0119, Best possible deceleration"	Up to MPx-18V08, only the positive signal edge for triggering the quick stop is possible
11	<b>Activation of switch-on level monitoring for probe 1 if a single measurement is configured for a signal edge</b> 0: Switch-on level monitoring not active 1: Switch-on level monitoring active	As of MPx-18V08

Tab.5-83: P-0-0226, Probe, extended control word

- Use
- Bit 0 or bit 4: Activation of expectation window for probe 1 and/or 2**  
 Via bit 0 or bit 4 it is possible to activate an expectation window for probe 1 or probe 2 within which the selected edges of the probe signal (marker) have to occur in order to be detected. The expectation window is defined via parameters "P-0-0204, Start position probe function 1 active" and "P-0-0205, End position probe function 1 active".
  - Bit 1 or bit 5: Marker failure monitoring for probe 1 and/or 2**  
 With marker failure monitoring for probe 1 and/or 2 switched on, "P-0-0224/0225, Probe 1/2, number of marker failures" is incremented by 1, if the selected signal passes through the expectation window without a probe signal ("marker") having occurred. If marker failure monitoring is switched off, the value in "P-0-0224" or "P-0-0225" is not incremented by 1 in the above case.
  - Bit 2 or bit 6: Activation of time measurement for probe 1 and/or 2**  
 If this bit is set to 1, a relative time measurement is taken when a selected edge occurs. The signal selected in "S-0-0426/0427, Signal select probe 1/2" is ignored.
  - Bit 3: Activation of quick stop at probe 1 configuration**  
**Up to MPx-18V06:** If bit 3 is set, the drive resets the velocity command value when there is a 0 -> edge of the activated enabled probe 1 (S-0-0401). The velocity command value reset is configured in parameter "P-0-0119, Best possible deceleration", whether with or without configurable ramp. With active velocity command value reset, the drive in the case of quick stop with probe detection displays "AR: Automatic

## Product-Specific Parameters

drive reaction". When "S-0-0405, Probe 1 enable" is removed, the pre-selected operation mode becomes active again.

**As of MPx-18V08:** If bit 3 is set, the drive resets the velocity command value via the signal edge of the activated enabled probe 1 (S-0-0401) that is defined in bit 10. The velocity command value reset is configured in parameter "P-0-0119, Best possible deceleration", whether with or without configurable ramp. With active velocity command value reset, the drive in the case of quick stop with probe detection displays "AR: Automatic drive reaction". When "S-0-0405, Probe 1 enable" is removed, the preselected operation mode becomes active again.

- **Bit 10: Configuration of the signal edge for triggering the quick stop at probe 1**

**As of MPx-18V08:** If bit 3 is set, bit 10 is used to define the signal edge at the input of probe 1 at which the quick stop at probe 1 is to be triggered. **Prerequisite:** The selected signal edge is configured in "S-0-0169, Probe control parameter".

- **Bit 11: Activation of switch-on level monitoring for probe 1 if a single measurement is configured for a signal edge**

**As of MPx-18V08:** By setting bit 11, monitoring of the state of the input of probe 1 (S-0-0401, Probe 1) can be activated provided probe 1 enable (S-0-0405, Probe 1 enable) is activated.

- State monitoring requires:
  1. "S-0-0169, Probe control parameter" is configured for probe 1 single measurement.
  2. "S-0-0169, Probe control parameter" is only configured for evaluating one edge (positive or negative) of probe 1.

If the requirements are met, the following applies:

- Evaluation of the positive signal edge has been configured: When probe 1 enable is activated, a one-time check for "S-0-0401, Probe 1"= 1 (24V) is carried out. If the state of "S-0-0401" is 1 (24V), the "F2131 Incorrect switching state of probe -1 input signal" error is generated.
- Evaluation of the negative signal edge has been configured: When probe 1 enable is activated, a one-time check for "S-0-0401, Probe 1"= 0 (0V wire break monitoring) is carried out. If the state of "S-0-0401" is 0 (0V), the "F2131 Incorrect switching state of probe -1 input signal" error is generated.

P-0-0226 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		--- / ---			0x0	
MPC:		--- / ---			0x0	
MPE:		--- / ---			0x0	
MPM:		--- / ---			0x0	

### 5.3.24 P-0-0227, Cam table, access angle

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Product-Specific Parameters

**Function** With this parameter it is possible in the "cam" and "MotionProfile" modes to have the calculated value of the access angle for the current cam table displayed.

**Use** The "cam table access angle" is generated from "P-0-0776, Effective master axis position" minus "P-0-0061, Angle offset begin of table" plus component of "P-0-0085, Dynamic angle offset".

<b>P-0-0227 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.3.25 P-0-0228, Analog input 3

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter can be used to read and display the input voltage in volts or input current in mA currently applied to analog input 1.

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

**Use** The parameter content can be

- directly processed in the drive PLC,
- transferred cyclically to the control,
- or assigned to an internal drive parameter (assignment A, B or C).



The values are updated according to position controller clock.

<b>P-0-0228 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	V	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.3.26 P-0-0231, Analog input 2, time constant input filter

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** The analog input 2 can be read by the drive firmware via a digital low-pass filter. The limit frequency of this filter is set by this parameter; if necessary, the filter can also be set to inactive.

See also Functional Description "Performance Data"

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

Product-Specific Parameters

Use

$$f_{\text{limit}} = 1000 / (2 \cdot \pi \cdot T_{\text{input}})$$

$f_{\text{limit}}$ : limit frequency in Hz

$T_{\text{input}}$ : Time constant of the input filter in ms

Fig. 5-84: Calculating the Limit Frequency of the Analog Input Filter

P-0-0556, bit 5/2	Input filter	$T_{\text{input}}$
00: Basic Performance	inactive	500 $\mu$ s
	Active	> 500 $\mu$ s
01: Advanced Performance	inactive	250 $\mu$ s
	Active	> 250 $\mu$ s
10: Economy Performance	inactive	1000 $\mu$ s
	Active	> 1000 $\mu$ s

Tab.5-85: Setting the Analog Filter Subject to Parameter "P-0-0556, Config word of axis controller"

P-0-0231 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,250 / 60,000	0,250
MPC:	0,250 / 60,000	0,250
MPE:	0,250 / 60,000	0,250
MPM:	0,250 / 60,000	0,250

### 5.3.27 P-0-0232, Analog input 3, time constant input filter

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** The analog input 3 can be read by the drive firmware via a digital low-pass filter. The limit frequency of this filter is set by this parameter; if necessary, the filter can also be set to inactive.

See also Functional Description "Performance Data"

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

Use

$$f_{\text{limit}} = 1000 / (2 \cdot \pi \cdot T_{\text{input}})$$

$f_{\text{limit}}$ : limit frequency in Hz

$T_{\text{input}}$ : Time constant of the input filter in ms

Fig. 5-86: Calculating the Limit Frequency of the Analog Input Filter

P-0-0556, bit 5/2	Input filter	$T_{\text{input}}$
00: Basic Performance	inactive	500 $\mu$ s
	Active	> 500 $\mu$ s
01: Advanced Performance	inactive	250 $\mu$ s
	Active	> 250 $\mu$ s

## Product-Specific Parameters

P-0-0556, bit 5/2	Input filter	T <sub>input</sub>
10: Economy Performance	inactive	1000 µs
	Active	> 1000 µs

Tab.5-87: Setting the Analog Filter Subject to Parameter "P-0-0556, Config word of axis controller"

P-0-0232 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0,250 / 60,000		0,250	
		MPC:	0,250 / 60,000		0,250	
		MPE:	0,250 / 60,000		0,250	
		MPM:	0,250 / 60,000		0,250	

## 5.3.28 P-0-0236, Analog input, assignment B, target parameter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In this parameter, the IDN of that parameter is entered to which a value corresponding to the voltage at the respective analog input is to be written. The scaling is made via "P-0-0237, Analog input, assignment B, scaling per 10V full scale".



Only such IDNs can be entered in P-0-0213 that are contained in "P-0-0212, Analog input, list of assignable parameters".

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

P-0-0236 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0	
		MPC:	--- / ---		0	
		MPE:	--- / ---		0	
		MPM:	--- / ---		0	

## 5.3.29 P-0-0237, Analog input, assignment B, scaling

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter serves to scale the analog input for assignment B (value range per 10 V or 20 mA). The unit, the decimal places and the data type are defined by the parameter assigned in "P-0-0236, Analog input, assignment B, target parameter".

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

P-0-0237 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV

Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		0		
MPC:	--- / ---		0		
MPE:	--- / ---		0		
MPM:	--- / ---		0		

### 5.3.30 P-0-0238, Analog input, assignment B, signal value at 0

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to make the reference definition of the analog input for assignment B (value at 0 V voltage and 0 mA at analog input). As a result, an offset of the voltage at the analog input can be compensated if necessary.



The unit, the decimal places and the data type are defined by the parameter assigned in "P-0-0236, Analog input, assignment B, target parameter".

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

P-0-0238 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

### 5.3.31 P-0-0239, Analog input, assignment B, dead zone

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter can be used to define a value range within which the assignment outputs the value 0. The value is entered in the appropriate unit [V or mA]. The assigned value range results from "Analog input, assignment B, scaling".

Dead zone value = P-0-0239 \* P-0-0237/10 or

Dead zone value = P-0-0239 \* P-0-0237/20

The dead zone is a value range arranged symmetrically around the "0-signal". If the absolute amount of a value\* calculated by the assignment is less than the dead zone value, the assignment outputs the value 0.

\* = (Input voltage\* P-0-0237/10) + P-0-0238

\* = (Input current\* P-0-0237/20) + P-0-0238

See also Functional Description "Analog Interface"

P-0-0239 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

## Product-Specific Parameters

Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,000 / 10,000	0,000
MPC:	0,000 / 10,000	0,000
MPE:	0,000 / 10,000	0,000
MPM:	0,000 / 10,000	0,000

## 5.3.32 P-0-0241, Actual pos. smoothing time constant for hybrid pos. control

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPC»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** For hybrid position control (e.g. measuring wheel mode) the actual position value difference between encoder 2 (e.g. optional encoder) and encoder 1 (e.g. motor encoder) is filtered via a 1<sup>st</sup> order low pass with the time constant entered in this parameter.



The filter can be deactivated by writing the value "0" to this parameter.

See also Functional Description "Measuring Wheel Mode"

## P-0-0241 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,00 / 655,35	0,00
MPC:	0,00 / 655,35	0,00
MPE:	0,00 / 655,35	0,00
MPM:	0,00 / 655,35	0,00

## 5.3.33 P-0-0242, Current actual slip value

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** This parameter displays the current actual slip value between the motor encoder (S-0-0051) and the external encoder (S-0-0053). The value is specified in percent.



Monitoring is active only when the drive is enabled. If encoder 2 is configured as measuring wheel encoder (P-0-0185), monitoring is only active when the control is preselected on encoder 2 (S-0-0520; bit 0 = 1). "0" is written to the value when monitoring is activated.

See also Functional Description "Measuring Wheel Mode"

See also Functional Description "Monitoring the Measuring Systems"

## P-0-0242 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---

Product-Specific Parameters

MPC:	---	/	---	---
MPE:	---	/	---	---
MPM:	---	/	---	---

### 5.3.34 P-0-0243, Maximum occurred actual slip value

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter stores the maximum actual slip value which has occurred between the motor encoder (S-0-0051) and the external encoder (S-0-0053). The current actual slip value is displayed in percent in "P-0-0242".



Monitoring is active only when the drive is enabled. If encoder 2 is configured as measuring wheel encoder (P-0-0185), monitoring is only active when the control is preselected on encoder 2 (S-0-0520; bit 0 = 1). "0" is written to the value when monitoring is activated.

See also Functional Description "Measuring Wheel Mode"

See also Functional Description "Monitoring the Measuring Systems"

#### P-0-0243 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	---	---
MPC:	---	---
MPE:	---	---
MPM:	---	---

### 5.3.35 P-0-0244, Monitoring window of slip

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter defines the monitoring threshold for the maximum allowed actual slip value between the motor encoder (S-0-0051) and the external encoder (S-0-0053). If this value is exceeded, error message F2036 is generated.



Monitoring is active only when the drive is enabled. If encoder 2 is configured as measuring wheel encoder (P-0-0185), monitoring is only active when the control is preselected on encoder 2 (S-0-0520; bit 0 = 1). "0" is written to the value when monitoring is activated.

See also Functional Description "Measuring Wheel Mode"

See also Functional Description "Monitoring the Measuring Systems"

#### P-0-0244 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	0,0 / 2000,0	0,0
MPC:	0,0 / 2000,0	0,0
MPE:	0,0 / 2000,0	0,0
MPM:	0,0 / 2000,0	0,0

## 5.3.36 P-0-0245, Analog input, assignment C, target parameter

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is used to enter the IDN of the parameter to which a value corresponding to the voltage or the current at the respective analog input is to be written. Actual scaling is achieved via "P-0-0246, Analog input, assignment C, scaling".



Only such IDNs can be entered in "P-0-0245" that are contained in "P-0-0212, Analog input, list of assignable parameters".

See also Functional Description Analog Interface"

See also Functional Description Analog Inputs"

## P-0-0245 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.3.37 P-0-0246, Analog input, assignment C, scaling

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to scale the analog input for assignment C (value range per 10 V or per 20 mA). The unit, the decimal places and the data type are defined by the parameter assigned in "P-0-0245, Analog input, assignment C, target parameter".

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

## P-0-0246 - Attributes


<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.3.38 P-0-0247, Analog input, assignment C, signal value at 0

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»

## Product-Specific Parameters

	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		
<b>Function</b>	This parameter is used to make the reference definition of the analog input for assignment C (value at 0 V voltage and 0 mA at analog input). As a result, an offset of the voltage at the analog input can be compensated if necessary.			
		The unit, the decimal places and the data type are defined by the parameter assigned in "P-0-0245, Analog input, assignment C, target parameter".		
See also Functional Description "Analog Interface"				
See also Functional Description "Analog Inputs"				
<b>P-0-0247 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--
			<b>Data length:</b>	4Byte
			<b>Format:</b>	DEC_MV
			<b>Decim. pl.:</b>	0
			<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	--- / ---		0
	<b>MPC:</b>	--- / ---		0
	<b>MPE:</b>	--- / ---		0
	<b>MPM:</b>	--- / ---		0

### 5.3.39 P-0-0248, Analog input, assignment C, dead zone

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	<p>This parameter can be used to define a value range within which the assignment outputs the value 0. The value is entered in the appropriate unit [V] or [mA]. The assigned value range results from "Analog input, assignment C, scaling".</p> <p>Dead zone value = P-0-0248 * P-0-0246/10 for voltage signal or</p> <p>Dead zone value = P-0-0248 * P-0-0246/20 for current signal</p> <p>The dead zone is a value range arranged symmetrically around the "0-signal". If the absolute amount of a value* calculated by the assignment is less than the dead zone value, the assignment outputs the value 0.</p> <p>* = (Input voltage* P-0-0246/10) + P-0-0247</p> <p>* = (Input current* P-0-0246/20) + P-0-0247</p> <p>See also Functional Description "Analog Interface"</p>					
P-0-0248 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	V	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,000 / 10,000			0,000	
	MPC:	0,000 / 10,000			0,000	
	MPE:	0,000 / 10,000			0,000	
	MPM:	0,000 / 10,000			0,000	

### 5.3.40 P-0-0249, E-Stop and safety zones

<b>Allocation</b>	<b>Contained in 16VRS:</b>		«-»	«-»	«-»
	<b>Contained in 17VRS:</b>		«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>		«MPB»	«-»	«-»
<b>Hardware</b>		--			



Product-Specific Parameters

**Function** Parameter for entering the system identification at mechatronic systems. The parameter is not used by the drive for operation and can be used by a higher-order control as desired.

- The parameter can receive 40 elements of 32-bit size.

**P-0-0250.0.1 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

### 5.3.43 P-0-0255, Analog input; hardware configuration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter is used

- for selecting the current input or the voltage input,
- for selecting the measuring range,
- for selecting the type of reaction against wire breakage.



It allows applying analog voltage and current inputs.

See also Functional Description "Analog Interface"

See also Functional Description "Analog Inputs"

**Structure**

Bit	Designation/function	Comment
0	<b>Analog input 1: Signal type to be evaluated by the analog inputs</b> 0: Voltage signals	
1	<b>Analog input 1: Measuring range of analog inputs</b> 0: 0... +/-10 V (standard)	
3, 2:	<b>Analog input 1: Activation of wire break monitoring and diagnosis type determination</b> 00: Off 01: Error F2270	
4	<b>Analog input 2: Signal type to be evaluated by the analog inputs</b> 0: Voltage signals 1: Current signals	
5	<b>Analog input 2: Measuring range of analog inputs</b> 0: 0... +/-10 V and/or 0... +/-20 mA (standard) 1: +4... +20 mA	

## Product-Specific Parameters

Bit	Designation/function	Comment
7, 6	Analog input 2: Activation of wire break monitoring and diagnosis type determination 00: Off 01: Error F2270	
8	Analog input 3: Signal type to be evaluated by the analog inputs 0: Voltage signals 1: Current signals	
9	Analog input 3: Measuring range of analog inputs 0: 0... +/-10 V and/or 0... +/-20 mA (standard) 1: +4... +20 mA	
11, 10	Analog input 3: Activation of wire break monitoring and diagnosis type determination 00: Off 01: Error F2270	

Tab.5-88: P-0-0255 Analog input; hardware configuration

## P-0-0255 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.3.44 P-0-0260, C99 Service function command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** The command is used by the manufacturer service department to execute specific functions for debugging and setting the devices.

## P-0-0260 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.45 P-0-0261, Service function, function presetting

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

Product-Specific Parameters

**Function** This parameter is used together with the command "C9900 Service function command". It is used for selecting functions. The command "C9900 Service function command" is used by the service department for debugging and setting the devices.

<b>P-0-0261 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 5.3.46 P-0-0262, Service function status

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> device-specific			

**Function** This parameter is used together with the command "C9900 Service function command". It returns the status of the function. The command "C9900" is used by the service department for debugging and setting the devices.

<b>P-0-0262 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 5.3.47 P-0-0263, Service function control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> device-specific			

**Function** This parameter is used together with the command "C9900 Service function command". It is used for controlling the selected function. The command "C9900" is used by the service department for debugging and setting the devices.

<b>P-0-0263 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 5.3.48 P-0-0279, Oscilloscope: Trend mode, time resolution

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			

## Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		axis-specific			
<b>Function</b>	The time resolution (sampling rate) defines the time in which the trend records its data.					
	See also Functional Description "Oscilloscope Function"					
<b>Use</b>	This setting also defines the time in which data must be retrieved. Since the buffer has only limited recording capacity, the buffer must be read more frequently when the time is short than when it is long.					
<b>P-0-0279 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	2 / 65535			8	
	<b>MPC:</b>	2 / 65535			8	
	<b>MPE:</b>	2 / 65535			8	
	<b>MPM:</b>	2 / 65535			8	

## 5.3.49 P-0-0280, Oscilloscope: Trend mode, list of measured values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** The list of measured values contains the current trend data. Here, it must be noted that the trend can only be recorded until the list is full. Once the list is full, recording stops.

While reading is in progress, the data are written to a second buffer in the background; thereafter, the buffer is switched. This double buffer mechanism ensures that no data get lost by the reading process.



Only one program is allowed to evaluate the trend because the buffer is switched after each reading process and older data are no longer accessible.

See also Functional Description "Oscilloscope Function"

**Structure** The trend is a list parameter having the following structure:

Element	Contents
0	Currently, the version information uses only the low word The low byte contains the version of the trend data (currently 1) The high byte contains the number of channels (4 in this example)
1	Time stamp of P-0-0197 (low word) for the first data record
2	Time stamp of P-0-0197 (high word)
3	Data of signal selection 1
4	Data of signal selection 2
5	Data of signal selection 3
6	Data of signal selection 4
7	Time stamp of P-0-0197 (low word) for the second data record
8	Time stamp of P-0-0197 (high word)

## Product-Specific Parameters

9..12	Dates of the signals
13	Time stamp of P-0-0197 (low word) for the next data record
..	
n	Data of signal selection 4 - of the last data record

Tab.5-89: Structure of List of Measured Values



If a signal selection is not used, the corresponding entry is set to zero.

These data can, e.g., be stored on a PC and used for long-term recording or continuous display. Any potential data loss can be recognized by a greater distance between two time stamps.

### P-0-0280 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPC:</b>		---	---	---	
<b>MPE:</b>		---	---	---	
<b>MPM:</b>		---	---	---	

## 5.3.50 P-0-0300, Digital inputs, assignment list

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** "P-0-0300" is an axis parameter, it exists once per drive address. "P-0-0300" is a list of parameter IDNs. With "P-0-0300 " you set to which parameter the corresponding input is assigned. Thus, the input bit at bit position 0 of the parameter "P-0-0307" is assigned to the first, topmost parameter of the list "P-0-0300". Parameter "P-0-0301" decides to which bit the assignment takes place. IDNs must be input in P-0-0300.

### Use Selection lists

The IDNs allowed for the configuration are contained in the following list parameters:

- **Output signals:** "S-0-0398, IDN-list of configurable data in signal status word"
- **Input signals:** "S-0-0399, IDN-list of configurable data in signal control word"

### Default configurations



The default configurations depending on the control section are described in the chapter on the digital inputs/outputs in the Functional Description!

### P-0-0300 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPC:</b>		---	---	s. Text	
		---	---	s. Text	

## Product-Specific Parameters

MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.3.51 P-0-0301, Digital inputs, bit numbers

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to configure the digital inputs/outputs of the control section.

"P-0-0301" is an axis parameter, it exists once per drive address. "Mit P-0-0301" determines to which bit of the parameter specified in "P-0-0300, Digital I/Os, assignment list" the level of the input is transmitted. "P-0-0301" is a bit word; in this case, too, bit 0 correlates with the first, topmost entry in the list "P-0-0300".

P-0-0301 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.3.52 P-0-0303, Digital inputs, input image of device

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** "P-0-0303" is a device parameter, it only exists once in the controller. The levels applied to the connector strip of the digital inputs are copied to this parameter. The state of the digital inputs is updated in the position loop clock. The connector pin 1 corresponds to bit 0 of the parameter. "1" means that 24V have been applied to the pin, "0" means 0V. This write-protected parameter is used to display the externally applied levels.

P-0-0303 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.53 P-0-0304, Digital outputs, output image of device

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** "P-0-0304" is an device parameter, it exists once per device. "P-0-0304" is used as a diagnostic parameter and displays the states to be output. In this case, too, bit 0 correlates with the topmost element of "P-0-0312" and "P-0-0316". It is also possible to describe "P-0-0304" as parameter of a second-

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dary source, e.g. a control unit, to serve a digital output. Therefore, it is necessary to write the correlate bit in "P-0-0312" with 0, so the "P-0-0304" is not internally overwritten.

The value in "P-0-0304" is written in position loop clock on the digital outputs.

<b>P-0-0304 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.3.54 P-0-0306, Digital inputs, assignment connector and pin

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** "P-0-0306" is an axis parameter, it exists once per drive address. The parameter defines, from which pin and connector the signal states are interrogated. "P-0-0306" is a list parameter and contains four-digit decimals. The connector and pin assignment is stipulated by them. Thereby, both least significant positions of the pin assignment and both most significant positions of the connector assignment.

Thus, the input means: **3105: connector X31, pin 05**

<b>P-0-0306 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

### 5.3.55 P-0-0307, Digital inputs, input image sub-device

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** "P-0-0307" is an axis parameter, it exists once per drive address. "P-0-0307" is a bit word; in this case, too, bit 0 correlates with the first, topmost entry in the list "P-0-0306". This parameter shows the status of the internal inputs with relation to the respective sub-device. "P-0-0307" serves thereby as display of "P-0-0306" and is not writeable.

<b>P-0-0307 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

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## 5.3.56 P-0-0310, Digital outputs, assignment list

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	"P-0-0310" is an axis parameter, it exists once per drive address. "P-0-0310" is a list of parameter IDNs. With "P-0-0310", you can parameterize which parameter (which bit, see P-0-0311) is transmitted to which output bit (P-0-0313). In "P-0-0310" the identnumber of the parameter to be displayed, is entered.					
P-0-0310 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

## 5.3.57 P-0-0311, Digital outputs, bit numbers

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	"P-0-0311" is an axis parameter, it exists once per drive address within the controller "P-0-0311" is a list of bit words, with the input range 0 ... 31. This corresponds to bit 0 up to bit 31. The first element in this list is related onto the first element of the parameter list "P-0-0310". The selected bit from the selected parameter in "P-0-0310" is assigned to "P-0-0307".					
P-0-0311 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

## 5.3.58 P-0-0312, Digital outputs, assignment sub-device

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	<p>"P-0-0312" is a device parameter, it only exists once in the controller. "P-0-0312" is a list of bit words. The device from which a bit is to be transmitted to the output is entered in "P-0-0312". By means of the parameter "P-0-0316" is specified on which output connector/pin a bit is to be output. "P-0-0312", bit 0, correlates with all "P-0-0313" [Device], bit 0, of the device and determines from which axis the bit to be output is to be taken. In this way, "P-0-0312" also ensures that one bit can always be written by one device only. When a bit is written with 0, it is not transmitted by any axis.</p>				

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<b>P-0-0312 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		s. Text		
	<b>MPC:</b>	--- / ---		s. Text		
	<b>MPE:</b>	--- / ---		s. Text		
	<b>MPM:</b>	--- / ---		s. Text		

### 5.3.59 P-0-0313, Digital outputs, output image sub-device

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	"P-0-0313" is an axis parameter, it exists once per drive address. "P-0-0313" is a bit word. Bit 0 relates to the topmost parameter in "P-0-0310" and the bit selection in "P-0-0311", and shows the status of this bit. The parameters "P-0-0312" and "P-0-0316" decide whether and where the bit is output at the output connector. The parameter "P-0-0313" is a display parameter which displays the state of specific bits within an axis.					
P-0-0313 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.3.60 P-0-0316, Digital outputs, assignment connector and pin

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	<p>"P-0-0316" is an axis parameter, it exists once per drive address. The parameter defines, on which pin and connector the signal states are edit. "P-0-0316" is a list parameter and contains four-digit decimals. The connector and pin assignment is stipulated by them. Thereby, both least significant positions of the pin assignment and both most significant positions of the connector assignment.</p> <p>Thus, the input means: <b>3105</b>: connector <b>X31</b>, pin <b>05</b></p>					
P-0-0316 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	


### 5.3.61 P-0-0320, Exception data

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»


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	<b>Hardware</b>		--	
	<b>Funct. package(s):</b>		"open loop", "closed loop"	
	<b>Device parameter:</b>		device-specific	
<b>Function</b>	This parameter contains information on the processor system which cause exception. When an exception occurs, the data are permanently stored and are available for evaluation after control voltage has been switched on. The data are not processed, i.e. they can only be interpreted by Rexroth with the analysis tool and with the corresponding information from the MAP files and, if necessary, additionally from the LST files. The exception is chronologically included in the error and logbook analysis.			
<b>P-0-0320 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--
			<b>Data length:</b>	4Byte var.
		<b>Format:</b>	HEX	
		<b>Decim. pl.:</b>	0	
		<b>Set-depend.:</b>	--	
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	--- / ---		---
	<b>MPC:</b>	--- / ---		---
	<b>MPE:</b>	--- / ---		---
	<b>MPM:</b>	--- / ---		---

## 5.3.62 P-0-0322, Performance load

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	The performance load display shows the averaged percentage task runtime in relation to the total runtime. This parameter can be used to draw conclusions about the CPU load of the drive controller. The higher the value displayed, the higher the load of the interrupt/task system of the drive controller.					
<div> If the load rises to a value above approx. 90%, communication and command processing may be slower.</div>						
See also Parameter Description "P-0-0322.0.1, Performance load config"						
P-0-0322 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.3.63 P-0-0322.0.1, Performance load config

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	This parameter can be used to configure P-0-0322.0.0, Performance load config.				
	 The functional principle of the parameter is documented only internally, or evaluations are reserved to customer support.				

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<b>P-0-0322.0.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 5.3.64 P-0-0322.x.4, Task Trace

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> device-specific			

**Function** This parameter has been implemented for internal diagnostic messages.



The functional principle of the parameter is documented only internally, or evaluations are reserved to customer support.

<b>P-0-0322.x.4 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 5.3.65 P-0-0326, Multiplication of measuring encoder

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
		<b>Device parameter:</b> axis-specific			

**Function** The parameter P-0-0326 displays the factor with which the signals of the measuring encoder are multiplied in the drive.

**Use** The multiplication of the measuring encoder is resulting depending on the parameters "P-0-0765, Modulo factor measuring encoder" and "P-0-0327, Encoder resolution of measuring encoder".

The internal encoder resolution for the measuring encoder is calculated as follows:

$$\text{P-0-0327, Encoder resol. of meas. enc.} \cdot \text{P-0-0326, Multiplic. of meas. enc.}$$

Fig. 5-90: Internal encoder resolution for the measuring encoder

See also Functional Description "Measuring Encoder"

<b>P-0-0326 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	

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MPE: --- / ---  
MPM: --- / ---

## 5.3.66 P-0-0327, Encoder resolution of measuring encoder

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	---			
Funct. package(s):		Servo(compensation), synchronisation (ELS)			
Device parameter:		axis-specific			

**Function** The resolution of the measuring encoder is indicated in this parameter.  
For rotary encoders the value means the number of division periods or cycles per revolution of the encoder shaft (DP/rev).



At present, only rotary encoders can be evaluated as measuring encoders!

See also Functional Description "Measuring Encoder"

## P-0-0327 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	DP/Rev	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.3.67 P-0-0328, Type of position encoder for measuring encoder

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	---			
Funct. package(s):		Servo(compensation), synchronisation (ELS)			
Device parameter:		axis-specific			

**Function** This parameter defines essential properties of the measuring encoder.  
See Functional Description "Measuring Encoder"

## Structure

Bit	Designation/function	Comment
0	<b>Kind of encoder</b> 0: Rotary 1: Not allowed	
3	<b>Rotational direction</b> 0: Not inverted 1: Inverted	
7/6	<b>Absolute evaluation, option and deactivation</b> x0: Absolute evaluation impossible (bit 7 irrelevant) 01: Absolute evaluation possible and active (encoder is handled as absolute encoder) 11: Absolute evaluation possible, but deactivated	

Product-Specific Parameters

Bit	Designation/function	Comment
8	<b>Absolute evaluation in case of missing absolute evaluation option</b> 0: Bit 7 and bit 6 define the status of absolute evaluation 1: Absolute evaluation is activated, irrespective of bit 7 and bit 6	Not defined in SERCOS yet
9	<b>Cyclic marker monitoring</b> 0: Deactivated 1: Activated Monitoring of real markers can be activated for distance and failure	
13	<b>Encoder replacement monitoring</b> 0: Activated - encoder replacement is detected (only for encoders with data memory) 1: Deactivated - no error (F2176) is signaled when the encoder is replaced and the reference is preserved if necessary; this does not affect position initialization <b>ATTENTION:</b> Only makes sense for mechanically adjusted encoders!	Not defined in SERCOS
14	<b>Position initialization of encoders with absolute position</b> 0: Position initialization with absolute position and incr. track 1: Position initialization without incr. track <b>Attention: Reduced accuracy!</b> Position initialization without incr. track makes sense only if the absolute position was shifted deliberately. (Applies only to Hiperface encoders)	Not defined in SERCOS
15	<b>Cyclic absolute encoder monitoring</b> 0: Activated 1: Deactivated (EnDat and Hiperface encoders)	Not defined in SERCOS

Tab.5-91: P-0-0328, Type of position encoder for measuring encoder



Only the bits mentioned above are supported by the software. In case of absolute measuring systems with data memory, bit 6 is automatically set.

P-0-0328 - Attributes

<b>Function:</b>	Par	<b>Editability:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0x0		
<b>MPC:</b>	--- / ---		0x0		
<b>MPE:</b>	--- / ---		0x0		
<b>MPM:</b>	--- / ---		0x0		

## Product-Specific Parameters

## 5.3.68 P-0-0329, Smoothing of actual position value 3 of measuring encoder

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter determines the time constant of the filter for smoothing "P-0-0052, Actual position value of measuring encoder". Time constants from 0 up to 1,000 ms are adjustable. When "0" is input, there is no smoothing.

The delay of the filter is compensated by a feedforward.

See also Functional Description "Measuring Encoder"

P-0-0329 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 1000	0
MPC:	0 / 1000	0
MPE:	0 / 1000	0
MPM:	0 / 1000	0

## 5.3.69 P-0-0330, Control word of measuring encoder

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter can be used to activate different measuring encoder functions and configure the scaling.

See Functional Description "Measuring Encoder"

**Structure**

Bit	Designation/function	Comment
0	<b>Reference mark evaluation</b> 0: Deactivated 1: Activated	
1	<b>Overtravel compensation of measuring encoder filter</b> 0: Activated 1: Deactivated	
2	<b>Measuring encoder scaling type</b> 0: Incremental scaling (master axis scaling) 1: Rotary preferred scaling with fixed modulo value of 360 degrees	As of MPx17V06

Tab.5-92: Reference Mark Evaluation

**Use** **Bit 0:** The position data reference of a relative measuring encoder to an axis or shaft is established by means of a reference mark signal of the encoder. To achieve this, reference mark evaluation for the measuring encoder must be activated via bit 0 = 1. If reference mark evaluation is still active, it must be deactivated (bit 0 = 0) and then reactivated. When the reference mark signal is read the next time, the previous, encoder-related position feedback value at a dedicated position of the axis or shaft is set to 0 (degrees/or increments).

## Product-Specific Parameters

The dedicated position corresponds to the current axis position at the occurrence of the reference mark signal. Parameter "P-0-0087, Actual position value offset of measuring encoder" is additively incorporated in the display value of "P-0-0052, Actual position value of measuring encoder". The reference bit (bit 0 of P-0-0331, Status of measuring encoder) is set again. When reference mark evaluation has been activated, only the reference mark that was read first is evaluated, other reference marks are ignored!

**Bit 1:** The overtravel time resulting from measuring encoder filtering is automatically compensated by the measuring encoder. In certain applications (to avoid overshooting), it may be reasonable to deactivate this overtravel compensation function. Overtravel compensation can be deactivated via bit 1 = 1.

### Bit 2: Scaling setting

To be noticed: This bit can only be changed in PM.

**0:** Incremental scaling (master axis scaling):

One revolution at the measuring encoder gear output (P-0-0128, Output revolutions of measuring gear) corresponds to 2 P-0-0084 increments. The measuring encoder range is defined via "P-0-0765, Modulo factor measuring encoder".

**Attention:** The measuring encoder may be used as master axis encoder in this configuration only.

**1:** Rotary scaling:

One revolution at the measuring encoder gear output (P-0-0128) corresponds to 360,000 degrees. The position data is processed with a fixed modulo value of 360 degrees in "modulo" mode. ""

**Attention:** The measuring encoder may **not** be used as master axis encoder in this setting.

#### P-0-0330 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0x0
<b>MPC:</b>	--- / ---	0x0
<b>MPE:</b>	--- / ---	0x0
<b>MPM:</b>	--- / ---	0x0

## 5.3.70 P-0-0331, Status of measuring encoder

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays whether the actual position values in P-0-0052 have been homed.

See also Functional Description "Measuring Encoder"

#### Structure

Bit	Designation/function	Comment
<b>0</b>	<b>status of measuring encoder</b>	
	0: not homed	
	1: homed	

Tab.5-93: Status of measuring encoder

## Product-Specific Parameters

<b>P-0-0331 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.3.71 P-0-0332, Actual velocity value of measuring encoder

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays the filtered measuring encoder velocity in rpm at the measuring gear output.

See also Functional Description "Measuring Encoder"

<b>P-0-0332 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	rpm	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.3.72 P-0-0334, Absolute encoder range of measuring encoder

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter indicates the maximum extent of the travel range that can be selected so that an absolute measuring encoder can be evaluated in absolute form.

See also Functional Description "Measuring Encoder"

**Use** If the encoder position exceeds this maximum travel range, bit 6 in the position feedback type parameter (P-0-0328) is set to zero. The actual position value displayed is no longer unequivocal and the reference of the measuring encoder is cleared. The reference status of the position encoders connected to the drive is displayed in parameter "P-0-0331, Status of measuring encoder".

<b>P-0-0334 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Rev	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

Product-Specific Parameters

### 5.3.73 P-0-0343, Encoder 1, cosine signal

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter displays the current analog-to-digital-converted value of the voltage applied to the differential input of track A of the motor encoder.

See Functional Description "Measuring Systems"

**Use** The level of the voltage applied to the differential input (across A+ and A-) can be counted back:

Type of motor encoder	Respective values of P-0-0074	Voltage across A+/A-
Encoder with 1Vss signals	2; 4; 6; 8; 14; 16	$U_{A+/A-} = P-0-0343 * 0.0004 * 1V$
Resolver encoder	10 (with a transmission ratio of 0.5)	$U_{A+/A-} = P-0-0343 * 0.0024 * 1V$

Tab.5-94: Counting Back the Current Level of the Voltage Applied to the Differential Input of Track A of the Motor Encoder

P-0-0343 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.3.74 P-0-0344, Encoder 1, sine signal

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The current, analog-digital converted value of the voltage applied at the differential input of track B of the motor encoder is displayed in this parameter.

See Functional Description "Motor Encoder"

**Use** The level of the voltage applied at the differential input (between B+ and B-) can be calculated:

Kind of motor encoder	Respective value of P-0-0074	Voltage between B+/B-
Encoder with 1Vpp-signals	2; 4; 6; 8; 14; 16	$U_{B+/B-} = P-0-0343 * 0.0004 * 1V$
Resolver encoder	10 (for transfer ratio 0.5)	$U_{B+/B-} = P-0-0343 * 0.0024 * 1V$

Tab.5-95: Calculating the Current Voltage Level at the Differential Input of Track B of the Motor Encoder

P-0-0344 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.3.75 P-0-0345, Encoder 2, cosine signal

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	The current, analog-digital converted value of the voltage applied at the differential input of track A of the external encoder is displayed in this parameter.  See Functional Description "Optional Encoder"				
Use	The level of the coltage applied at the differential input (between A+ and A-) can be calculated:				

Kind of encoder	Respective value of P-0-0075	Voltage between A+/A-
Encoder with 1Vpp-signals	2; 4; 8; 16	$U_{A+/A-} = P-0-0345 * 0.0004 * 1V$
Resolver encoder (for transfer ratio 0.5)	10	$U_{A+/A-} = P-0-0345 * 0.0024 * 1V$

Tab.5-96: Calculating the Current Voltage Level at the Differential Input of Track A of the External Encoder

P-0-0345 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.3.76 P-0-0346, Encoder 2, sine signal

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	The current, analog-digital converted value of the voltage applied at the differential input of track B of the external encoder is displayed in this parameter.  See Functional Description "Optional Encoder"				
Use	The level of the coltage applied at the differential input (between B+ and B-) can be calculated:				

Product-Specific Parameters

Kind of encoder	Respective value of P-0-0075	Voltage between B+/B-
Encoder with 1Vpp-signals	2; 4; 8; 16	$U_{B+/B-} = P-0-0346 * 0.0004 * 1V$
Resolver encoder (for transfer ratio 0.5)	10	$U_{B+/B-} = P-0-0346 * 0.0024 * 1V$

Tab.5-97: Calculating the Current Voltage Level at the Differential Input of Track B of the External Encoder

P-0-0346 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

### 5.3.77 P-0-0347, Encoder 3, cosine signal

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	---			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The current, analog-digital converted value of the voltage applied at the differential input of track A of the measuring encoder is displayed in this parameter.

See also Functional Description "Measuring Encoder"

**Use** The level of the voltage applied at the differential input (between A+ and A-) can be calculated:

Kind of measuring encoder	Respective values of P-0-0076	Voltage between A+/A-
encoder with 1 V <sub>pp</sub> signals	1; 2; 4; 6; 8;	$U_{A+/A-} = P-0-0347 * 0.0003 * 1V$

Tab.5-98: Calculating the current voltage level at the differential input of track A of the measuring encoder

P-0-0347 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

### 5.3.78 P-0-0348, Encoder 3, sine signal

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	---			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

## Product-Specific Parameters

**Function** The current, analog-digital converted value of the voltage applied at the differential input of track B of the measuring encoder is displayed in this parameter.

See also Functional Description "Measuring Encoder"

**Use** The level of the voltage applied at the differential input (between B+ and B-) can be calculated:

Kind of measuring encoder	Respective values of P-0-0076	Voltage between B+/B-
encoder with 1V <sub>pp</sub> signals	1; 2; 4; 6; 8;	$U_{B+/B-} = P-0-0348 * 0.0003 * 1V$

Tab.5-99: Calculating the current voltage level at the differential input of track B of the measuring encoder

P-0-0348 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.3.79 P-0-0382, Mains power

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter shows the current power consumption from the mains.



The power consumption is only shown for devices with existing feed-in.

P-0-0382 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Watt	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.3.80 P-0-0383, Mains energy counter

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameters shows the energy consumption of the converter since commissioning.

The energy is calculated as the sum total of the mains power (P-0-0382).

Product-Specific Parameters



The energy consumption is only shown for devices with existing mains feed-in with DC bus measurement.

P-0-0383 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_MV
Unit:	kWh	Extr. val. ch.:	--	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	-20000000,00 / 20000000,00---				
MPC:	-20000000,00 / 20000000,00---				
MPE:	-20000000,00 / 20000000,00---				
MPM:	-20000000,00 / 20000000,00---				

### 5.3.81 P-0-0384, Short-time mains energy counter

Allocation

Contained in 16VRS:	«-»	«-»	«-»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

Function

Parameter "P-0-0384" can be used to determine the energy consumption of a converter in a production cycle.

**Application:** Integrates the mains power across one processing cycle:

If "0" is written to the value at the beginning of a production cycle, the energy consumption over one production cycle can be determined for a specific axis and optimized subsequently.



The energy consumption is only shown for devices with existing feed-in.

P-0-0384 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	Ws	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	-2147483648 / 2147483647 ---				
MPC:	-2147483648 / 2147483647 ---				
MPE:	-2147483648 / 2147483647 ---				
MPM:	-2147483648 / 2147483647 ---				

### 5.3.82 P-0-0391, Actual position value difference encoder1 - encoder2

Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	closed loop			
Device parameter:	axis-specific			

Function

This parameter indicates the difference of the actual position values of encoder 1 and encoder 2. The value is updated every 2 msec.

$$P-0-0391 = S-0-0051 - S-0-0053$$

P-0-0391 Actual position value difference encoder1 - encoder2

S-0-0051 Actual position value encoder 1

S-0-0053 Actual position value encoder 2

Fig.5-100: Definition of actual position value difference P-0-0391

## Product-Specific Parameters

See also Functional Description "Monitoring the Measuring Systems"

## P-0-0391 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		---		
<b>MPC:</b>	S-0-0076 / S-0-0076		---		
<b>MPE:</b>	S-0-0076 / S-0-0076		---		
<b>MPM:</b>	S-0-0076 / S-0-0076		---		

## 5.3.83 P-0-0393, IDN groups: Control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter determines which IDN group is output in "P-0-0394, IDN groups: List".

P-0-0393 IDN groups: Control word	P-0-0394 IDN groups: List
0000H	No selection
0001H	All parameters with scaling-dependent attributes (aren't changed any more in phase 4).
0002H	All parameters the attributes of which can still change in phase 4.
0010H	All parameters with position scaling (S-0-0076).
0011H	All parameters with speed scaling (S-0-0044).
0012H	All parameters with acceleration scaling (S-0-0160).
0013H	All parameters with torque scaling (S-0-0086).

**Use** In the case of new control units it is aimed at relieving the non-cyclical data channel of unnecessary or iterative requests. This primarily implies repeated collection of the attributes. This is also done if the attributes cannot change online in the drive. As there are attributes that are changing online (due to scaling-dependence of the parameter or free assignment of signals as, for example, in the case of the oscilloscope), it is necessary to give the control unit a possibility to recognize the different characteristics of the attributes. Up to now SERCOS hasn't provided any procedure for this purpose. An aggravating fact is that the existing parameters are depending on the firmware version.

An online procedure was therefore realized with which the control unit can read via an IDN list which parameters are pertaining to the individual attribute variants.



The current enabling of functional packages is taken into account for determination by means of the list.

## P-0-0393 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.3.84 P-0-0394, IDN groups: List

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameter contains the IDN group selected in the parameter "P-0-0393, IDN groups: Control word".  See also Parameter Description "P-0-0393, IDN groups: Control word"					
P-0-0394 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.3.85 P-0-0395, Average value filter for display: Signal selection

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This list parameter is used for configuring the signals which are to be filtered by means of average value filter for display. It has exactly 2 elements (IDNs) for the two filters: <ul style="list-style-type: none"><li>• Element 1: Signal selection for display filter 1</li><li>• Element 2: Signal selection for display filter 2</li></ul>				



The two filters are independent of each other and can be separately activated or deactivated. The average value filter for display is calculated in the position clock ( $T_{A,position}$ )!

## Product-Specific Parameters

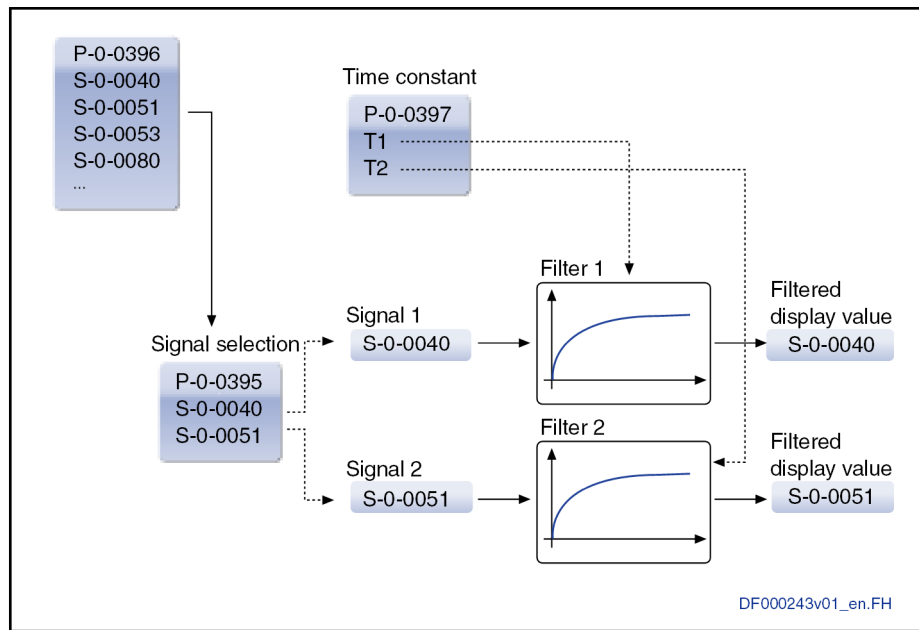


Fig.5-101: Function - Average Value Filter for Display

**Use** Observe the following aspects for signal selection:

- It is only possible to select signals from the parameter "P-0-0396, Average value filter for display: Signal selection list".
- The filter function is deactivated, when the signal "S-0-0000" has been selected.

Observe the following aspects in conjunction with the recording of the signals in the oscilloscope function or the output at the analog outputs:

- The order of parameterization must be observed!
  - If first the signal for the average value filter for display is set and then the same signal is selected as measuring signal in the oscilloscope, the filtered value is recorded in the oscilloscope.
  - If the order is inverse, the non-filtered value is recorded.
- If the signal for the average value for display is changed or cleared, automatic switching does not take place with the oscilloscope function. The has to be selected again as measuring signal.

See also Parameter Description "P-0-0396, Average value filter for display: Signal selection list"

See also Parameter Description "P-0-0397, Average value filter for display: Time constant"

### P-0-0395 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.3.86 P-0-0396, Average value filter for display: Signal selection list

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»

## Product-Specific Parameters

	<b>Hardware</b>	--
	<b>Funct. package(s):</b>	"open loop", "closed loop"
	<b>Device parameter:</b>	axis-specific
<b>Function</b>	The parameter S-0-0396 contains all parameters (IDNs) which can be used as signals for the average value filter for display (cf. P-0-0395). See also Parameter Description "P-0-0397, Average value filter for display: Time constant"	
<b>Structure</b>	The following parameters are contained in the signal list: <ul style="list-style-type: none"> <li>• S-0-0040, Velocity feedback value</li> <li>• S-0-0084, Torque/force feedback value</li> <li>• S-0-0164, Acceleration feedback value 1</li> <li>• S-0-0195, Acceleration feedback value 2</li> <li>• S-0-0347, Velocity error</li> <li>• S-0-0380, DC bus voltage</li> <li>• S-0-0382, DC bus power</li> <li>• P-0-0038, Torque-generating current, command value</li> <li>• P-0-0039, Flux-generating current, command value</li> <li>• P-0-0043, Torque-generating current, actual value</li> <li>• P-0-0044, Flux-generating current, actual value</li> <li>• P-0-0048, Effective velocity command value</li> <li>• P-0-0049, Effective torque/force command value</li> <li>• P-0-0141, Thermal drive load</li> <li>• P-0-0440, Actual output current value (absolute value)</li> <li>• P-0-0442, Actual value torque limit positive (stationary)</li> <li>• P-0-0443, Actual value torque limit negative (stationary)</li> <li>• P-0-0444, Actual value peak torque limit</li> <li>• P-0-4046, Effective peak current</li> <li>• ...</li> </ul>	



As the content of the list can be permanently extended, it is recommended to read the list at the respective drive to get the current list content.

### P-0-0396 - Attributes


<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

## 5.3.87 P-0-0397, Average value filter for display: Time constant

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

Product-Specific Parameters

- Function
The parameter P-0-0397 is used to parameterize the filter effect (= time constant of the PT1 filter) of the average value filters for display. It has exactly 2 elements (IDNs) for the two display filters:
- Element 1: Time constant for display filter 1
  - Element 2: Time constant for display filter 2


The two filters are independent of each other and can be separately activated or deactivated. The average value filter for display is calculated in the position clock ( $T_{A,position}$ )!

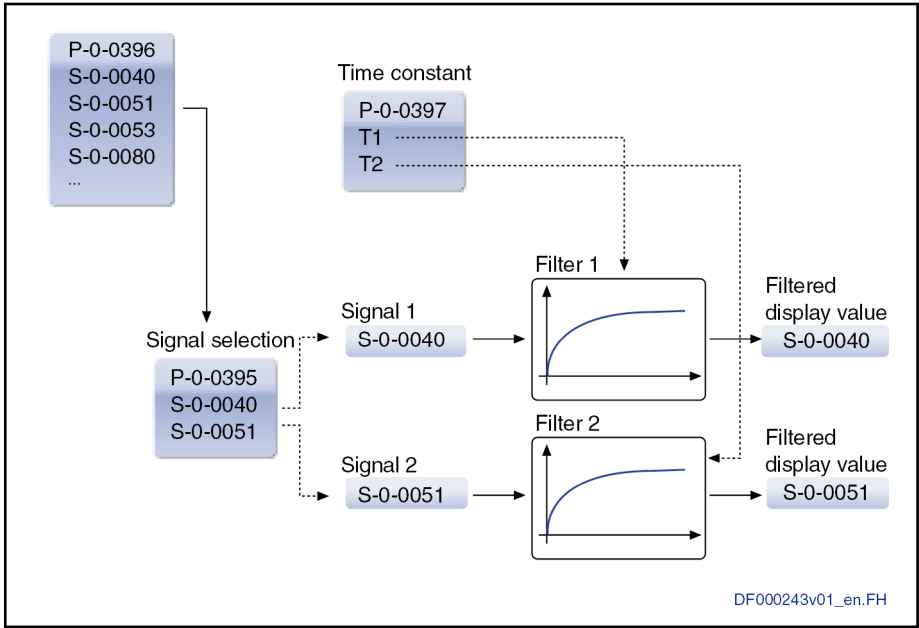


Fig.5-102: Function - Average Value Filter for Display

- Use
Observe the following aspects for parameterization:
- With "0" the filter function is inactive in spite of signal input.
  - Inputs on a time base of 0.5 ms (max. position loop clock) are accepted.

P-0-0397 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0,0 / 2000,0		s. Text		
	MPC:	0,0 / 2000,0		s. Text		
	MPE:	0,0 / 2000,0		s. Text		
	MPM:	0,0 / 2000,0		s. Text		

5.3.88 P-0-0399, Configuration of simulation mode

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

- Function
The function axis simulation is parameterized with this control word.

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	0	<b>Permanently parked axis</b> 0: Inactive 1: Active	Automatic start of the command "parking axis" (S-0-0139) -> "permanently parked" with enabling of axis simulation

Tab.5-103: Relevant Bits of P-0-0399

See also Functional Description "Axis Simulation"

P-0-0399 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		Input	min./max.		Default value	
		MPB:	0x0 / 0x1		0x0	
		MPC:	0x0 / 0x1		0x0	
		MPE:	0x0 / 0x1		0x0	
		MPM:	0x0 / 0x1		0x0	

### 5.3.89 P-0-0400, Axis correction external correction value

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		Servo(compensation)			
Device parameter:		axis-specific			

**Function** Via this parameter the control master can cyclically send a position correction value to the drive.

See also Functional Description "Axis Error Correction"

**Use** Thereby, on the control side, correct errors in the actual position value of the drive. The control-side correction is activated when P-0-0400 has been included in the master data telegram. The values for P-0-0400 must have position scaling according to "S-0-0076, Position data scaling type". The control-side correction is contained in the "servo" expansion package and is only available after functional package has been enabled.

See also Parameter Description "S-0-0076, Position data scaling type"

P-0-0400 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
		Input	min./max.		Default value	
		MPB:	S-0-0076 / S-0-0076		0,0000	
		MPC:	S-0-0076 / S-0-0076		0,0000	
		MPE:	S-0-0076 / S-0-0076		0,0000	
		MPM:	S-0-0076 / S-0-0076		0,0000	

### 5.3.90 P-0-0401, Axis correction active correction value

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		closed loop			
Device parameter:		axis-specific			

**Function** This parameter displays the currently effective correction value for the actual position value.



The actual position value system to be corrected is selected via the respective bit of "P-0-0413, Axis correction control word".

## Product-Specific Parameters

See also Functional Description "Axis Error Correction"

See also Parameter Description "S-0-0076, Position data scaling type"

P-0-0401 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.3.91 P-0-0402, Axis correction reference temperature

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** The reference temperature for the position-dependent and the position-independent, temperature-related axis error correction is entered in this parameter.

See also Functional Description "Axis Error Correction"

P-0-0402 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0208	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0208 / S-0-0208		20,0		
	MPC:	S-0-0208 / S-0-0208		20,0		
	MPE:	S-0-0208 / S-0-0208		20,0		
	MPM:	S-0-0208 / S-0-0208		20,0		

## 5.3.92 P-0-0403, Axis correction reference position for temp. corr.

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** The reference position for the position-dependent, temperature-related axis error correction is entered in this parameter.

For determining the value of P-0-0403 see Functional Description "Axis Error Correction"

P-0-0403 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0076 / S-0-0076		0,0000		
	MPC:	S-0-0076 / S-0-0076		0,0000		
	MPE:	S-0-0076 / S-0-0076		0,0000		
	MPM:	S-0-0076 / S-0-0076		0,0000		

## 5.3.93 P-0-0404, Axis correction actual temperature pos.-dependent

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»

Product-Specific Parameters

	<b>Hardware</b>		--	
	<b>Funct. package(s):</b>		Servo(compensation)	
	<b>Device parameter:</b>		axis-specific	
<b>Function</b>	Via this parameter the actual temperature of the axis can be transmitted to the controller. This value acts on the position-dependent, temperature-related axis error correction.  See also Functional Description "Axis Error Correction"			
<b>P-0-0404 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--
	<b>Unit:</b>	S-0-0208	<b>Extr. val. ch.:</b>	+
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
		<b>Format:</b>	DEC_MV	
		<b>Decim. pl.:</b>	1	
		<b>Set-depend.:</b>	--	
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	S-0-0208 / S-0-0208		20,0
	<b>MPC:</b>	S-0-0208 / S-0-0208		20,0
	<b>MPE:</b>	S-0-0208 / S-0-0208		20,0
	<b>MPM:</b>	S-0-0208 / S-0-0208		20,0

### 5.3.94 P-0-0405, Axis correction actual temperature pos.-independent

Allocation	Contained in 16VRS:		«MPB»	«-»	«MPM»	
	Contained in 17VRS:		«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		Servo(compensation)			
	Device parameter:		axis-specific			
Function	Via this parameter the actual temperature of the axis can be transmitted to the controller. This value acts on the position-independent, temperature-related axis error correction.					
	See also Functional Description "Axis Error Correction"					
P-0-0405 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0208	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	S-0-0208 / S-0-0208		20,0		
	MPC:	S-0-0208 / S-0-0208		20,0		
	MPE:	S-0-0208 / S-0-0208		20,0		
	MPM:	S-0-0208 / S-0-0208		20,0		

### 5.3.95 P-0-0406, Axis correction temperature factor pos.-dependent

Allocation	Contained in 16VRS:		«MPB»	«-»	«MPM»	
	Contained in 17VRS:		«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		Servo(compensation)			
	Device parameter:		axis-specific			
Function	The position-dependent temperature correction factor is entered in this parameter. The value is scaled with 1/Kelvin (1/K).  For determining the value of P-0-0406 see Functional Description "Axis Error Correction"					
Use	The position-dependent temperature correction is used to compensate for the temperature-dependent linear expansion of the mechanical transfer elements of a servo axis or the measuring system. The function becomes active when the correction factor is unequal "0", it is contained in the "servo" expansion package.					
P-0-0406 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	1/°K	Extr. val. ch.:	+	Decim. pl.:	6
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	0,000000 / 10,000000	0,000000
MPC:	0,000000 / 10,000000	0,000000
MPE:	0,000000 / 10,000000	0,000000
MPM:	0,000000 / 10,000000	0,000000

## 5.3.96 P-0-0407, Axis correction temperature factor pos.-independent

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** The position-independent temperature correction factor is entered in this parameter. The value is scaled with the quotient position data scaling 10K (S-0-0076/10K).

For determining the value of P-0-0407 see Functional Description "Axis Error Correction"

**Use** The position-independent temperature correction is used to compensate for purely temperature-dependent linear expansion of tools, workpieces and slides. The function becomes active when the correction factor is unequal "0".

P-0-0407 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	0,0000
MPC:	S-0-0076 / S-0-0076	0,0000
MPE:	S-0-0076 / S-0-0076	0,0000
MPM:	S-0-0076 / S-0-0076	0,0000

## 5.3.97 P-0-0408, Axis correction start position

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** The start position of the correction range for the precision axis error correction is determined in this parameter. The correction range is between P-0-0408 and "P-0-0409, Axis correction end position".



The actual position value system to be corrected is selected via the respective bit of "P-0-0413, Axis correction control word".

See also Functional Description "Axis Error Correction"

P-0-0408 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	0,0000
MPC:	S-0-0076 / S-0-0076	0,0000
MPE:	S-0-0076 / S-0-0076	0,0000
MPM:	S-0-0076 / S-0-0076	0,0000

### 5.3.98 P-0-0409, Axis correction end position

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** The end position of the correction range for the precision axis error correction is displayed in this parameter. The correction range is between "P-0-0408, Axis correction start position" and P-0-0409.



The actual position value system to be corrected is selected via the respective bit of "P-0-0413, Axis correction control word".

See also Functional Description "Axis Error Correction"

#### P-0-0409 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.3.99 P-0-0410, Axis correction support point distance

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** The support point distance for the correction range of the precision axis error correction is determined by means of this parameter. The correction values entered in "P-0-0411/P-0-0412, Axis correction, correction table positive/negative" refer to the support points of the correction range.



With the value "0" in P-0-0410, the precision axis error correction is deactivated, if the value is greater than "0" it is activated!

See also Functional Description "Axis Error Correction".

**Use** The correction range is between "P-0-0408, Axis correction start position" and "P-0-0409, Axis correction end position" and has a number of support points which corresponds to the maximum number of rows from "P-0-0411" or "P-0-0412". The value of P-0-0410 is the distance between the neighboring support points.

#### P-0-0410 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	s. Text
MPC:	S-0-0076 / S-0-0076	s. Text
MPE:	S-0-0076 / S-0-0076	s. Text
MPM:	S-0-0076 / S-0-0076	s. Text

## Product-Specific Parameters

## 5.3.100 P-0-0411, Axis correction, correction table positive

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** For precision axis error correction the position correction values for the support points of the correction range are entered in the table lines of this list parameter. The correction values for P-0-0411 have to be determined with positive direction of motion because they only take effect with positive direction of motion.

See also Functional Description "Axis Error Correction"

**Use** The first and last of the table lines used have to be written with the value "0" because otherwise an abrupt change of the actual position value occurs at the start and end position of the correction range!

Table line index	P-0-0411 (positive direction)
0	0 (corr. value at start position P-0-0408)
1	corr. value at support point 2
2	corr. value at support point 3
3	corr. value at support point 4
4	corr. value at support point 5
5	corr. value at support point 6
...	...
498	corr. value at support point 499
499	0 (corr. value at end position P-0-0409)

Tab.5-104: Assignment of support point correction values to table line index of correction tables P-0-0411 when using 500 support points



The number of correction values can be 6...500, otherwise the error "datum not correct" is signaled when this parameter is written!

## P-0-0411 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		s. Text		
<b>MPC:</b>	S-0-0076 / S-0-0076		s. Text		
<b>MPE:</b>	S-0-0076 / S-0-0076		s. Text		
<b>MPM:</b>	S-0-0076 / S-0-0076		s. Text		

## 5.3.101 P-0-0412, Axis correction, correction table negative

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** For precision axis error correction the position correction values for the support points of the correction range are entered in the table lines of this list pa-

## Product-Specific Parameters

parameter. The correction values for P-0-0412 have to be determined with negative direction of motion because they only take effect in the drive with negative direction of motion.

See also Functional Description "Axis Error Correction"

**Use** The first and last of the table lines used have to be written with the value "0" because otherwise an abrupt change of the actual position value occurs at the start and end position of the correction range!

Table line index	P-0-0412 (negative direction)
0	0 (corr. value at start position P-0-0408)
1	corr. value at support point 2
2	corr. value at support point 3
3	corr. value at support point 4
4	corr. value at support point 5
5	corr. value at support point 6
....	....
498	corr. value at support point 499
499	0 (corr. value at end position P-0-0409)

Tab.5-105: Assignment of support point correction values to table line index of correction tables P-0-0412 when using 500 support points



The number of correction values can be 6...500, otherwise the error "datum not correct" is signaled when this parameter is written!

### P-0-0412 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0076 / S-0-0076		s. Text		
<b>MPC:</b>	S-0-0076 / S-0-0076		s. Text		
<b>MPE:</b>	S-0-0076 / S-0-0076		s. Text		
<b>MPM:</b>	S-0-0076 / S-0-0076		s. Text		

## 5.3.102 P-0-0413, Axis correction control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** By means of axis error correction it is possible to correct systematic errors of the mechanical system and the measuring systems in the actual position value system. The actual position value system to be corrected is selected in this parameter.

See also Functional Description "Axis Error Correction"

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
0	actual position value correction of motor encoder 0: no 1: yes	
1	actual position value correction of external encoder 0: no 1: yes	

Tab.5-106: Relevant bits of P-0-0413

## P-0-0413 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0x2	0x0
MPC:	0x0 / 0x2	0x0
MPE:	0x0 / 0x2	0x0
MPM:	0x0 / 0x2	0x0

## 5.3.103 P-0-0418, Analog output, assignment 1, signal value at 0V

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter is used to make the reference definition of the analog output of assignment 1 (value when 0 V is output). The unit is defined by the parameter assigned in "P-0-0420, Analog output, assignment 1, signal selection".

The parameter is inactive when parameters with "binary" display attribute are assigned.

See also Functional Description "Analog Outputs"

## P-0-0418 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.3.104 P-0-0419, Analog output, assignment 2, signal value at 0V

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter is used to make the reference definition of the analog output of assignment 2 (value when 0 V is output). The unit is defined by the parameter assigned in "P-0-0423, Analog output, assignment 2, signal selection".

The parameter is inactive when parameters with "binary" display attribute are assigned.

See also Functional Description "Analog Outputs"

Product-Specific Parameters

<b>P-0-0419 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0	
		MPC:	--- / ---		0	
		MPE:	--- / ---		0	
		MPM:	--- / ---		0	

### 5.3.105 P-0-0420, Analog output, assignment 1, signal selection

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b> device-specific		

**Function** This parameter can be used to assign a parameter IDN to the analog output 1 of the drive controller. The current parameter value is output as voltage at the analog output if the mode of the analog output in "P-0-0427, Control parameter of analog output" is set to output of assignment 1. The output voltage can, for example, be made visible by means of an oscilloscope.

Only such IDNs can be assigned that are listed in "P-0-0426, Analog output, IDN list of assignable parameters".

See also Functional Description "Analog Outputs"

<b>P-0-0420 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		s. Text	
		MPC:	--- / ---		s. Text	
		MPE:	--- / ---		s. Text	
		MPM:	--- / ---		s. Text	

### 5.3.106 P-0-0422, Analog output, assignment 1, scaling [1/V]

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b> device-specific		

**Function** This parameter is used to scale the voltage output by analog output 1. The unit is defined by the parameter assigned in "P-0-0420, Analog output, assignment 1, signal selection".

If parameters with "binary" display attribute are assigned, this parameter serves to define the number of the bit that is to be output at the analog output. If the respective bit is not set, the output voltage is 0 V. If the bit is set, 1 V is output.

See also Functional Description "Analog Outputs"

<b>P-0-0422 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0	
		MPC:	--- / ---		0	
		MPE:	--- / ---		0	
		MPM:	--- / ---		0	

## Product-Specific Parameters

## 5.3.107 P-0-0423, Analog output, assignment 2, signal selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter can be used to assign a parameter IDN to the analog output 2 of the drive controller. The current parameter value is output as voltage at the analog output if the mode of the analog output in "P-0-0427, Control parameter of analog output" is set to output of assignment 2. The output voltage can, for example, be made visible by means of an oscilloscope.

Only such IDNs can be assigned that are listed in "P-0-0426, Analog output, IDN list of assignable parameters".

See also Functional Description "Analog Outputs"

P-0-0423 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.3.108 P-0-0425, Analog output, assignment 2, scaling [1/V]

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is used to scale the voltage output by analog output 2. The unit is defined by the parameter assigned in "P-0-0423, Analog output, assignment 2, signal selection".

If parameters with "binary" display attribute are assigned, this parameter serves to define the number of the bit that is to be output at the analog output. If the respective bit is not set, the output voltage is 0 V. If the bit is set, 1 V is output.

See also Functional Description "Analog Outputs"

P-0-0425 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.3.109 P-0-0426, Analog output IDN list of assignable parameters

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter contains a list of all parameter IDNs which can be assigned via the following parameters:

Product-Specific Parameters

- "P-0-0420, Analog output, assignment 1, signal selection" and
- "P-0-0423, Analog output, assignment 2, signal selection."

See also Functional Description "Analog Outputs"

P-0-0426 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

### 5.3.110 P-0-0427, Control parameter of analog output

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** The configuration parameter control parameter serves to define the signal source and restrictions for the analog outputs.

See also Functional Description "Analog Outputs"

**Structure**

Bit	Designation/function	Comment
0	<b>Assignment 1, limitation</b> 0: Overflow 1: Limitation	
1	<b>Assignment 1, calculation of absolute value</b> 0: Direct output, with sign 1: Calculation of absolute value	
4... 2	<b>Analog output 1, signal source</b> 000: Direct output of voltage signals via P-0-0139 001: Output of parameter values of axis 1 010: Output of parameter values of axis 2 011: Output of parameter values of axis 3 100: Output of parameter values of axis 4	
8	<b>Assignment 2, limitation</b> 0: Overflow 1: Limitation	

## Product-Specific Parameters

Bit	Designation/function	Comment
9	<b>Assignment 2, calculation of absolute value</b> 0: Direct output, with sign 1: Calculation of absolute value	
12... 10	<b>Analog output 2, signal source</b> 000: Direct output of voltage signals via P-0-0140 001: Output of parameter values of axis 1 010: Output of parameter values of axis 2 011: Output of parameter values of axis 3 100: Output of parameter values of axis 4	

Tab.5-107: Relevant Bits of P-0-0427, Control parameter of analog output

## P-0-0427 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.3.111 P-0-0434, Position command value of controller

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

- Function** This parameter is used to display the position command value effective at the position loop input. Depending on the active operation mode, this position command value can be
- the position command value generated and filtered by the drive itself (e.g., in the case of interpolation modes)
  - the position command value cyclically set by a control unit, and filtered and fine-interpolated in the drive.



The internal position command value "P-0-0434, Position command value controller" is generated in the position loop clock (cf. P-0-0556)!

See also Functional Description "Cyclic Position Control"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

See also Functional Description "Synchronization Modes"

## P-0-0434 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---

Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

### 5.3.112 P-0-0435, Control word of position controller

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** In this parameter it is possible to activate additional functions of the position loop.

Bit	Designation/function	Comment
0	quadrant error correction 0: inactive 1: active	

Tab.5-108: Relevant bits of P-0-0435

P-0-0435 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0x1	0x0
MPC:	0x0 / 0x1	0x0
MPE:	0x0 / 0x1	0x0
MPM:	0x0 / 0x1	0x0

### 5.3.113 P-0-0436, Reference radius for quadrant error correction

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

**Function** This parameter determines the radius of a circular path that is used as reference for quadrant error correction.

**Use** This radius is used for calculating the path velocity and should correspond to a radius, characteristic for the machine, for circularly interpolating machining.

See also Functional Description "Quadrant Error Correction"

P-0-0436 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	100,0000
MPC:	S-0-0076 / S-0-0076	100,0000
MPE:	S-0-0076 / S-0-0076	100,0000
MPM:	S-0-0076 / S-0-0076	100,0000

### 5.3.114 P-0-0437, Velocity time range for quadrant error correction

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation)			
	Device parameter:	axis-specific			

## Product-Specific Parameters

**Function** In this parameter the absolute value of the velocity time range of the velocity pulse is entered that, with active quadrant error correction, is added to the velocity command value in case the direction of movement is changed.



The value "0" deactivates the quadrant error correction!

See also Functional Description "Quadrant Error Correction"

<b>P-0-0437 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	S-0-0044 / S-0-0044		0,0000		
	<b>MPC:</b>	S-0-0044 / S-0-0044		0,0000		
	<b>MPE:</b>	S-0-0044 / S-0-0044		0,0000		
	<b>MPM:</b>	S-0-0044 / S-0-0044		0,0000		

## 5.3.115 P-0-0438, Table of path velocities for quadrant error correction

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter corresponds to "P-0-0439, Table of velocity pulse for quadrant error correction".

In the lines of this list parameter, a maximum of 20 path velocities can be entered in ascending order. A velocity pulse amplitude for quadrant error correction can be assigned in P-0-0439 to each entered path velocity.

See also Functional Description "Quadrant Error Correction"

<b>P-0-0438 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	S-0-0044 / S-0-0044		s. Text		
	<b>MPC:</b>	S-0-0044 / S-0-0044		s. Text		
	<b>MPE:</b>	S-0-0044 / S-0-0044		s. Text		
	<b>MPM:</b>	S-0-0044 / S-0-0044		s. Text		

## 5.3.116 P-0-0439, Table of velocity pulse for quadrant error correction

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter corresponds to "P-0-0438, Table of path velocities for quadrant error correction".

In the lines of this list parameter a maximum of 20 velocity pulse amplitudes can be entered in ascending order. The values are assigned to the path velocities of the corresponding lines of P-0-0438.

See also Functional Description "Quadrant Error Correction"

<b>P-0-0439 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV


Product-Specific Parameters

Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0044 / S-0-0044		s. Text		
MPC:	S-0-0044 / S-0-0044		s. Text		
MPE:	S-0-0044 / S-0-0044		s. Text		
MPM:	S-0-0044 / S-0-0044		s. Text		

### 5.3.117 P-0-0440, Actual output current value (absolute value)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	Display parameter for the measured actual current value which is the rms value of the motor phase current.					
	The phase currents are scanned in the current controller cycle, converted as a current vector and the rms value is calculated from these data. This parameter displays the value averaged during 2 ms and is used as the input value for the overload models of amplifier and motor.					
P-0-0440 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	A eff	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.3.118 P-0-0441, Thermal drive load warning threshold

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	MPx16: Overload warning					
	Parameter for determining a threshold value for the thermal controller work load.					
	If the value displayed in "P-0-0141, Thermal drive load" exceeds the determined threshold, warning "E2061 Amplifier overload prewarning" is generated. The warning sets bit 1 in parameter "S-0-0012, Class 2 diagnostics".					
		If values exceeding 100% are entered, "E2061" is not displayed. Warning "E8057 Device overload, current limit active" is generated as early as at a thermal load of approx. 97% if the output current is limited by the controller.				
P-0-0441 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0 / 110			80	
	MPC:	0 / 110			80	
	MPE:	0 / 110			80	
	MPM:	0 / 110			80	

## Product-Specific Parameters

## 5.3.119 P-0-0442, Actual value torque limit positive (stationary)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Display parameter for the effective positive torque limit value. The displayed value is the smallest value of

- S-0-0092, Bipolar torque/force limit value
- P-0-0109, Torque/force peak limit
- S-0-0082, Torque/force limit value positive
- load-dependent limitations by motor and controller
- motor-dependent limitations.

See also Functional Description "Current and Torque/Force Limitation"

**Use** The unit for the values of this parameter depends on the scaling that has been set (S-0-0086, Torque/force data scaling type).



P-0-0442 displays the positive torque/force limit value (with regard to load torque/load force) effective at a stationary (constant) velocity. For acceleration processes, a higher limit value can be effective, if the lower value of P-0-0109 and S-0-0092 is greater than S-0-0082, and acceleration feedforward has been activated. The parameter "P-0-0444, Actual value peak torque limit" shows the maximum allowed drive torque or the maximum allowed drive force (stationary load torque + acceleration torque) effective for acceleration processes.

## P-0-0442 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

## 5.3.120 P-0-0443, Actual value torque limit negative (stationary)

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Display parameter for the effective negative torque limit value. The displayed value is the smallest value of

- "S-0-0092, Bipolar torque/force limit value"
- "P-0-0109, Torque/force peak limit"
- "S-0-0083, Torque/force limit value negative"
- load-dependent limitations by motor and controller
- motor-dependent limitations.

See also Functional Description "Current and Torque/Force Limitation"

Product-Specific Parameters

**Use** The unit for the values of this parameter depends on the scaling that has been set (S-0-0086, Torque/force data scaling type).



P-0-0443 displays the negative torque/force limit value (with regard to load torque/load force) effective at a stationary (constant) velocity. For acceleration processes, a higher limit value can be effective, if the lower value of P-0-0109 and S-0-0092 is greater than S-0-0083, and acceleration feedforward has been activated. The parameter "P-0-0444, Actual value peak torque limit" shows the maximum allowed drive torque or the maximum allowed drive force (stationary load torque + acceleration torque) effective for acceleration processes.

**P-0-0443 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.3.121 P-0-0444, Actual value peak torque limit

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Display parameter for the maximum drive torque or the maximum drive force. The value is the limit value for positive and negative torque/force command values.

The value displayed is the lower value of

- "P-0-0109, Torque/force peak limit"
- "S-0-0092, Bipolar torque/force limit value"
- work load-dependent limits by motor and controller
- motor-dependent limits.

The unit for the values of this parameter depends on the scaling that has been set ("S-0-0086, Torque/force data scaling type").

See also Functional Description "Torque/Force Limitation"

**P-0-0444 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.3.122 P-0-0445, Status word torque/current limit

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** This parameter combines the status messages (bits) referring to torque/ current limitation.

See also Functional Description "Current and Torque/Force Limitation"

**Structure** The individual bits have the following significance:

Bit	Designation/function	Comment
0	<b>Positive torque command value</b> 0: Not restricted: P-0-0442 = S-0-0082 1: Restricted: P-0-0442 < S-0-0082	
1	<b>Negative torque command value</b> 0: Not restricted: P-0-0443 = S-0-0083 1: Restricted:  P-0-0443  <  S-0-0083	
3/2	<b>Reserved</b>	
4	<b>Amplifier overload warning (E2061)</b> 0: No: P-0-0141 < P-0-0441 1: Yes: P-0-0141 ≥ P-0-0441	
5	<b>Speed-dependent torque limitation</b> 0: Inactive 1: Active: Maximum torque < min ( S-0-109 / S-0-0110 )	
6	<b>Regenerative power limitation</b> 0: Inactive 1: Active: Maximum torque < min ( S-0-109 / S-0-0110 )	
7	<b>Torque/force limitation equal to zero (E2056)</b> (P-0-0442 = 0 or P-0-0443 = 0 or P-0-0444 = 0) 0: No 1: Yes	
8	<b>Amplifier overload, peak current limitation</b> 0: Inactive 1: Active	
9	<b>Motor overload (E8055), peak current limitation</b> 0: Inactive 1: Active	
10	<b>Reserved</b>	

Product-Specific Parameters

Bit	Designation/function	Comment
13-11	<b>Effective current limitation - display of the limit</b> resulting in the current limit value P-0-0444: <b>000:</b> No limitation active <b>001:</b> Amplifier temperature model <b>010:</b> Motor temperature model <b>011:</b> Speed-dependent torque limitation <b>100:</b> Regenerative limitation <b>101:</b> S-0-0092 <b>110:</b> P-0-0109 <b>111:</b> Motive torque switched off	As of MP*03V20  As of MP*04VRS
14	<b>E2051 Motor overtemp. prewarning</b> <b>0:</b> Inactive <b>1:</b> Active	
15	<b>F2019 Motor overtemperature shutdown or F2021 Motor temperature monitor defective</b> <b>0:</b> Inactive <b>1:</b> Active	

Tab.5-109: Structure of P-0-0445, Status word torque/current limit

P-0-0445 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

### 5.3.123 P-0-0446, Thermal motor load

<b>Allocation</b>	<b>Contained in 16VRS:</b> «-» «-» «-» <b>Contained in 17VRS:</b> «MPB» «MPE» «MPM» «MPC» <b>Contained in 18VRS:</b> «MPB» «MPE» «MPM» «MPC» <b>Hardware</b> -- <b>Funct. package(s):</b> "open loop", "closed loop" <b>Device parameter:</b> axis-specific
-------------------	--

**Function** A thermal model is calculated for the motor. This model is based on the time constants of the motor winding, the continuous current and the short-time overload of the motor. If it is at standstill or if it does not feature any temperature measurement function, a motor can only be protected against destruction with the "thermal model". If the load has reached the load limit (100%), the motor current is reduced.

The following parameter are included in the thermal model of the motor:

- P-0-0640, Cooling type
- P-0-4034, Thermal time constant of winding
- P-0-4035, Thermal time constant of motor
- P-0-4037, Thermal short-time overload of winding
- S-0-0111, Motor current at standstill

**Function** Parameter "P-0-0446" serves to check the thermal load of the motor. A thermal load of 100% corresponds to the maximum motor temperature.

## Product-Specific Parameters

The parameter can be preset to a value that is higher than the current one to allow checking the thermal motor load on commissioning more quickly without having to perform machining cycles within this time interval.

See also Functional Description "Motor Temperature Monitoring"

<b>P-0-0446 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.3.124 P-0-0447, Motor shaft power

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter indicates the current power of the motor. The power is calculated from the mechanical data provided by the current torque/force and current speed/velocity.

See also Functional Description "Correction of Torque/Force Constant"

<b>P-0-0447 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Watt	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.3.125 P-0-0448, Temperature-dependent torque/force coefficient

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter influences the effective torque/force constant, depending on the measured winding temperature of the motor. Based on the value of "P-0-0051, Torque/force constant", a reduction takes effect. The current value is displayed in "P-0-0450, Current torque/force constant".

- At a winding temperature of 20°C, no reduction takes place.
- At a winding temperature of 110°C is "P-0-0051" reduced by the percentage of "P-0-0448".
- At winding temperatures lower or higher than 110°C, the reduction is interpolated or extrapolated relating to "reduction reference values" of 20°C and 110°C.



The reduction only works correctly, when "P-0-0051, Torque/force constant" refers to the ambient temperature 20°C.

The parameter is motor-specific and for synchronous Rexroth motors it is made available on the manufacturer side:

Product-Specific Parameters

- For MSK motors and as of encoder memory version 4.5, it is automatically written with the parameter "P-0-3058, Temperature-dependent torque/force coefficient, enc. memory".
- For other synchronous Rexroth motors, it is made available, if required, via IWD or the drive database "DriveBase".

See also Functional Description "Correction of Torque/Force Constants"

P-0-0448 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,0 / 6553,5	0,0
MPC:	0,0 / 6553,5	0,0
MPE:	0,0 / 6553,5	0,0
MPM:	0,0 / 6553,5	0,0

### 5.3.126 P-0-0449, Speed-dependent torque/force coefficient

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** This parameter influences the effective torque/force constant, depending on the velocity of the motor. Based on the value of "P-0-0051, Torque/force constant", a reduction takes effect depending on the arithmetic average value of the absolute velocity value. The current value is displayed in "P-0-0450, Current torque/force constant".



The reduction only works correctly, when "P-0-0051, Torque/force constant" refers to the ambient temperature 20°C.

The parameter is motor-specific and for synchronous Rexroth motors it is made available on the manufacturer side:

- For MSK motors and as of encoder memory version 4.5, it is automatically written with the parameter "P-0-3057, Speed-dependent torque/force coefficient, encoder memory".
- For other synchronous Rexroth motors, it is made available, if required, via IWD or the drive database "DriveBase".

See also Functional Description "Correction of Torque/Force Constants"

P-0-0449 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	Hz	Extr. val. ch.:	--	Decim. pl.:	5
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0,00000
MPC:	--- / ---	0,00000
MPE:	--- / ---	0,00000
MPM:	--- / ---	0,00000

### 5.3.127 P-0-0450, Current torque/force constant

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

## Product-Specific Parameters

**Function** The currently effective value of the torque/force constant is displayed in this parameter. The torque or the force at the motor can be calculated, by means of approximation, by multiplying "P-0-0450" and "P-0-0043, Torque-generating current, actual value".

For synchronous motors, the value of the torque/force constant depends on the

- value of the currently flowing motor current: Reduction of torque/force constant at currents greater  $I_{\text{nominal}}$
- temperature of motor winding and rotor: Reduction of torque/force constant at rising temperature

For asynchronous motors, the torque/force constant is reduced, when the motor is operated with field weakening.

<b>P-0-0450 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Nm/A eff	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.128 P-0-0451, Actual acceleration torque/force value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The acceleration torque is determined from the total inertia (determined using the automatic control loop setting) and the value in "S-0-0164, Acceleration feedback value 1". The acceleration torque is displayed in "P-0-0451, Actual acceleration torque/force value".

<b>P-0-0451 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.129 P-0-0452, Actual process torque/force value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The current process torque is determined from the current total torque in parameter "S-0-0084, Torque/force feedback value" and the determined "P-0-0451, Actual acceleration torque/force value". The process torque is displayed in "P-0-0452, Actual process torque/force value".

<b>P-0-0452 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV

Product-Specific Parameters

Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

### 5.3.130 P-0-0453, Integral-action component velocity loop

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	The integral-action component of the velocity loop is displayed in parameter P-0-0453.					
P-0-0453 - Attributes	Function:	Par	Editable:	OM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		S-0-0086 / S-0-0086		---	
	MPC:		S-0-0086 / S-0-0086		---	
	MPE:		S-0-0086 / S-0-0086		---	
	MPM:		S-0-0086 / S-0-0086		---	

### 5.3.131 P-0-0454, Velocity feedforward actual value

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	This parameter displays the present velocity feedforward value. The parameter depends on "S-0-0044, Velocity data scaling type".					
Use	In the case of lagless operation modes, the velocity feedforward is calculated in the position loop from the position command values and depending on "P-0-0040, Velocity feedforward evaluation" is added to the velocity command value.					
P-0-0454 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.3.132 P-0-0455, Acceleration feedforward actual value

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	This parameter displays the present acceleration feedforward value.				

## Product-Specific Parameters

**Use** The acceleration feedforward is generated as follows:

1. For lagless, position-controlled operation modes, the feedforward value is calculated from the position command values, depending on "S-0-0348, Acceleration feedforward gain".
2. In velocity control, the feedforward value is calculated from the velocity command values, depending on "P-0-1126, Velocity control loop: Acceleration feedforward".

The parameter depends on "S-0-0086, Torque/force data scaling type".

<b>P-0-0455 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.133 P-0-0456, Position command value delay

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter is used to set the position command value delay, it specifies the number of position clocks to be delayed.

The position command value generator (P-0-0457) is the input value of the command value delay function, the output value is the position command value of controller (P-0-0434). The output value can be delayed by up to 32 position clocks. The default setting is "0", that is to say the position command value delay function is not active.

<b>P-0-0456 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0 / 32	0
MPC:	0 / 32	0
MPE:	0 / 32	0
MPM:	0 / 32	0

## 5.3.134 P-0-0457, Position command value generator

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter displays the position command value without delay. Depending on the active operation mode, this position command value can be

- the position command value generated, filtered and fine interpolated by the drive itself (e.g., in the case of interpolation modes) or
- the position command value cyclically set by a control unit, filtered and fine interpolated in the drive.

The position command value generator is the input value of the command value delay function, the output value is the position command value of con-

## Product-Specific Parameters

troller (P-0-0434). The output value can be delayed by up to 32 position clocks, the number of clocks is set with the position command value delay (P-0-0456).



The internal position command value "P-0-0457, Position command value generator" is generated in the position loop clock (cf. P-0-0556)!

See also Functional Description "Position Control With Cyclic Command Value Input"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

### P-0-0457 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.135 P-0-0458, Delay of add. command values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	closed loop		
	<b>Device parameter:</b>	axis-specific		

### Function

This parameter delays the efficiency of "S-0-0081, Additive torque/force command value" and therefore supports the external acceleration feedforward control. The control cyclically delivers the value of the acceleration feedforward control to the drive as additive torque/force command value. The delay ensures that "P-0-0070, Effective additive torque/force command value" becomes active simultaneously with "P-0-0434, Position command value of controller". To achieve this, the effective torque/force command value can be delayed by a maximum of 64 position clocks.

If the value is set higher than zero, the function is activated. This also activates an average value filter (P-0-0041) and a linear fine interpolator (control clock in position clock) according to position command value acceptance.

The function is also activated if value "-1" is set. In this context, the active delay is calculated internally according to the formula presented in the note below (max. 64 clock pulses).



The necessary number of delay clocks depends on (P-0-0456, Position command value delay) and the type of fine interpolation (P-0-0187).

Linear fine interpolation:  $P-0-0458 = P-0-0456 + 1$

"Cubic approximation" and "cubic fine interpolation":  $P-0-0458 = P-0-0456 + (NC \text{ clock/position clock} - 1) + 1$  (the term is no longer applicable with a clock ratio of 1/1)

### P-0-0458 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	-1 / 64	0
MPC:	-1 / 64	0
MPE:	-1 / 64	0
MPM:	-1 / 64	0

## 5.3.136 P-0-0460, Module group, control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter displays the information that is transmitted by a device (inverter or converter) to the module bus. Due to the hierarchical structure of the module bus, only the most significant information takes effect!



This parameter only displays the control information that the respective controller is transmitting via the module bus. The bits of this parameter cannot be externally written!

Structure	<b>Bit</b>	<b>Designation/function</b>	<b>Comment</b>
	0	All module bus nodes without error? 0: no 1: yes	
	1	Ready for power output ("DC bus ok")? 0: no 1: yes	
	2	Prewarning supply overload? 0: no 1: yes	
	3	DC bus voltage error, mains failure ("DC bus not ok")? 0: no 1: yes	
	4	Inverter error? 0: no 1: yes	
	5	Supply error? 0: no 1: yes	
	6	Clear supply error? 0: not active 1: active	
	8	Module bus communication error? 0: no 1: yes	

Tab.5-110: Relevant bits of P-0-0460

Product-Specific Parameters

<b>P-0-0460 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

### 5.3.137 P-0-0461, Module group, status word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>		device-specific			

**Function** This parameter displays the currently active information of the module bus.  
See also Functional Description "Power Supply"

**Structure**

Bit	Designation/function	Comment
0	All module bus nodes without error? 0: no 1: yes	
1	Ready for power output ("DC bus ok")? 0: no 1: yes	
2	Prewarning supply overload? 0: no 1: yes	
3	DC bus voltage error, mains failure ("DC bus not ok")? 0: no 1: yes	
4	Inverter error? 0: no 1: yes	
5	Supply error? 0: no 1: yes	
6	Clear supply error? 0: not active 1: active	
8	Module bus communication error? 0: no 1: yes	

Tab.5-111: Relevant bits of P-0-0461

<b>P-0-0461 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.3.138 P-0-0465, Maximum value thermal drive load

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter detects the peak value of the amplifier load (P-0-0141). The user has to write a value to the parameter to reset the peak value.					
Use	A value of "zero" must be written to the parameter before commencement of a machining cycle, in order to detect the maximum value of the load during this machining cycle. After completion of the machining cycle, the peak value of the load of this cycle can be read.					
P-0-0465 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0,0 / 110,0		---		
	MPC:	0,0 / 110,0		---		
	MPE:	0,0 / 110,0		---		
	MPM:	0,0 / 110,0		---		

## 5.3.139 P-0-0466, Maximum value thermal motor load

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter detects the peak value of the thermal motor load (P-0-0465). The user has to write a value to the parameter to reset the peak value.					
Use	A value of "zero" must be written to the parameter before commencement of a machining cycle, in order to detect the maximum value of the load during this machining cycle. After completion of the machining cycle, the peak value of the load of this cycle can be read.					
P-0-0466 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,0 / 110,0			---	
	MPC:	0,0 / 110,0			---	
	MPE:	0,0 / 110,0			---	
	MPM:	0,0 / 110,0			---	

## 5.3.140 P-0-0467, Maximum value thermal load of Braking resistor

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

Product-Specific Parameters

**Function** This parameter detects the peak value of the thermal braking resistance (P-0-0844). The drive constantly writes to this parameter. The user has to write a value to the parameter to reset the peak value.

**Use** A value of "zero" must be written to the parameter before commencement of a machining cycle, in order to detect the maximum value of the load during this machining cycle. After completion of the machining cycle, the peak value of the load of this cycle can be read.

P-0-0467 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0 / 110		---	
		MPC:	0 / 110		---	
		MPE:	0 / 110		---	
		MPM:	0 / 110		---	

### 5.3.141 P-0-0468, Prewarning threshold of therm. motor load

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
		Device parameter:			
		axis-specific			

**Function** This parameter defines the threshold of the thermal motor load at which the prewarning bit (S-0-0012; bit 2) and prewarning "E2051 Motor overtemp. pre-warning" are set.

P-0-0468 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0,0 / 110,0		95,0	
		MPC:	0,0 / 110,0		95,0	
		MPE:	0,0 / 110,0		95,0	
		MPM:	0,0 / 110,0		95,0	

### 5.3.142 P-0-0469, Prewarning threshold of therm. load of braking resistor

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
		Device parameter:			
		axis-specific			

**Function** This parameter defines the threshold of the thermal braking resistor load at which the prewarning bit (S-0-0012; bit 1) and prewarning "E2820 Braking resistor overload prewarning" are set.

P-0-0469 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0 / 110		90	
		MPC:	0 / 110		90	
		MPE:	0 / 110		90	
		MPM:	0 / 110		90	

### 5.3.143 P-0-0470, Block patch: Block selection

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Product-Specific Parameters

	Contained in 18VRS:			«MPB»	«MPE»	«MPM»	«MPC»
	Hardware			--			
	Funct. package(s):			"open loop", "closed loop"			
	Device parameter:			device-specific			
Function	This parameter, along with parameter "P-0-0471", is intended for extended diagnostic purposes.						
P-0-0470 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte	
	Memory:	--	Validity ch.:	--	Format:	HEX	
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--	
	Input	min./max.			Default value		
	MPB:	--- / ---			---		
	MPC:	--- / ---			---		
	MPE:	--- / ---			---		
	MPM:	--- / ---			---		

## 5.3.144 P-0-0471, Block patch: Block data

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameter, along with parameter "P-0-0470", is intended for extended diagnostic purposes.					
P-0-0471 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.3.145 P-0-0476, Logbook configuration word

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	When bit 0 is set, a logbook entry is generated for the most important "SMO operating states" upon their activation. The configuration is used for diagnostic purposes.					
P-0-0476 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		0x0 / 0x1		0x0	
	MPC:		0x0 / 0x1		0x0	
	MPE:		0x0 / 0x1		0x0	
	MPM:		0x0 / 0x1		0x0	

## 5.3.146 P-0-0477, Logbook axis number

Allocation	Contained in 16VRS:			
	«-»	«-»	«MPM»	
	Contained in 17VRS:			
	«-»	«-»	«MPM»	«-»
	Contained in 18VRS:			
	«-»	«-»	«MPM»	«-»
Function	Hardware			
	--			
P-0-0477 - Attributes	Funct. package(s):			
	"open loop", "closed loop"			
	Device parameter:			
	device-specific			

## Product-Specific Parameters

- Function** This parameter shows the logical axis number of the entry in "P-0-0478, Logbook event".
- 0 = Logical axis "0" (left-hand axis)
  - 1 = Logical axis "1" (right-hand axis)
  - 0xFFFF = Both axes



This parameter cannot be used by the user. It is read-only and cannot be edited.

### P-0-0477 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	ON_BOARD_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.3.147 P-0-0478, Logbook event

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

- Function** This parameter displays a code which allows the drive development staff to diagnose drive-internal states.

- Use** The entries in this parameter are realized automatically by the controller subject to internal states. The entry time is retained in "P-0-0479, Logbook time stamp".



The value displayed in this parameter can only be interpreted with internal knowledge of the firmware! Therefore, the user cannot utilize this parameter! It is write-protected and cannot be changed!

### P-0-0478 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	ON_BOARD_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.3.148 P-0-0479, Logbook time stamp

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

- Function** This parameter shows the time of entry in "P-0-0478, Logbook event". The value of "P-0-0190, Operating hours control section" is recorded in parameter "P-0-0478" at the corresponding time.

## Product-Specific Parameters



For this reason, this parameter cannot be used by the user. It is read-only and cannot be edited.

## P-0-0479 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	ON_BOARD_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.3.149 P-0-0480, Patch function 1, source pointer

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter allows selecting a controller-internal memory cell. This memory cell can be read or written by means of the patch function 1.  
See also Functional Description



The patch function allows the development staff to diagnose internal signal states and data; customers cannot use this function! Therefore, only the development staff know the values of this parameter (memory addresses)!

See also Functional Description "Patch Function"

## P-0-0480 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

## 5.3.150 P-0-0481, Patch function 1, attribute

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to configure the access and the output to the controller-internal memory address selected in "P-0-0480, Patch function 1, source pointer".  
See also Functional Description "Patch Function"

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	2/1/0	<b>Source data type</b> 0: INT4 1: INT2 2: INT1 3: FLOAT8 4: FLOAT4	
	6/5/4	<b>Source data output format</b> 0: BIN 1: DEC w sign 2: DEC w/o sign 3: HEX 4: FLOAT 5: BOOL	
	11-7	Reserved	
	15-12	<b>Address target system</b> 0000: IndraDrive control section 0001: Host CPU of channel 1 of Safe Motion 0010: Host CPU of channel 2 of Safe Motion 0011: Co-CPU of channel 1 of Safe Motion 0101: Co-CPU of channel 2 of Safe Motion	Default IndraDrive control section
		0101: Host CPU of channel 1 and channel 2 of Safe Motion 0111: Co-CPU of channel 1 and channel 2 of Safe Motion	*

\* The two codifications may only be set if the master password (P-0-4064 = 4) is set. This mode only supports write accesses. It does not support simultaneous read accesses.  
 Tab.5-112: Relevant Bits of P-0-0481



The patch function is reserved for development personnel for diagnosing internal signal states and/or internal data and cannot be used by the customer.

P-0-0481 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>		<b>min./max.</b>		<b>Default value</b>	
		---	---		0x30
<b>MPC:</b>		---	---		0x30
<b>MPE:</b>		---	---		0x30
<b>MPM:</b>		---	---		0x30

### 5.3.151 P-0-0482, Patch function 1, bit mask

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

## Product-Specific Parameters

**Function** This parameter defines a bit mask that acts on the output of the value of the controller-internal memory cell selected by "P-0-0480, Patch function 1, source pointer". This parameter acts subject to "P-0-0481, Patch function 1, attribute". It is only active in certain configuration constellations.



The patch function allows the development staff to diagnose firm-ware-internal signal states and data; customers cannot use this function!

See also Functional Description "Patch Function"

## P-0-0482 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
	<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>	--- / ---			0xFFFFFFFF	
<b>MPC:</b>	--- / ---			0xFFFFFFFF	
<b>MPE:</b>	--- / ---			0xFFFFFFFF	
<b>MPM:</b>	--- / ---			0xFFFFFFFF	

## 5.3.152 P-0-0483, Patch function 1, exponent

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter defines an exponent that acts on the output of the value of the controller-internal memory cell selected by "P-0-0480, Patch function 1, source pointer". This parameter acts subject to "P-0-0481, Patch function 1, attribute". It is only active in certain configuration constellations.



The patch function allows the development staff to diagnose internal signal states and data; customers cannot use this function!

See also Functional Description "Patch Function"

## P-0-0483 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
	<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>	-32 / 32			0	
<b>MPC:</b>	-32 / 32			0	
<b>MPE:</b>	-32 / 32			0	
<b>MPM:</b>	-32 / 32			0	

## 5.3.153 P-0-0485, Patch function 1, display

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** By means of this parameter it is possible to read or write a value to the content of a controller-internal memory cell. Further specifications and configurations are made in the other parameters relevant to the patch function (for details please see the Functional Description).

Product-Specific Parameters



The patch function allows the development staff to diagnose firm-ware-internal signal states and data; customers cannot use this function! As unqualified writing to this parameter can interfere with the drive function, this parameter is write-protected!

See also Functional Description "Patch Function"

P-0-0485 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0x2710	---
MPC:	0x0 / 0x2710	---
MPE:	0x0 / 0x2710	---
MPM:	0x0 / 0x2710	---

### 5.3.154 P-0-0486, Patch function 2, source pointer

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter allows selecting a controller-internal memory cell. This memory cell can be read or written by means of the patch function 2.

See also Functional Description



The patch function allows the development staff to diagnose internal signal states and data; customers cannot use this function! Therefore, only the development staff know the values of this parameter (memory addresses)!

See also Functional Description "Patch Function"

P-0-0486 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

### 5.3.155 P-0-0487, Patch function 2, attribute

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to configure the access and the output to the controller-internal memory address selected in "P-0-0486, Patch function 2, source pointer".

See also Functional Description "Patch Function"

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
2/1/0	<b>Source data type</b> 0: INT4 1: INT2 2: INT1 3: FLOAT8 4: FLOAT4	
6/5/4	<b>Source data output format</b> 0: BIN 1: DEC w sign 2: DEC w/o sign 3: HEX 4: FLOAT 5: BOOL	
11-7	Reserved	
15-12	<b>Address target system</b> 0000: IndraDrive control section 0001: Host CPU of channel 1 of Safe Motion 0010: Host CPU of channel 2 of Safe Motion 0011: Co-CPU of channel 1 of Safe Motion 0101: Co-CPU of channel 2 of Safe Motion	Default IndraDrive control section
	0101: Host CPU of channel 1 and channel 2 of Safe Motion 0111: Co-CPU of channel 1 and channel 2 of Safe Motion	*

\* The two codifications may only be set if the master password (P-0-4064 = 4) is set. This mode only supports write accesses. It does not support simultaneous read accesses.

Tab.5-113: Relevant Bits of P-0-0487



The patch function is reserved for development personnel for diagnosing internal signal states and/or internal data and cannot be used by the customer.

## P-0-0487 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPC:</b>	--- / ---		0x30		
<b>MPE:</b>	--- / ---		0x30		
<b>MPM:</b>	--- / ---		0x30		

## 5.3.156 P-0-0488, Patch function 2, bit mask

## Allocation

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

Product-Specific Parameters

**Function** This parameter defines a bit mask that acts on the output of the value of the controller-internal memory cell selected by "P-0-0486, Patch function 2, source pointer". This parameter acts subject to "P-0-0487, Patch function 2, attribute". It is only active in certain configuration constellations.



The patch function allows the development staff to diagnose internal signal states and data; customers cannot use this function!

See also Functional Description "Patch Function"

**P-0-0488 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0xFFFFFFFF
<b>MPC:</b>	--- / ---	0xFFFFFFFF
<b>MPE:</b>	--- / ---	0xFFFFFFFF
<b>MPM:</b>	--- / ---	0xFFFFFFFF

### 5.3.157 P-0-0489, Patch function 2, exponent

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter defines an exponent that acts on the output of the value of the controller-internal memory cell selected by "P-0-0486, Patch function 2, source pointer". This parameter acts subject to "P-0-0487, Patch function 2, attribute". It is only active in certain configuration constellations.



The patch function allows the development staff to diagnose firmware-internal signal states and data; customers cannot use this function!

See also Functional Description "Patch Function"

**P-0-0489 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	-32 / 32	0
<b>MPC:</b>	-32 / 32	0
<b>MPE:</b>	-32 / 32	0
<b>MPM:</b>	-32 / 32	0

### 5.3.158 P-0-0491, Patch function 2, display

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** By means of this parameter it is possible to read or write a value to the content of a controller-internal memory cell. Further specifications and configurations are made in the other parameters relevant to the patch function.

## Product-Specific Parameters



The patch function allows the development staff to diagnose firm-ware-internal signal states and data; customers cannot use this function! As unqualified writing to this parameter can interfere with the drive function, this parameter is write-protected!

See also Functional Description "Patch Function"

## P-0-0491 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0x0 / 0x2710	---
MPC:	0x0 / 0x2710	---
MPE:	0x0 / 0x2710	---
MPM:	0x0 / 0x2710	---

## 5.3.159 P-0-0492, Symbol-based patch function 1, data source

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is used to select a variable of the PLC. This variable can be read via the "Symbol-based patch function 1, display".

Access to the variable is achieved via the symbol name which has the following syntax:

<application name>.<POU name>.<variable name>

The display format can be attached to the symbol name in the form of a string, separated by a comma.

Example entry of a symbol string:

Application.GVL.dwCounter,16# (data type is known; hexadecimal display format)

«Up to MPx-17VRS: This parameter is used to select a memory location of the PLC. This memory location can be read via the "PLC patch function 1, display". The address is selected from the symbol file of the PLC using "area/offset". The data type (sign, number of bytes) and the display format can be attached to the address selected in the form of a string and separated by a comma. »

The following aspects must be observed for input:

- The UTF-8 character set can be written to this parameter.
- Maximum size: 256 bytes
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign

## Product-Specific Parameters

DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also Functional Description "Patch Function"

### P-0-0492 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.3.160 P-0-0493, Symbol-based patch function 1, display

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter displays the content of a variable that has been selected via the PLC patch function.

See also Functional Description "Patch Function"

### P-0-0493 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.3.161 P-0-0494, Symbol-based patch function 2, data source

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter is used to select a variable of the PLC. This variable can be read via the "Symbol-based patch function 2, display".

Access to the variable is achieved via the symbol name which has the following syntax:

<application name>.<POU name>.<variable name>

The display format can be attached to the symbol name in the form of a string, separated by a comma.

Example entry of a symbol string:

## Product-Specific Parameters

Application.GVL.dwCounter,16# (data type is known; hexadecimal display format)

«Up to MPx-17VRS: This parameter is used to select a memory location of the PLC. This memory location can be read via the "PLC patch function 2, display". The address is selected from the symbol file of the PLC using "area/offset". The data type (sign, number of bytes) and the display format can be attached to the address selected in the form of a string and separated by a comma.

The following aspects must be observed for input:

- The UTF-8 character set can be written to this parameter.
- Maximum size: 256 bytes
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also Functional Description "Patch Function"

## P-0-0494 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.3.162 P-0-0495, Symbol-based patch function 2, display

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		«MPC»
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter displays the content of a variable that has been selected via the PLC patch function.

See also Functional Description "Patch Function"

Product-Specific Parameters

<b>P-0-0495 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		---	
		<b>MPC:</b>	--- / ---		---	
		<b>MPE:</b>	--- / ---		---	
		<b>MPM:</b>	--- / ---		---	

### 5.3.163 P-0-0496, Symbol-based patch function 3, data source

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter is used to select a variable of the PLC. This variable can be read via the "Symbol-based patch function 3, display".

Access to the variable is achieved via the symbol name which has the following syntax:

<application name>.<POU name>.<variable name>

The display format can be attached to the symbol name in the form of a string, separated by a comma.

Example entry of a symbol string:

Application.GVL.dwCounter,16# (data type is known; hexadecimal display format)

**«Up to MPx-17VRS:** This parameter is used to select a memory location of the PLC. This memory location can be read via the "PLC patch function 3, display". The address is selected from the symbol file of the PLC using "area/offset". The data type (sign, number of bytes) and the display format can be attached to the address selected in the form of a string and separated by a comma.

The following aspects must be observed for input:

- The UTF-8 character set can be written to this parameter.
- Maximum size: 256 bytes
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

## Product-Specific Parameters

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also Functional Description "Patch Function"

<b>P-0-0496 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			s. Text	
<b>MPC:</b>		--- / ---			s. Text	
<b>MPE:</b>		--- / ---			s. Text	
<b>MPM:</b>		--- / ---			s. Text	

## 5.3.164 P-0-0497, Symbol-based patch function 3, display

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM» «MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM» «MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter displays the content of a variable that has been selected via the PLC patch function.

See also Functional Description "Patch Function"

<b>P-0-0497 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.3.165 P-0-0498, Symbol-based patch function 4, data source

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM» «MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM» «MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is used to select a variable of the PLC. This variable can be read via the "Symbol-based patch function 4, display".

Access to the variable is achieved via the symbol name which has the following syntax:

<application name>.<POU name>.<variable name>

The display format can be attached to the symbol name in the form of a string, separated by a comma.

Example entry of a symbol string:

Application.GVL.dwCounter,16# (data type is known; hexadecimal display format)

**«Up to MPx-17VRS:** This parameter is used to select a memory location of the PLC. This memory location can be read via the "PLC patch function 4, display". The address is selected from the symbol file of the PLC using "area/offset". The data type (sign, number of bytes) and the display format can be

## Product-Specific Parameters

attached to the address selected in the form of a string and separated by a comma.

The following aspects must be observed for input:

- The UTF-8 character set can be written to this parameter.
- Maximum size: 256 bytes
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.

The following data types are supported:

BOOL	1 byte
BYTE, USINT	1 byte without sign
SINT	1 byte with sign
WORD, UINT	2 bytes without sign
INT	2 bytes with sign
DWORD, UDINT	4 bytes without sign
DINT	4 bytes with sign
REAL	4 bytes

The following output formats can be evaluated:

2#	Binary display
10#	Decimal display
16#	Hexadecimal display

See also Functional Description "Patch Function"

### P-0-0498 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.3.166 P-0-0499, Symbol-based patch function 4, display

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter displays the content of a variable that has been selected via the PLC patch function.

See also Functional Description "Patch Function"

### P-0-0499 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---

## Product-Specific Parameters

MPE:	---	---	---
MPM:	---	---	---

## 5.4 P-0-0501 to P-0-0689 General Functions

### 5.4.1 P-0-0506, Amplitude for angle acquisition

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter presets the start value for the amplitude of the test signal for the automatic commutation offset determination methods with current.

See also Functional Description "Commutation Setting"

**Use** The value for this parameter is stored. It can be changed for adjustment purposes.

This parameter takes effect for commutation setting by means of saturation method and sine-wave method:

- When the saturation method is activated, this parameter is a voltage value, unit "V".
- When the sine-wave method is activated, this parameter is a torque/force value with unit "%". The reference value 100% is the motor torque at standstill of the motor according to the data in "S-0-0086, Torque/force data scaling type".



The value for this parameter can be automatically generated by the controller. By the start value "0" further values are iteratively generated for P-0-0506 and "P-0-0507, Test frequency for angle acquisition" until the commutation offset determination is successfully completed. After the iteration the values are stored and used for every further commutation offset determination.

See also Parameter Description "S-0-0086, Torque/Force data scaling type"

See also Parameter Description "P-0-0522, Control word for commutation setting"

P-0-0506 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	V	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5

Input	min./max.	Default value
MPB:	0 / 1000	0
MPC:	0 / 1000	0
MPE:	0 / 1000	0
MPM:	0 / 1000	0

### 5.4.2 P-0-0507, Test frequency for angle acquisition

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter sets the start frequency of the test signal for the automatic commutation offset determination.

See also Functional Description "Commutation Setting"

## Product-Specific Parameters

**Use** The value for this parameter is stored. It can be changed for adjustment purposes.



The value for this parameter can be automatically generated by the controller. By the start value "0" further values are iteratively generated for "P-0-0506" and "P-0-0506, Voltage amplitude for angle acquisition" until the commutation offset determination is successfully completed. After the iteration the values are stored and used for every further commutation offset determination.

### P-0-0507 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Hz	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	0 / 1000	500
MPC:	0 / 1000	500
MPE:	0 / 1000	500
MPM:	0 / 1000	500

## 5.4.3 P-0-0508, Commutation offset

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** In case of synchronous motors with encoder data memory, which are delivered with fixed mechanical configuration of rotor and absolute encoder system, this value is determined once at the factory and stored in the motor encoder "P-0-3008, Commutation offset, encoder memory".

During initialization, after switchon and after the encoder memory has been detected, the parameter value is automatically loaded to the controller, and the motor is immediately ready for operation with drive enable. Parameter "P-x-0508" depends on the parameter set, i.e., parameter "P-0-3008" is loaded to the active parameter set of P-x-0508.

This value is determined once by the axis for synchronous kit motors with absolute measuring system and stored in the controller in parameter "P-0-0508" and, if available, in "P-0-3008" of the motor encoder memory).

See also Functional Description "Commutation Setting"

**Use** In case of synchronous kit motors with incremental measuring system, the commutation offset must be re-determined each time the drive is switched on. After drive enable a procedure for determining the correct value for the effective commutation offset (P-0-0521) is automatically started. After this procedure has been completed successfully, the motor is able to produce force. The commutation setting procedures that can be selected are the saturation method and the sine-wave method.

It is preferable to use the saturation method because it runs without motion. During the subsequent homing procedure of the incremental measuring system, during spindle positioning or with active cyclic reference mark monitoring, a commutation offset fine adjustment is carried out. To achieve this, the value of "P-0-0521" converted to the reference mark is compared with "P-x-0508" and corrected if necessary. The motor then runs with the optimum commutation offset from "P-0-3008"/"P-x-0508" which was determined during initial commissioning. The commutation fine adjust is deactivated if a value of "0" is entered in "P-0-0508".

## Product-Specific Parameters

In general, the values of "P-0-0521" and "P-x-0508" are different because "P-0-0521" is related to the position of the motor encoder at the time the drive is switched on and "P-x-0508" is related to the reference mark of the axis!



"P-x-0508" is only writable in parameterization mode and can only be indirectly edited for optimization purposes in initial commissioning mode using "P-0-0521, Effective commutation offset" while the drive is active.

The value for "P-x-0508" must be re-determined whenever

- the mechanical arrangement of the measuring system is changed in case of rotary motors or
- the primary and secondary parts are mechanically changed in case of kit motors.

This parameter is of no relevance for asynchronous motors.

## P-0-0508 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0 / 1024	0
MPC:	0 / 1024	0
MPE:	0 / 1024	0
MPM:	0 / 1024	0

## 5.4.4 P-0-0509, Commutation offset coarse

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	closed loop		
	<b>Device parameter:</b>	axis-specific		

**Function** When the motor is switched on, this parameter provides a functional commutation offset value for synchronous motors which are equipped with a low-resolution measuring system which, however, measures absolutely with respect to the pole pairs of the motor (e.g., digital Hall sensors).



The low-resolution absolute encoder system is a supplement for relative motor encoders.

With this commutation offset value, the motor is immediately functional after drive enable. However, reduced power must be expected.

The value must be determined on initial commissioning of the motor. Ideally, this must be done for a motor position which corresponds as precisely as possible to the position feedback value determined with low resolution (e.g., centrally in a 60° range with three digital Hall sensors). The value is stored in the controller. With "AF", it becomes immediately active in "P-0-0521, Effective commutation offset".



When the "reference-point-optimized commutation offset" is used after the motor has been recommissioned, the effective commutation offset (P-0-0521) achieves the quality of the value stored when the drive was commissioned for the first time. This results in a reproducible drive behavior with regard to the torque/force development.

See also Functional Description "Commutation Setting"

## Product-Specific Parameters

<b>P-0-0509 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		0 / 1024			0	
<b>MPC:</b>		0 / 1024			0	
<b>MPE:</b>		0 / 1024			0	
<b>MPM:</b>		0 / 1024			0	

### 5.4.5 P-0-0510, Rotor inertia

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Depending on "P-0-4014, Type of construction of motor", bit 9, the value of this parameter varies in its significance:

- Rotor inertia (without load inertia) in case of rotary motors
- Primary part mass (without load mass) in case of linear motors



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

See also Functional Description "Motor, Mechanical Axis System Measuring Systems"

See also Functional Description "Automatic Setting of Axis Control"

#### **Use Unit, decimal places**

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor (rotary or linear) entered in "P-0-4014, Type of construction of motor".

Unit for type of constr. of motor (P-0-4014)		Decimal places for type of constr. of motor (P-0-4014)	
Rotary	Linear	Rotary	Linear
kgm <sup>2</sup>	kg	5	5

Tab.5-114: Unit and Decimal Places of P-0-0510, Depending on P-0-4014

**This parameter is used for:**

- Automatic control loop setting (C1800)
- Sensorless, flux-controlled operation of asynchronous motors

If none of the mentioned cases is used, it is not obligatory to enter a value!

**Automatic control loop setting**

## Product-Specific Parameters

The rotor inertia or motor mass is important, in conjunction with the load inertia or load mass, for optimizing the velocity control loop.

**Sensorless, flux-controlled operation of asynchronous motors (FXC)**

For sensorless, flux-controlled operation of asynchronous motors, the value of the rotor inertia is important, in conjunction with the (motor-related) load inertia, for the setting of the frequency loop.



Automatic control loop setting (C1800) and sensorless, flux-controlled operation of asynchronous motors are mutually exclusive!

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

**P-0-0510 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	kgm <sup>2</sup>	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	7
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
<b>MPB:</b>	0,0000000 / 429,4967295	0,0000000
<b>MPC:</b>	0,0000000 / 429,4967295	0,0000000
<b>MPE:</b>	0,0000000 / 429,4967295	0,0000000
<b>MPM:</b>	0,0000000 / 429,4967295	0,0000000

## 5.4.6 P-0-0512, Temperature sensor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The controller monitors the motor temperature by means of temperature sensors installed in the motor. The controller can directly evaluate standard temperature sensors, because the characteristics of the sensors are stored in the firmware.

See also Functional Description "Motor Temperature Monitoring"

**Use**

The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

The temperature sensor type evaluated by the controller is defined by the parameter value:

Parameter value	Function	Comment
0	No monitoring of the motor temperature	
1	SNM150-DK, by Thermik (PTC with switching performance, three-core circuitry)	

Product-Specific Parameters

Parameter value	Function	Comment
2	K227, by Siemens (NTC, analog characteristic)	
3	KTY84, by Siemens (PTC, analog characteristic)	
4	SNM130-DK, by Thermik (PTC with switching performance, three-core circuitry)	
5	Temperature sensor for Bosch SF motors (NTC)	
6	Temperature sensor with switching performance (bi-metal)	As of MPx16V10
100	Unknown temperature sensor The characteristic must be entered in list parameter "P-0-0513, Temperature sensor characteristic".	

Tab.5-115: Supported Temperature Sensors

**NOTICE**

**Thermal damage**

In case of overload, the controller cannot protect motors without temperature sensor against thermal damage!

**P-0-0512 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	0 / s. Text	1
MPC:	--- / ---	1
MPE:	0 / s. Text	1
MPM:	0 / s. Text	1

## 5.4.7 P-0-0513, Temperature sensor characteristic

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** If a temperature sensor is to be evaluated the characteristic of which has not been stored in the firmware, the characteristic has to be entered in this parameter in the form of a value table.

See also Functional Description "Motor Temperature Monitoring"

**Use** The values must be strictly and monotonously ascending or descending, i.e. in the table the values assigned to an increasing temperature must either be always higher than all preceding values or always lower than all preceding values. In the table, the values must not descend and ascend in different sections of the table!

Row no. of P-0-0513	Temperature in °Celsius [°C]	Resistance value in ohm [Ω]
1	-20	
2	-10	
3	0	
4	10	

## Product-Specific Parameters

Row no. of P-0-0513	Temperature in °Celsius [°C]	Resistance value in ohm [Ω]
5	20	
6	30	
7	40	
8	50	
9	60	
10	70	
11	80	
12	90	
13	100	
14	110	
15	120	
16	130	
17	140	
18	150	
19	160	
20	170	
21	180	
22	190	
23	200	
24	210	
25	220	
26	230	
27	240	
28	250	

Tab.5-116: List for Temperature Sensor Characteristic

See also Parameter Description "P-0-0512, Temperature sensor"

## P-0-0513 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Ohm	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	0 / 500000000	s. Text
MPC:	0 / 500000000	s. Text
MPE:	0 / 500000000	s. Text
MPM:	0 / 500000000	s. Text

## 5.4.8 P-0-0516, Commutation speed smoothing time constant

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		«MPC»
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

Product-Specific Parameters

**Function** The commutation speed can be smoothed by entering a time constant which exceeds the sampling time of the velocity controller. The commutation speed is used to improve the dynamic behavior in current control mode.

**Use** The commutation speed should only be smoothed if a position signal with poor resolution is present and mechanical resonance points are therefore excited. The dynamics of the current control is deteriorated by using a high filter time constant.

P-0-0516 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0 / 8000	0
<b>MPC:</b>	0 / 8000	0
<b>MPE:</b>	0 / 8000	0
<b>MPM:</b>	0 / 8000	0

## 5.4.9 P-0-0517, Commutation: Required harmonics component

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter serves as threshold to determine a minimum harmonic content of the current at commutation determination due to the saturation method.

**Use** Is the percentage based harmonic content of the current relating on the fundamental wave during the automatic commutation determination smaller than the entered value in "P-0-0517", will this lead to a wrong result for "P-0-0521, Effective commutation offset " which can result in a positive feedback of the motor (F8078 Speed loop error). The drive interrupts the command with the command error "F8013" or "C1218 Automatic commutation: Current too low".



In most cases, the default value of 4% must not be changed. Only for exceptional cases, this threshold value must be iteratively adjusted for start up.

- If the error "F8013" or "C1218 Automatic commutation: Current too low " occurs, and if similar values (+/- ca. 30) for "P-0-0521" at reiterated commutation adjustments for several motor positions (drive stays in "Ab") can be determined, then reduce "P-0-0517" so far, until the error message does not occur anymore. Finally, check the correct functions of the commutation adjustment repeatedly!
- If the "error F8078 Speed loop error " occurs, although the commutation determination has no error signalled, increase the parameter "P-0-0517"!

P-0-0517 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
<b>MPB:</b>	1,0 / 10,0	4,0
<b>MPC:</b>	1,0 / 10,0	4,0
<b>MPE:</b>	1,0 / 10,0	4,0
<b>MPM:</b>	1,0 / 10,0	4,0

## Product-Specific Parameters

## 5.4.10 P-0-0518, C5600 Command subsequent optimization of commutation offset

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This command is used to subsequently optimize the commutation offset which was previously determined by means of sine-wave method or saturation method.



The command can only be executed in control (status "AF").

P-0-0518 - Attributes	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.4.11 P-0-0519, Commutation status word

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The current status of the commutation setting of the connected motor is diagnosed in the commutation status word.

When motors with digital Hall sensors and relative motor encoder are used, the signal state of the Hall sensor signals is displayed via bits 12..14.

See also Functional Description "Commutation Setting"

Bit	Status message	
0	<b>Generation of the value of "P-0-0521, Effective commutation offset"</b> 0: Communication offset not active 1: Application of "P-0-0509, Commutation offset coarse" (reduced capacity, at least 87%) or automatic calculation by means of "AF"	
1	<b>Reference-point-optimized commutation offset</b> 0: Not active 1: Active – correction value was determined and added to "P-0-0521"; full capacity according to initial commissioning, 100%!	

Product-Specific Parameters

2	<b>Optimization and calibration of P-0-0521, Effective commutation offset</b> <b>0:</b> None <b>1:</b> Carried out – "C1200 Commutation offset setting command" or "C5600 C5600 Command subsequent optimization of commutation offset" or "Hall sensor edge adjustment", capacity almost that of initial commissioning, approx. 97% !	
11... 3	Reserved	
14/13/12	<b>Signal status of Hall sensors:</b> ("0" = low, "1" = high) <b>Bit 12:</b> S1 <b>Bit 13:</b> S2 <b>Bit 14:</b> S3	Up to MPx-17VRS Only if "initial commissioning mode" is active
15	Reserved	

Tab.5-117: P-0-0519, Commutation status word

P-0-0519 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.4.12 P-0-0521, Effective commutation offset

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the case of synchronous motors, the value of the commutation offset that is currently active in the drive is displayed in this parameter. This value refers to the actual position value of the motor encoder at the time the drive is switched on.

See also Functional Description "Commutation Setting"

**Use** In the initial commissioning mode (to be set in "P-0-0522, Commutation setting control word") this value can be written with immediate effect and can be used for optimization.



Optimization is carried out by measuring the drive force with constant force command value and variation of the automatically determined value of P-0-0521. The value with which the highest force was reached is the optimum value!

Based on the automatically determined value, the value of P-0-0521 should be changed by a maximum of +/-256!

During the initial commissioning of synchronous motors with incremental measuring system the value of P-0-0521 converted to the home point is taken over to "P-0-0508, Commutation offset" when executing "S-0-0148, C0600 Drive-controlled homing procedure command".

During the initial commissioning of synchronous motors with absolute measuring system the value of P-0-0521 is directly taken over to P-0-0508 when

## Product-Specific Parameters

the command "P-0-0524, C1200 Commutation offset setting command" is executed.

If an encoder data memory is available the commutation offset is also stored in "P-0-3008, Commutation offset, encoder memory".

## P-0-0521 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 1024	---
MPC:	0 / 1024	---
MPE:	0 / 1024	---
MPM:	0 / 1024	---

## 5.4.13 P-0-0522, Control word for commutation setting

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter defines the behavior which is used to determine the commutation offset. In case of motors featuring an absolute motor encoder, this is achieved when "P-0-0524, C1200 Commutation offset setting command" is started. In case of motors featuring a relative motor encoder, this is achieved after drive enable (AF) has been set for the first time.

See also Functional Description "Commutation Setting"

## Structure

Bit	Designation/function	Comment
1/0	<b>Commutation setting method</b> 00: Disabled 01: <b>Measuring method</b> – manual distance measurement for Rexroth linear motors, currentless (without AF) 10: <b>Saturation method</b> – automatic determination with all synchronous motor designs, with current 11: <b>Sine-wave method</b> – automatic determination with all synchronous motor designs, with current	
4	<b>Search direction for sine-wave method</b> 0: Increase of amplitude with priority 1: Increase of frequency with priority	
5	<b>Return travel to the start position when sine-wave and saturation methods are used</b> 0: Automatical return travel 1: No return travel	
6	Reserved	
7	<b>Settings for the test signal with sine-wave method</b> 0: Fixed duration 1: Fixed number of signal periods	

Product-Specific Parameters

Bit	Designation/function	Comment
8	<b>Behavior of the holding brake with sine-wave method</b> <b>0:</b> Brake remains applied <b>1:</b> Brake is released	
9	<b>Utilization of the encoder memory for commutation offset</b> <b>0:</b> The existing encoder memory is used to save (storage on initial commissioning) and read (provision for recommissioning) of the motor-type-specific commutation offset. <b>1:</b> The controller does <b>not use</b> the existing encoder memory for the commutation offset. The value of the commutation offset is directly provided by the parameter set of the axis (for motors with motor-type-specific commutation offset).	
10	<b>Rotary synchronous motor with relative motor encoder and one reference mark per motor revolution:</b> <b>Effective commutation offset (P-0-0521), automatic optimization:</b> <b>0:</b> No optimization of the value of "P-0-0521"; the value of P-0-0521 that is automatically generated by "AF" remains as it is <b>1:</b> Optimization of the value of "P-0-0521" by adding a correction value when the reference mark of the motor encoder is crossed See also Functional Description "Recommissioning a Synchronous Motor" <b>Requirements:</b> <ol style="list-style-type: none"> <li>"The cyclic marker evaluation" must be activated in S-0-0277.</li> <li>Storage of the commutation offset that has been optimized during initial commissioning, by crossing the reference mark of the motor encoder in "initial commissioning mode" (bit 10 and bit 15 = 1)</li> </ol>	

## Product-Specific Parameters

Bit	Designation/function	Comment
11	<p><b>Synchronous motor with relative motor encoder and several reference marks or none per motor revolution or linear motor travel range:</b></p> <p><b>Effective commutation offset (P-0-0521), automatic optimization when the position data reference is established (drive-controlled homing):</b></p> <p><b>0:</b> No optimization; the value of P-0-0521 that is automatically generated by "AF" remains as it is</p> <p><b>1:</b> Optimization of the value of P-0-0521 by adding a correction value</p> <p>See also Functional Description "Recommissioning a Synchronous Motor"</p> <p><b>Requirement:</b> Storage of the commutation offset that was optimized during initial commissioning in relation to the homing reference point, by "C0600 Drive-controlled homing procedure command" in "initial commissioning mode" (bit 11 and bit 15 = "1")</p>	
15	<p><b>Initial commissioning mode</b></p> <p><b>0:</b> Inactive</p> <p><b>1:</b> Active</p>	

Tab.5-118: Relevant Bits of P-0-0522, Control word for commutation setting

## Initial commissioning mode

Bit 15 = "1" is used to inform the controller that a synchronous motor is commissioned for the first time. This allows optimizing and storing the value of the effective commutation offset (P-0-0521). Once bit 15 is "0" again, P-0-0521 can neither be changed manually nor stored.

## Storing the Commutation Offset

**Motors with absolute motor encoder:**

The value of the effective commutation offset (P-0-0521) is directly applied to "P-0-0508, Commutation offset" while "initial commissioning mode is active". Manual changes to "P-0-0521" are also saved in "P-0-0508". If an encoder data memory is available, the content of "P-0-0508" is also stored in "P-0-3008 Commutation offset, type plate".

The optimized value takes immediate effect when the motor is switched on again.

**Motors with relative motor encoder:**

Depending on the motor and motor encoder design, the effective commutation offset (P-0-0521) is determined and optimized while "initial commissioning mode" is active. Subsequently, this value can be stored in "P-0-0508" to restore the quality of the commutation offset that was achieved during initial commissioning when the motor is recommissioned:

- If the reference mark is crossed while the "cyclic marker evaluation" (S-0-0277) is activated in case of motors with one reference mark per motor revolution, the controller stores the value of "P-0-0521" (converted for the mark) to "P-0-0508, Commutation offset".
- If, in case of motors with several reference marks or none per motor revolution or linear motor travel range, the homing reference point is crossed by executing "S-0-0148, C0600 Drive-controlled homing procedure command", the controller stores the value of P-0-0521 (converted for this reference point) to "P-0-0508, Commutation offset".

## Product-Specific Parameters

### Determining the Correction Value

During recommissioning (initial commissioning mode inactive), the value stored in "P-0-0508" is compared with the value of the effective commutation offset (P-0-0521), wherein the value has been converted for the same reference position:

- In case of motors with one reference mark per motor revolution, as soon as the reference mark of the motor encoder has been crossed (cyclic marker evaluation must be activated in "S-0-0277").
- In case of motors with several reference marks or none per motor revolution or linear motor travel range, as soon as the homing reference point has been crossed after "C0600, Drive-controlled homing procedure command" has been started.

### Optimizing the Commutation Offset Value

If the result of the comparison is plausible, the difference of the two values is added to the current value of P-0-0521. As a result, the quality of the now effective commutation offset corresponds to the value stored on initial commissioning.

### Sine-Wave Method

The sine-wave method which requires unrestricted movement can only be used for freely moving axes (see "Restrictions for Sine-Wave Method" in chapter "Commutation Setting" of the Functional Description). Via bit 8, it must be allowed to release the holding brake, if any, while the commutation setting is made.

### WARNING

Vertical axes without weight compensation may move down when the function of releasing the holding brake is activated on start of the sine-wave method (e.g. with first "AF" in case of a relative motor encoder).

⇒ The sine-wave method can only be used for equilibrated axes!



If the "sine wave method" with current was selected, bit 7 can be used to considerably reduce the time required for commutation setting if "fixed number of signal periods" is selected and the values of "P-0-0507, Test frequency for angle acquisition" are > approx. 50.

Using this setting is only recommended for synchronous motors with relative motor encoder in conjunction with "reference-point-optimized commutation offset", because the quality of the determined commutation setting can be poor.

### Saturation Method

The saturation method requires that the motor shaft or axis is at standstill (ideally it is fixed). The saturation method is also subject to restrictions which must be observed (see "Restrictions for Saturation Method" in chapter "Commutation Setting" of the Functional Description). The holding brake, if any, must always be applied while the commutation setting is made.



This parameter is stored.

### P-0-0522 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
Input	min./max.			Default value	
MPB:	--- / ---			0x0	
MPC:	--- / ---			0x0	

## Product-Specific Parameters

MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.4.14 P-0-0523, Commutation setting measured value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** If the commutation setting for synchronous linear motors with absolute measuring system should be carried out in a currentless way (can be set in P-0-0522, Control word for commutation setting), then the defined distance measure can be entered here.

See Functional Description "Synchronous Linear Motors"



The currentless commutation setting only makes sense in the case of synchronous linear motors with absolute measuring system, because the distance measurement is only carried out once during the initial commissioning. The determined value is stored and in connection with the absolute measuring system it automatically causes the current and magnetic field to be correctly coordinated in the motor at each new start of the machine axis.

See also Functional Description "Rexroth Kit Motors"

P-0-0523 - Attributes	Function:	Par	Editable:	OM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	mm	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-214748364,8 / 214748364,7---	
MPC:	-214748364,8 / 214748364,7---	
MPE:	-214748364,8 / 214748364,7---	
MPM:	-214748364,8 / 214748364,7---	

## 5.4.15 P-0-0524, C1200 Commutation offset setting command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** By means of parameter "P-0-0524" it is possible to activate the command for setting the commutation offset.

See also Functional Description "Commutation Setting".

**Use** After starting the command, the drive automatically determines the value for the commutation offset of the synchronous motor and stores it in "P-0-0521, Effective commutation offset ". With the initial commissioning mode activated (see P-0-0522, Control word for commutation setting) and absolute motor encoder the value is stored in "P-0-0508, Commutation offset ". If an encoder memory is available, the commutation offset is also stored in "P-0-3008, Commutation offset, type plate".

The correct value for the commutation offset causes the appropriate assignment of the current flow in the motor to the permanent magnetic field so that the maximum force is caused by the flowing current.

Product-Specific Parameters



This command is only required for synchronous motors that are delivered without fixed, mechanical assignment of the rotor or movable part of the motor to the encoder system (e.g. synchronous kit motors).

P-0-0524 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

## 5.4.16 P-0-0525, Holding brake control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	---			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter informs the controller of the type of holding brake and the way it is controlled.

- Self-releasing or self-holding brake
- Main drive brake or servo brake
- Activation of the "release holding brake" command



- In case of Rexroth motors with encoder data memory, bit 0 and bit 2 are set automatically.
- In case of motors without encoder data memory, bit 0 and bit 2 must be manually set to the appropriate value, depending on whether a holding brake is available.
- In case of motors without integrated holding brake, an external holding brake can be controlled by the controller (set bit 2 to "1"). Set bit 0 according to the type of holding brake!

See also Functional Description "Motor Holding Brake"

Structure

Bit	Designation/function	Comment
0	<b>Type of holding brake</b> 0: Self-holding, applied at 0 V 1: Electrically holding, applied at 24 V	
1	<b>Functional principle</b> 0: Servo brake, brake is activated after max. braking time 1: Main drive brake, brake is only activated when $n_{act} < 10$ rpm	
2	<b>Holding brake available?</b> 0: No 1: Yes (external holding brake, if no motor-internal brake is available!)	

## Product-Specific Parameters

Bit	Designation/function	Comment
5	<b>Command "release holding brake" allowed</b> 0: No 1: Yes	
6	<b>Activate time interval of holding brake check?</b> 0: No 1: Yes	
7	<b>Activation of command "release holding brake" via control panel allowed?</b> 0: No 1: Yes	
8	<b>Wire break monitoring of holding brake</b> 0: Active, monitoring for wire break, if holding brake parameterized (default for HCS01) 1: Deactivated, no monitoring for wire break (default HCQ/HCT/HCS02/03)	As of MPx-16VRS Only IndraDrive Cs features wire break monitoring
10/9	<b>Test direction "C2100 Command Holding system check"</b> 00: Test in both directions (default) 01: Test in positive direction 10: Test in negative direction	
12	<b>Diagnostic message "Time interval of holding brake check"</b> Only possible in connection with bit 6 0: Active 1: Suppression of diagnostic message (E3115/F3115)	As of MPx-17VRS

Tab.5-119: Relevant Bits of P-0-0525

## P-0-0525 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0x0		
<b>MPC:</b>	--- / ---		0x0		
<b>MPE:</b>	--- / ---		0x0		
<b>MPM:</b>	--- / ---		0x0		

## 5.4.17 P-0-0526, Displacement during brake check

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** When command "Holding system check" is executed, a torque at applied holding brake is specified. This torque specification results in a change in position. This change in position in the individual phases of torque specification is stored in the particular list elements.

## Product-Specific Parameters



When the brake test is started, 0 is written to the values of the parameter.

**Structure** Structure of the list parameter:

List element	Function	Comment
0	Position displacement during test of motor brake and positive torque specification	
1	Position displacement during test of motor brake and negative torque specification	
2	Reserved	
3	Reserved	

Tab.5-120: P-0-0526.000.000, Displacement during brake check

With certain brake types, the position displacement is a measure for the wear of the brake.

**P-0-0526 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.4.18 P-0-0527, Actual holding brake current

**Allocation**

Contained in 16VRS:	«MPB»	«MPE»	«-»
Contained in 17VRS:	«MPB»	«MPE»	«-»
Contained in 18VRS:	«MPB»	«MPE»	«MPC»
Hardware	--		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

**Function**

This parameter displays the currently effective actual holding brake current which flows through the brake connected to the controller.



This parameter is for display only. It is impossible to parameterize the holding brake current monitoring.



This parameter is only used with IndraDrive Cs (HCS01) and HCP.

**P-0-0527 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	A	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.4.19 P-0-0528, Flux control loop proportional gain

**Allocation**

Contained in 16VRS:	«MPB»	«MPE»	«MPM»
Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Contained in 18VRS:	«MPB»	«MPE»	«MPC»

## Product-Specific Parameters

	<b>Hardware</b>	--
	<b>Funct. package(s):</b>	"open loop", "closed loop"
	<b>Device parameter:</b>	axis-specific
<b>Function</b>	For asynchronous motors, the gain of the flux loop is entered in this parameter.	
	See also Functional Description "Field-Oriented Closed-Loop Current Control"	
<b>Use</b>	In the case of asynchronous motors, the rotor flux is the product of motor magnetizing inductance and magnetizing current. The rotor flux, however, only occurs with a delay via the rotor time constant. The task of the flux loop is to generate the rotor flux command value as quickly as possible by the corresponding overshoot of the magnetizing current. The flux-loop was realized as a P-loop with command value feedforward as is illustrated in the figure below. The controller output is divided by the current magnetizing inductance, the result is the id command value for the current loop. The double nominal magnetizing current is considered to be the limit value for the id command value.	

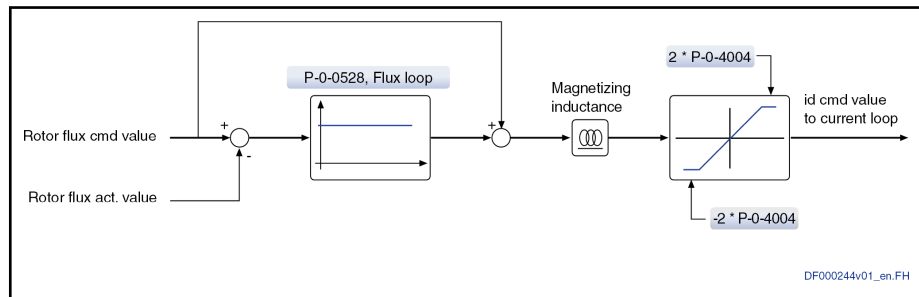


Fig. 5-121: Flux Loop

For dynamic applications, the flux loop gain can be determined from the motor data according to the following estimate formula.

$$P-0-0528 = 0.4 \cdot \frac{L_H}{L_{\sigma S} + L_{\sigma R}} = 0.4 \cdot \frac{P-0-4041}{P-0-4039 + P-0-4040}$$

Fig. 5-122: Formula for Determination of Flux Loop Proportional Gain

For less dynamic applications or if the id command value P-0-0039 has the tendency to oscillate, this value can be reduced. Basically it is also possible to run without flux loop, in this case make the setting P-0-0528 = 0.

<b>P-0-0528 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		0,00 / 100,00		1,00		
<b>MPC:</b>		0,00 / 100,00		1,00		
<b>MPE:</b>		0,00 / 100,00		1,00		
<b>MPM:</b>		0,00 / 100,00		1,00		

### 5.4.20 P-0-0529, Scaling of stall current limit

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	The stall current limit is the limit for the torque-generating current of asynchronous motors.				

## Product-Specific Parameters

See also Functional Description "Field-Oriented Closed-Loop Current Control"

**Use** With higher currents the torque at the shaft is reduced. In practical application this limit is only important in the upper field weakening range when the magnetizing current has very low values. The determining elements of the stall current limit are the inductances of the equivalent circuit diagram (P-0-4039, P-0-4040, P-0-4041) and the active rotor flux that is generated in the stationary case from the magnetizing current  $i_d$ .

$$i_{q,lim} = \frac{1}{\sigma} * \frac{P_{si} i_d}{L_H} = \frac{P-0-4041}{P-0-4039 + P-0-4040} * i_d$$

$i_{q,lim}$ : stall current limit for torque-generating current

$\sigma$ : leakage factor of the asynchronous motor

Fig.5-123: Stall current limit of an asynchronous machine

With the value set in P-0-0529 it is possible to change the stall current limit relatively. With the setting P-0-0529 = 100% it is exactly the limit value defined above that takes effect, lower values are reducing the stall current limit accordingly. For Bosch Rexroth motors the parameter value is stored in the "DriveBase". For third-party motors it is recommended to make the input via the motor type plate P-0-4032. The command "P-0-4033, C3200 Command Calculate data for asynchronous motor" also calculates the value for P-0-0529.

### P-0-0529 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	10 / 150		100		
<b>MPC:</b>	10 / 150		100		
<b>MPE:</b>	10 / 150		100		
<b>MPM:</b>	10 / 150		100		

## 5.4.21 P-0-0530, Slip increase

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Function</b>	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is only used with asynchronous motors. In asynchronous motors, the rotor resistance and therefore the rotor time constant change with temperature.

See also Functional Description "Field-Oriented Current Control"

**Use** The rotor time constant is included in the calculation of the load-dependent slip value that is required for torque output. The rotor time constant that varies depending on the temperature is compensated by a temperature-dependent slip increase.

The value of the slip increase (in relation to 100 K temperature difference) is motor-specific and is individually defined for each asynchronous motor type.

## Product-Specific Parameters



Writing the correct value to this parameter:

- In case of Rexroth motors with encoder data memory: The value is loaded automatically.
- In case of Rexroth motors without encoder data memory: By loading the motor parameters using the "IndraWorks Ds/D/MLD" commissioning software.
- In case of other motors: Manual entry.

### P-0-0530 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	1/100K	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
<b>MPB:</b>	1,00 / 2,00	1,50
<b>MPC:</b>	1,00 / 2,00	1,50
<b>MPE:</b>	1,00 / 2,00	1,50
<b>MPM:</b>	1,00 / 2,00	1,50

## 5.4.22 P-0-0532, Premagnetization factor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter can be used to reduce the magnetizing current of an asynchronous motor and therefore the rotor flow. The factor refers to "P-0-4004, Magnetizing current".

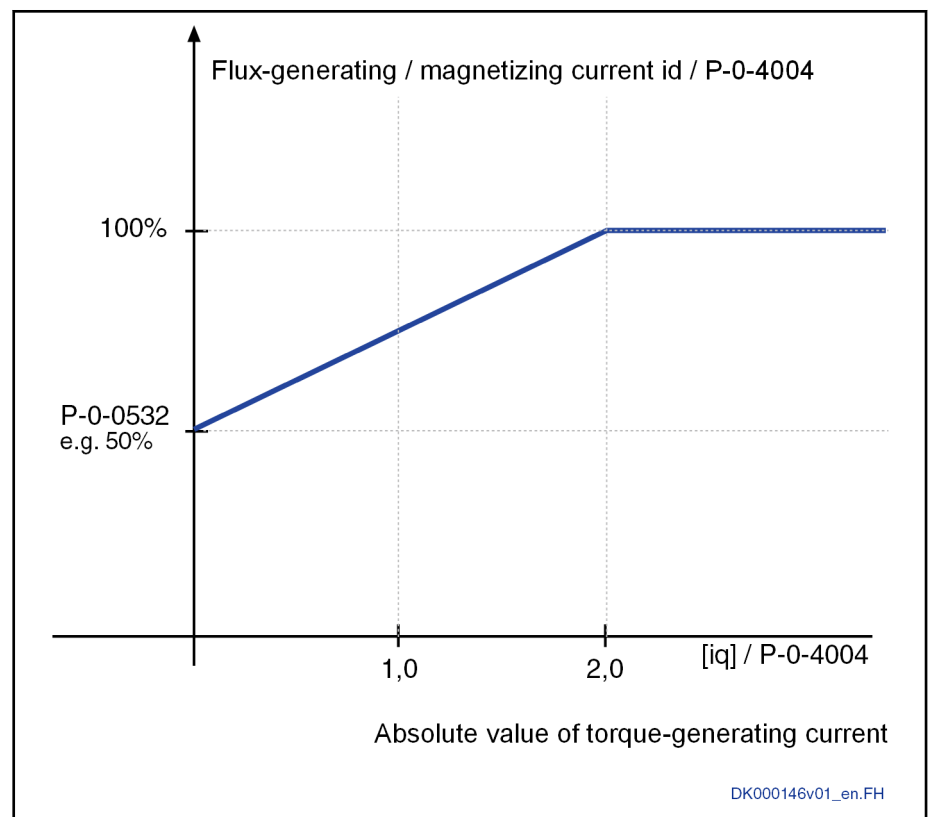
See also Functional Description "Motor, Mechanical Axis System, Measuring Systems"

**Use** The magnetizing current is reduced subject to the setting of the appropriate bit in "P-0-0045, Control word of current controller".

- Load-dependent (default), or
- Load-independent

### Load-dependent magnetizing current reduction

In no-load mode, the magnetizing current "P-0-4004" can be reduced to the percentage specified in "P-0-0532". Possible values range from 50% to 100%. If under load, the magnetizing current increases proportionally to the required torque or torque-generating current. If the torque-generating current reaches a value that is twice as high as that of "P-0-4004", the full magnetizing current (value of P-0-4004) is flowing, irrespective of the value of the pre-magnetization factor "P-0-0532". The motor reaches the maximum possible torque.



$i_d$  Flux-generating current [P-0-0039]

$i_q$  Torque-generating current [P-0-0038]

Fig.5-124: Load-dependent operating principle of the premagnetization factor

### Load-Independent Magnetizing Current Reduction

The magnetizing current of an asynchronous motor can also be reduced or increased continuously, i.e. independent of the currently effective load. The values that be set range from 50% to 150%.

- If values are less than 100%, the torque output at the motor shaft is delayed as compared with the command value. The motor torque available with maximum allowed or possible current can also be reduced.
- If values are greater than 100%, the maximum available torque may also be reduced because the content of the torque-generating current in the total current is lower because of the increased magnetizing current. If the magnetizing current is increased, there may be saturation effects in the magnetic circuit of the motor; in this case, there is no torque-strengthening effect.
- If load changes are known beforehand, the value of "P-0-0532" can be entered in the MDT for cyclic input, in order to be able to appropriately precontrol the possibly reduced magnetization of the motor by the control master. In this case, a brief overmagnetization with values greater than 100% may be useful for load peaks.



Writing the correct value to this parameter:

- By loading the motor parameters with the commissioning software (default value  $P-0-0532 = 50\%$ ) where 2AD, ADF and rotary kit motors are concerned.
- In case of other motors: default value or manual input.

## Product-Specific Parameters

## Notes on Application

## Spindle drives

When the magnetizing current is reduced, the motor is heated to a lesser degree and the development of noise is reduced in no-load mode. It is therefore recommended to set "P-0-0532" to a value less than 100%:

- ClosedLoop: 50% (load-dependent)
- OpenLoop: 70% (load-independent)

## Servo drives

It is recommended to set 100% for servo drives with asynchronous motors because the torque on the shaft is only available with a delay as compared with the command value if values are lower.



After "P-0-0532" has been set, it must be checked whether processing as well as acceleration and deceleration process achieve the desired result.

## P-0-0532 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	s. Text / s. Text		100		
<b>MPC:</b>	s. Text / s. Text		100		
<b>MPE:</b>	s. Text / s. Text		100		
<b>MPM:</b>	s. Text / s. Text		100		

## 5.4.23 P-0-0533, Voltage loop proportional gain

## Allocation

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

## Function

By means of this parameter the proportional gain of the voltage loop is entered. The voltage loop is used to control the motor voltage in the field-weakening range.



Writing the correct value to this parameter:

- In the case of MAD and MAF with encoder data memory automatically during initial commissioning.
- In the case of 2AD, ADF, linear and rotary kit motors, by loading the motor parameters with the commissioning software (e.g. IndraWorks).
- In the case of other motors: default value or manual input.

See also Functional Description "Third-Party Motors at IndraDrive Controllers"

## P-0-0533 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	A/V	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0,000 / s. Text		0,500		
<b>MPC:</b>	0,000 / s. Text		0,500		
<b>MPE:</b>	0,000 / s. Text		0,500		
<b>MPM:</b>	0,000 / s. Text		0,500		

## 5.4.24 P-0-0534, Voltage loop integral action time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to enter the integral action time of the voltage controller. The voltage controller serves to control the motor voltage in the field weakening range.



Writing the correct value to this parameter:

- In case of MAD and MAF with encoder data memory: Automatically on initial commissioning.
- In case of 2AD, ADF, linear and rotary kit motors: By loading the motor parameters using the "IndraWorks Ds/D/MLD" commissioning software.
- In case of other motors: default value or manual input.

See also Functional Description "Field-Oriented Current Control"

### P-0-0534 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

Input	min./max.	Default value
MPB:	0,0 / 6553,5	600,0
MPC:	0,0 / 6553,5	600,0
MPE:	0,0 / 6553,5	600,0
MPM:	0,0 / 6553,5	600,0

## 5.4.25 P-0-0535, Motor voltage at no load

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** As a matter of principle, this parameter only takes effect in field weakening mode. It defines a voltage that is indicated in percent of the maximum converter output voltage.

See also Functional Description "Determining the Parameter Values of Third-Party Motors"

**Use** Its function depends on the selected type of motor construction:

### 1) Asynchronous motor:

The parameter defines the voltage at no load of the motor in field weakening mode. This voltage is used to precontrol the command value of the rotor flux.

### 2) Synchronous motor:

The parameter defines the command value of the e.m.f. voltage for acceleration or deceleration processes in the field weakening range. Under certain circumstances, increased torque can be generated by reducing this value in these cases.

## Product-Specific Parameters



Writing the correct value to this parameter:

- In case of MAD and MAF with encoder data memory: Automatically on initial commissioning.
- In case of 2AD, ADF, linear and rotary kit motors: By loading the motor parameters using the "IndraWorks Ds/D/MLD" commissioning software.
- In case of other motors: Default value or manual input. The value set may not exceed 80% because of the control reserve required.

## P-0-0535 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0,0 / 100,0	80,0
MPC:	0,0 / 100,0	80,0
MPE:	0,0 / 100,0	80,0
MPM:	0,0 / 100,0	80,0

## 5.4.26 P-0-0536, Maximum motor voltage

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter defines the command voltage of the voltage controller. This voltage is specified in percent of the maximum converter output voltage.



Writing the correct value to this parameter:

- In case of MAD and MAF with encoder data memory: Automatically on initial commissioning.
- In case of 2AD, ADF, linear and rotary kit motors: By loading the motor parameters using the "IndraWorks Ds/D/MLD" commissioning software.
- In case of other motors: Default value or manual input. The value set may not exceed 90% because of the control reserve required.

See also Functional Description "Third-Party Motors at IndraDrive Controllers"

## P-0-0536 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	50,0 / 100,0	90,0
MPC:	50,0 / 100,0	90,0
MPE:	50,0 / 100,0	90,0
MPM:	50,0 / 100,0	90,0

## 5.4.27 P-0-0539, Holding brake status word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

Product-Specific Parameters

Funct. package(s): "open loop", "closed loop"  
Device parameter: axis-specific

**Function** This parameter displays the current status of the holding brake.  
See also Functional Description "Motor Holding Brake"

**Structure**

Bit	Designation/function	Comment
0	<b>Output voltage for holding brake</b> 0: 0V 1: 24V	
1	<b>Status of holding brake check</b> <b>0: Not successful:</b> Brake not released or insufficient holding torque or brake test required because the time elapsed since the previous test exceeds the value of "P-0-0550, Time interval holding system check". <b>1. Successful:</b> Brake release and holding torque checked and without error.	
2	<b>Test status "brake release"</b> <b>0:</b> Brake not released or brake release not checked or release check required, because the time elapsed since the previous test exceeds the value of "P-0-0550, Time interval holding system check". <b>1:</b> Brake has been released, further brake check not yet required.	
3	<b>Test status "holding torque"</b> <b>0:</b> Holding torque too low or holding torque not checked or holding torque check required, because the time elapsed since the previous test exceeds the value of "P-0-0550, Time interval holding system check". <b>1:</b> Holding torque is sufficient, further brake check not yet required.	
4	<b>Test status "motor holding brake output overload"</b> The overload protection of the motor holding brake connection is always active with connected motor holding brake. After control voltage has been switched on, the bit is initially set to "1". The status is updated when the holding brake (24 V) is activated. <b>0:</b> The holding brake current is inaccurate. There is a short-circuit or an overload. <b>1:</b> The holding brake current is okay.	As of MPx-16V20

## Product-Specific Parameters

Bit	Designation/function	Comment
5	<b>Test status "wire break"</b> While brake current monitoring is active, the bit is initially set to "1" after control voltage has been switched on. The status is updated when the holding brake (24 V) is activated. <b>0:</b> The holding brake current is inaccurate. There is a wire break or the holding brake current is too low. <b>1:</b> The holding brake current is okay, i.e. there is no wire break. The bit is "1" when brake current monitoring (P-0-0525, Holding brake control word) is deactivated.	As of MPx-16V20
6	Reserved	
7	<b>Nominal holding brake torque</b> <b>0:</b> The nominal holding brake torque (P-0-0540, Torque of holding brake) was not achieved during the brake test intended to check the holding torque (C2100 Holding system check command). <b>1:</b> The nominal holding brake torque (P-0-0540, Torque of holding brake) was achieved during the brake test intended to check the holding torque (C2100 Holding system check command).	As of MPx18V04

Tab.5-125: Relevant Bits of "P-0-0539, Holding brake status word"

## P-0-0539 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.4.28 P-0-0540, Torque of holding brake

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The nominal torque of the holding brake has to be entered in this parameter. With motor holding brake monitor active, the brake is checked with regard to this value unless this was differently set in the parameters "P-0-0545, Test torque for releasing holding system " and "P-0-0547, Nominal load of holding system ".

In the case of motors with holding brake and encoder data memory (Rexroth drives with encoder memory), the correct value is automatically written to the parameter "P-0-0540". In the case of motors without encoder data memory, the value has to be entered manually.

## P-0-0540 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Nm	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5

Input	min./max.	Default value
MPB:	0,0 / 6553,5	0,0

Product-Specific Parameters

MPC:	0,0 / 6553,5	0,0
MPE:	0,0 / 6553,5	0,0
MPM:	0,0 / 6553,5	0,0

## 5.4.29 P-0-0541, C2100 Holding system check command

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** With this command it is possible to check the holding brake.

**Use** For this purpose, drive enable is required. The holding brake is first released and the motor is controlled with the torque parameterized in "P-0-0545, Test torque for releasing holding system". If the motor does not move, the error message "C2108 Error when releasing the holding system" is output. If the motor moves (2 degrees), the brake is correctly released.



- The test moment of the holding system is according to the value in parameter "P-0-0547, Nominal load of holding system" \* 1.3. This is a safety factor, required by the government safety organization to ensure that the actual nominal load torque is kept, at least.
- To reestablish the holding torque of the holding system, you can use the command "P-0-0541, C2100 Holding system check command".

### NOTICE

Property damage caused by drive-controlled axis movements during brake check!

Before starting the command, move the axis to a noncritical position!

The holding torque of the brake is now checked. For this purpose, the brake is applied by the controller and the holding torque of the brake is generated by the motor. If the rotor does not move, the brake has the given holding torque. If the rotor moves (>2 degrees), the message "C2103 Brake torque too low" is output. The result of the brake check is displayed by 3 bits in "P-0-0539, Holding brake status word".

See also Functional Description "Motor Holding Brake"

P-0-0541 - Attributes	Function:	Cmd	Editable:	OM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		Input		min./max.	Default value	
		MPB:		--- / ---	---	
		MPC:		--- / ---	---	
		MPE:		--- / ---	---	
		MPM:		--- / ---	---	

## 5.4.30 P-0-0542, C2000 Command Release holding brake

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** By means of this parameter, it is possible to release the motor holding brake when drive enable has been switched off. At the start of the command, the

## Product-Specific Parameters

holding brake is released; upon completion of the command, the brake is applied again.

When drive enable is set with the command being active, the holding brake remains released; when drive enable is switched off, the brake, however, is automatically applied.



The command has to be enabled via bit 5 in "P-0-0525, Holding brake control word".

See also Functional Description "Motor Holding Brake"

## P-0-0542 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.4.31 P-0-0543, C3800 Command Apply holding brake

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** By means of this parameter, it is possible to apply the holding brake in communication phase 4.

See also Functional Description "Motor Holding Brake"

**Use** At the start of the command, the holding brake is applied. Upon completion of the command, the brake is released again, if drive enable has been set. When drive enable is removed with the command being active, the holding brake remains applied, even if the command is cleared. If drive enable is set when the command has been set, the brake is nevertheless released.

## P-0-0543 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.4.32 P-0-0544, C3900 Command Holding brake resurfacing

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** With this command, a holding brake, which no longer attains its holding torque, can be resurfaced. For this purpose, drive enable is required. During the execution of the command, the motor is moved against the applied brake.

See also Functional Description "Motor Holding Brake"

**Use** After the start of "C3900", the drive is accelerated to 100 min<sup>-1</sup> or 100 mm/min. Active acceleration and deceleration ramps, as well as filters (P-0-1201,

## Product-Specific Parameters

P-0-1202, P-0-1203, P-0-1211, P-0-1213 und P-0-1222) are taken into account! After the command velocity has been reached, the brake is applied for 400 ms. After that the drive is shut down by velocity control.

### NOTICE

**Property damage caused by drive-controlled axis movements during brake check!**

Before starting the command, move the axis to a noncritical position!



When using a redundant holding brake, you have to make sure that this brake has been released.

#### P-0-0544 - Attributes

Function:	Cmd	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

### 5.4.33 P-0-0545, Test torque for releasing holding system

#### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	closed loop			
Device parameter:	axis-specific			

#### Function

The first step of the command "C2100 Command Holding system check" checks the release of the holding system.

See also Functional Description "Motor Holding Brake"

#### Use

In this parameter you can set a test torque with which the drive is to move with the holding system released. If no movement is detected when P-0-0545 takes effect, an error message is output and the status "error when releasing the holding system" is set in "P-0-0539, Holding brake status word". If "P-0-0545, Test torque for releasing holding system" has been set to "0", the check is run with the value in "P-0-0540, Torque of holding brake".

#### P-0-0545 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		S-0-0086 / S-0-0086		0,0	
MPC:		S-0-0086 / S-0-0086		0,0	
MPE:		S-0-0086 / S-0-0086		0,0	
MPM:		S-0-0086 / S-0-0086		0,0	

### 5.4.34 P-0-0546, Starting torque for releasing holding system

#### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	closed loop			
Device parameter:	axis-specific			

#### Function

The first step of the "C2100 Brake check command" checks the release of the motor holding brake.

## Product-Specific Parameters

If the load due to weight is not sufficient for the motor to move, a torque is preset. The torque which results in motion is displayed in this parameter (the torque due to weight and the force due to weight are not contained in P-0-0546). The parameter is updated during every brake check.

See also Functional Description "Motor Holding Brake"

P-0-0546 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.4.35 P-0-0547, Nominal load of holding system

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		closed loop			
Device parameter:		axis-specific			

**Function** For monitoring the holding brake (C2100 Brake check command or automatically, as defined in P-0-0525), the motor generates test torques in order to check the releasing of the brake or its holding torque.

See also Functional Description "Motor Holding Brake"

**Use** When the holding torque of the brake is checked, the motor may not move under the effect of the test torque. Any possibly existing static axis load (e.g., weight) is recognized and taken into account.

If "P-0-0547" has been set to 0, the check is run with the value in "P-0-0540, Torque of holding brake".



The weight load of vertical axes should not exceed 50% of the nominal holding force of the holding system!



Observe the pertinent regulations of the particular institution for statutory accident insurance and prevention with regard to testing and dimensioning of axis holding systems!

P-0-0547 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		S-0-0086 / S-0-0086		0,0		
MPC:		S-0-0086 / S-0-0086		0,0		
MPE:		S-0-0086 / S-0-0086		0,0		
MPM:		S-0-0086 / S-0-0086		0,0		

## 5.4.36 P-0-0549, Oper. hours control sec. at last succ. holding system check

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		closed loop			
Device parameter:		axis-specific			

Product-Specific Parameters

**Function** This parameter displays the point of time of the operating hours counter of the control section at which the last successful holding system check was carried out.



The operating hours counter of the control section runs while control voltage is applied to the controller!

See also Functional Description "Motor Holding Brake"

**P-0-0549 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	RE-TAIN_GER-AET	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

### 5.4.37 P-0-0550, Time interval holding system check

**Allocation**

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	closed loop			
<b>Device parameter:</b>	axis-specific			

**Function**

If the holding brake check time interval is activated in P-0-0525, or the safe braking and holding system has been activated, the value of P-0-0550 is used for monitoring the time interval to the last successful, drive-side brake check:

- If the time interval to the last successful brake check approaches the value of P-0-0550 up to 15 min., the warning "E3115 Prewarning, end of brake check time interval" is output.
- If the interval exceeds the value of P-0-0550, the error message "F3115 Error, brake check time interval exceeded" is generated.

See also Functional Description "Motor Holding Brake"

**P-0-0550 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	900,0 / 604800,0		28800,0		
<b>MPC:</b>	900,0 / 604800,0		28800,0		
<b>MPE:</b>	900,0 / 604800,0		28800,0		
<b>MPM:</b>	900,0 / 604800,0		28800,0		

### 5.4.38 P-0-0551, Current load torque

**Allocation**

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

**Function**

In this parameter, the maximum occurring load torque of the axis in standstill is displayed.

**P-0-0551 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV

## Product-Specific Parameters

Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.4.39 P-0-0553, Test torque factor for brake check

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The holding torque of the brake is checked during the holding brake test in relation to the nominal load of the holding system and this test torque factor. As compared with the nominal load, the check should be performed with a torque that is 30% higher.

The specified test torque is calculated as follows:

P-0-0547, Nominal load of holding system \* P-0-0553, Test torque factor for brake check

See also "States of Integrated Safety Technology"

P-0-0553 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	1,00 / 10,00		1,30		
	MPC:	1,00 / 10,00		1,30		
	MPE:	1,00 / 10,00		1,30		
	MPM:	1,00 / 10,00		1,30		

## 5.4.40 P-0-0554, Current torque value of the motor holding brake

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The torque maintained by the motor holding brake during the execution of the command "C2100 Command Holding system check" is entered in this parameter; as a maximum the test torque, independent of whether the check was successful or not. After a failed brake check and the resulting resurfacing procedure, the value should be taken as the basis for improving the holding torque of the brake.

See also Functional Description "Motor Holding Brake"

P-0-0554 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.4.41 P-0-0555, axis controller messages

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Up to MPx-16: Axis status word

This parameter contains the following status information (messages) regarding axis control in the form of individual status bits:

- Velocity messages
- Limits that have been reached, i.e., information regarding an active limitation

See also Functional Description "Limitations"

See also Functional Description "Closed-Loop Axis Control (Closed-Loop Operation)"

**Structure** The individual bits have the following significance:

Bit	Designation/function	Comment
0	1: If n_feedback = n_command (S-0-0330)	
1	1: If n_feedback < nx (S-0-0332)	
2	1: If n_feedback = 0 (S-0-0331)	
3	1: If n_command > n_limit (S-0-0335)	
4	1: If T >= Tx (S-0-0333)	
5	1: If T >= Tlimit (S-0-0334)	
6	1: If T = T_cmd (S-0-0824)	
8	1: If velocity limitation active	
9	1: If T (S-0-0084) > 90% of the currently possible maximum load (P-0-0444)	
10	1: If acceleration limitation is active	
11	1: If positive torque limitation is active	
12	1: If negative torque limitation is active	
14	1: If position feedback value is in Inpos window (S-0-0336)	
15	1: If position feedback value is in Inpos coarse window (S-0-0341)	

Tab.5-126: Message Bits of the Velocity Control Loop



Bits 11 and 12 are set when the output variable of the velocity loop is limited by "S-0-0082, Torque/force limit value positive" or "S-0-0083, Torque/force limit value negative" or "S-0-0092, Bipolar torque/force limit value".

### P-0-0555 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.4.42 P-0-0556, Config word of axis controller

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used for configuring functions specific to axis control and setting the control performance.

See also Functional Description "Closed-Loop Axis Control (Closed-Loop Operation)"

See also Functional Description "Performance Data"

**Structure** The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
0	<b>Fine interpolator</b> 0: On - fine interpolation of the velocity command value can be activated if necessary. 1: Off - (default configuration)	As of MPx-17VRS
1	<b>Velocity control loop monitoring (F8078)</b> 0: On (default configuration) 1: Off	
2	<b>Performance level selection (Advanced)</b> "IndraDrive Cs Basic control sections (MPB firmware)" allow increasing the performance, i.e., reducing the clock rates.	
3	<b>Execution mode "C0700 Load defaults proced. command (motor-spec. controller values)"</b> <b>Requirement:</b> "F2008 RL The motor type has changed." <b>Reset "F2008" by</b> <ul style="list-style-type: none"> <li>pressing &lt;Esc&gt; on the control panel or</li> <li>executing "C0500 Reset class 1 diagnostics, error reset"</li> </ul> 0: "C0700 Load defaults proced. command" is executed 1: "C0700 Load defaults proced. command" is not executed	
4	<b>Torque/force limitation warning (E8260)</b> If required, the display of the warning in the case of active torque/force limitation can be deactivated. 0: E8260 is displayed (active) 1: E8260 is not displayed (masked)	

Product-Specific Parameters

Bit	Designation/function	Comment
5	<b>Performance level selection (Economy)</b> The default setting in an "IndraDrive Cs Economy control section model (MPE firmware)" is Economy performance:	As of MPx-18VRS
6	<b>Motor data initialization</b> Motor data is read from the motor data memory: 0: Once during the booting process 1: Always when the drive is switched to operating mode	
9	<b>Point at which "P-0-0059, Additive position command value, controller" takes effect</b> 0: Has no effect on feedforward 1: Has an effect on feedforward	
10	<b>Range of values for unipolar torque limitation ("S-0-0082, Torque/force limit value positive" and "S-0-0083, Torque/force limit value negative")</b> 0: Standard range of values (default): "S-0-0082" can only assume positive values; "S-0-0083" can only assume negative values (negative sign required). 1: Extended value range: The value of "S-0-0082" must be greater than "S-0-0083" (with sign). Both values can be entered with the same sign, i.e., with positive and with negative sign!	
11	<b>Activation of torque correction for synchronous motors</b> 0: No dynamic correction of the torque constant 1: Dynamic correction of the torque constant depending on the saturation and the motor temperature.	
12	<b>Activation of automatic determination of counterbalance of load due to weight</b> 0: No automatic determination. The value parameterized in "S-0-0163, Weight counterbalance" is used when drive enable is switched on. 1: Automatic determination of load due to weight. When drive enable is switched off, the current holding torque is copied to parameter "S-0-0163, Weight counterbalance". This value is used when drive enable is switched on the next time.	

# Product-Specific Parameters

Bit	Designation/function	Comment
13	<b>Asynchronous motors: Reduction of velocity control loop gain in field weakening operation</b> <b>0:</b> Reduction not active <b>1:</b> Reduction is proportional to field weakening (default value) <b>Synchronous motors: velocity control loop gain is corrected when torque constant is corrected (see bit 11)</b> <b>0:</b> Adjustment of control loop gain to corrected torque constant <b>1:</b> Correction switched off (default value)	
14	<b>Range of action of torque/force limitations</b> <b>0:</b> Unipolar limitation of the working load (velocity controller output), bipolar limitation of the total load from machining and acceleration feedforward control <b>1:</b> Unipolar and bipolar limitation of the total load from machining and acceleration feedforward control <ul style="list-style-type: none"> <li>Unipolar: "S-0-0082, Torque/force limit value positive" and "S-0-0083, Torque/force limit value negative"</li> <li>Bipolar: "S-0-0092, Bipolar torque/force limit value" and "P-0-0109, Torque/force peak limit"</li> </ul>	

Tab.5-127: Relevant Bits of P-0-0556

**Use** Observe the following aspects for parameter setting:

- Bit 1: Velocity control loop monitoring:**  
If required, the monitoring function can be switched off; but this is not recommended and should only be done in the case of an emergency (e.g., in case of highly non-linear gears).
- Bit 2: Performance level**  
As described above, the performance of the control loops is preset in parameter "P-0-0556".  
The following settings can be made with MPB and MPC:
  - 0: Basic Performance**
  - 1: Advanced Performance**
- Bit 5: Performance level**  
As described above, the performance of the control loops is preset in parameter "P-0-0556".  
There is only setting with MPE:
  - 1: Economy Performance**



In this case, bit 5 is not relevant for MPB and MPC firmware.  
MPM firmware only allows Economy performance!  
MPE firmware only allows Economy performance!  
(Bit 2 is not relevant here)  
(Bit 5 is not monitored for wrong entries)

Product-Specific Parameters

- **Bit 9: Point at which additive position cmd value of controller takes effect**  
In the majority of cases, feedforward values have a positive effect on the control dynamics and reaction time of a drive. Feedforward values are generated from command value characteristics:

- Velocity feedforward from the position command value characteristic
- Acceleration feedforward from the velocity command value characteristic

This bit is used to define whether "P-0-0059, Additive position command value, controller" is included in the generation of the feedforward values or whether it is afterwards added to the position command value generated by command value adjustment. "P-0-0059" can only be used in the following position-controlled operation modes:

- Cycl. position control
- Drive-controlled positioning
- Drive-internal interpolation
- Positioning block mode

- **Bit 10: Value range for unipolar torque limitation**

The "extended range of values" allows using the same signs for "S-0-0082" and "S-0-0083". In this way, symmetric torque limitation can be implemented with respect to the basic load, for example, for axes with basic load (vertical axes without counterbalancing).

**NOTICE**

Property damage caused by positive feedback and impeded axis deceleration in case of improper setting of "S-0-0082" and "S-0-0083"!

The "extended value range" should only be used in appropriate applications. There is an increased risk of positive feedback in the speed control loop if, for example, the negative sign of "S-0-0083" is omitted by mistake!

- **Bit 13: Asynchronous motors: Reduction of velocity control loop gain in field weakening operation**

It makes sense to activate this feature, when the asynchronous motor runs steadily in the speed range of constant torque, but the torque command value in field weakening operation tends to oscillation. The reduction is active by default (value 1).

- **Bit 13: Synchronous motors: Correction of velocity control loop gain**

Activation only makes sense when the correction of the torque/force constant has been activated (bit 11). The torque constant is reduced in the overload range of the motor. Changes in the torque constant change the effective control loop gain, this can be compensated.

**P-0-0556 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0x2001
MPC:	--- / ---	0x2001
MPE:	--- / ---	0x2021
MPM:	--- / ---	0x2001

## Product-Specific Parameters

## 5.4.43 P-0-0558, Drive Halt configuration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used as control word for the function Drive Halt.  
See also Functional Description "Drive Halt"

**Structure** The parameter has the following structure:

Bit	Designation/function	Comment
0	<b>Halt function</b> 0: Quick stop 1: Operational stop	0: Compatibility mode
1	<b>Control mode quick stop</b> 0: Defined by operation modes 1: Freely selectable	0: Compatibility mode
2	<b>Control type quick stop</b> 0: Velocity-controlled 1: Position-controlled	

Tab.5-128: P-0-0558

**Use** **Bit 0:** Kind of function Drive Halt

0: Quick stop switches to internal operation mode.

1: Operational stop decelerates in the active operation mode with Vcmd = 0.

**Bit 1:** Activate selection of control mode quick stop

0: The control type is defined by operation modes (S-0-0032 ...). When an operation mode with position control has been set, Drive Halt is carried out in position control, otherwise in velocity control.

1: The control type can be freely selected (see bit 2).

**Bit 2:** Control type quick stop

0: The deceleration ramp is executed in velocity control.

1: The deceleration ramp is executed in position control.

P-0-0558 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0x0 / 0x7		0x0	
		MPC:	0x0 / 0x7		0x0	
		MPE:	0x0 / 0x7		0x0	
		MPM:	0x0 / 0x7		0x0	

## 5.4.44 P-0-0565, C3600 Command Motor data identification

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

## Product-Specific Parameters

**Function** Command C3600 provides several options of data identification and/or plausibility test of the connected motor.

The following options can be selected via "P-0-0601, Configuration motor data identification":

- Motor data identification with the motor at standstill or put into motion (as of MPx-16VRS)
- Determination of the characteristic magnetization curve of asynchronous motors (as of MPx-16VRS)
- Plausibility test of motor and motor encoder data (as of MPx-17VRS)
- Rotational direction test of motor and motor encoder (as of MPx-17VRS)



The most accurate motor data identification result can be achieved when "P-0-0001, Switching frequency of the power output stage" is set to the lowest possible value when "C3600" is started!

See also Functional Description "Automatic Setting of Motor Control"

<b>P-0-0565 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

### 5.4.45 P-0-0566, C4600 Command Calculate motor control parameters

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** When this command is executed, the required motor control parameters are calculated from the motor parameters.

See also Functional Description "Automatic Setting of Motor Control"

<b>P-0-0566 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	OM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

### 5.4.46 P-0-0568, Voltage boost

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter can be used to raise the voltage at the base point of the U/f characteristic (in case of standstill or very low velocities of an asynchronous motor). The voltage required at the base point is determined on the basis of the motor data and provided by the controller.

## Product-Specific Parameters

**Use** Due to long motor lines, for example, starting problems can sometimes occur for motors. In this case, this parameter can be used to improve the starting behavior by a value greater than 0 V.

If the current at standstill is too high, it can be reduced by setting negative values in "P-0-0568".

**P-0-0568 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	V eff	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
<b>MPB:</b>	-50,00 / 50,00	0,00
<b>MPC:</b>	-50,00 / 50,00	0,00
<b>MPE:</b>	-50,00 / 50,00	0,00
<b>MPM:</b>	-50,00 / 50,00	0,00

## 5.4.47 P-0-0569, Maximum stator frequency slope

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains the maximum frequency command value slope of the motor voltage

**Use U/f operation**

When encoderless asynchronous motors are operated in voltage-controlled mode (U/f), "P-0-0569" is used to specify the maximum frequency command value slope. The value is automatically determined via the command for calculating the motor parameters of third-party motors (C3200 and C3600). If the stall protection controller responds during power-up, the value of P-0-0569 is possibly too high and should be reduced.

**FXC operation**

This parameter is irrelevant (inactive) in encoderless flux-controlled motor operation mode (FXC). Here, the maximum stator frequency slope can be adjusted via the inertia parameters.

**Motor data identification, with motion (C3600)**

When motor data identification with motion is selected (configuration via P-0-0601), the motor shaft is accelerated to half the nominal speed within one second. If the motor torque or load inertia is high, this may exceed the acceleration capacity of the motor or drive. In such a case, the acceleration command value can be reduced to a compatible value via P-0-0569.

$$\frac{\Delta f_{\text{Stator}}}{\Delta t} = \frac{NPP \times T_{\text{dyn}}}{2 \times \pi \times J_{\text{Axis\_MS\_FXC}}} = \frac{(P-0-0018) \times (P-0-0051) \times (S-0-0111)}{2 \times \pi \times [(P-0-0510) + (P-0-4010)]} \left[ \text{Hz/s} \right]$$

$f_{\text{Stator}}$	Stator frequency
$M_{\text{dyn}}$	Acceleration torque of the motor
PPZ	Number of pole pairs of the motor
$J_{\text{Axis\_MS\_FXC}}$	Effective inertia of the axis
P-0-0018	Number of pole pairs/pole pair distance
S-0-0111	Motor current at standstill
P-0-0510	Rotor inertia
P-0-4010	Load inertia
P-0-0051	Torque/force constant

*Fig. 5-129: Calculating a Compatible Value for P-0-0569, Maximum stator frequency slope*

Product-Specific Parameters

<b>P-0-0569 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Hz/s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0,01 / 3000,00		200,00	
		MPC:	0,01 / 3000,00		200,00	
		MPE:	0,01 / 3000,00		200,00	
		MPM:	0,01 / 3000,00		200,00	

#### 5.4.48 P-0-0570, Stall protection loop proportional gain

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> axis-specific			

**Function** This parameter presets the P-gain of the stall protection loop.  
The enable signal of the stall protection loop is controlled via bit 12 in "P-0-0045, Control word of current controller".

<b>P-0-0570 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0,00 / 500,00		100,00	
		MPC:	0,00 / 500,00		100,00	
		MPE:	0,00 / 500,00		100,00	
		MPM:	0,00 / 500,00		100,00	

#### 5.4.49 P-0-0571, Stall protection loop integral action time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> axis-specific			

**Function** By means of this parameter it is possible to set the integral action time of the stall protection loop.  
The enable signal of the stall protection loop is controlled via a bit in "P-0-0045, Control word of current controller".

<b>P-0-0571 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0,0 / 6500,0		1,0	
		MPC:	0,0 / 6500,0		1,0	
		MPE:	0,0 / 6500,0		1,0	
		MPM:	0,0 / 6500,0		1,0	

#### 5.4.50 P-0-0572, Slip compensation factor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b> axis-specific			

**Function** By means of this parameter it is possible to trim the slip compensation feed-forward. With the setting 0.00% the feedforward is switched off completely.

## Product-Specific Parameters

<b>P-0-0572 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		0,00 / 320,00		0,00		
<b>MPC:</b>		0,00 / 320,00		0,00		
<b>MPE:</b>		0,00 / 320,00		0,00		
<b>MPM:</b>		0,00 / 320,00		0,00		

## 5.4.51 P-0-0573, IxR boost factor

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	By means of this parameter it is possible to trim the feedforward of the IxR boost. With the setting 0.00% the feedforward is switched off completely.					
P-0-0573 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
	Input		min./max.		Default value	
	MPB:		0,00 / 320,00		0,00	
	MPC:		0,00 / 320,00		0,00	
	MPE:		0,00 / 320,00		0,00	
	MPM:		0,00 / 320,00		0,00	

## 5.4.52 P-0-0574, Oscillation damping factor

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	By means of this parameter it is possible to trim the oscillation damping feedforward. With the setting 0.00% the feedforward is switched off completely.					
P-0-0574 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
	Input		min./max.		Default value	
	MPB:		-320,00 / 320,00		0,00	
	MPC:		-320,00 / 320,00		0,00	
	MPE:		-320,00 / 320,00		0,00	
	MPM:		-320,00 / 320,00		0,00	

## 5.4.53 P-0-0575, Search mode: Search current factor

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	Via P-0-0045, Control word of current controller the search mode function can be selected. During the search process a search current is generated in the still turning machine that is to be searched.					
	Search current = magnetizing current * P-0-0575 / 100%					
P-0-0575 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM SP	Validity ch.:	PM->OM	Format:	DEC OV

Product-Specific Parameters

Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
Input	min./max.		Default value		
MPB:	1,00 / 320,00		60,00		
MPC:	1,00 / 320,00		60,00		
MPE:	1,00 / 320,00		60,00		
MPM:	1,00 / 320,00		60,00		

#### 5.4.54 P-0-0576, Search mode: Finding point slip factor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	The search mode function is selected via "P-0-0045, Control word of current controller". As soon as the machine has been found the rated slip is added to the speed at the "finding point". 100% are corresponding to the rated slip of the machine.					
	With clockwise rotating field: $V = V_{\text{finding point}} + (V_{\text{slip}} * P-0-0576 / 100\%)$					
	With anti-clockwise rotat. field: $V = V_{\text{finding point}} - (V_{\text{slip}} * P-0-0576 / 100\%)$					
P-0-0576 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
	Input	min./max.			Default value	
	MPB:	-320,00 / 320,00			100,00	
	MPC:	-320,00 / 320,00			100,00	
	MPE:	-320,00 / 320,00			100,00	
	MPM:	-320,00 / 320,00			100,00	

#### 5.4.55 P-0-0577, Square characteristic: Lowering factor

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	<p>The square characteristic is selected via "P-0-0045, Control word of current controller". The degree of lowering in the basic range of setting is trimmed with this parameter.</p> <p>The value of 100% corresponds to the original square curve. When the percentage value becomes lower, this lowering factor is reduced until the setting 0% has been reached which corresponds to the linear characteristic.</p>					
P-0-0577 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
	Input	min./max.		Default value		
	MPB:	0,00 / 100,00		50,00		
	MPC:	0,00 / 100,00		50,00		
	MPE:	0,00 / 100,00		50,00		
	MPM:	0,00 / 100,00		50,00		

#### 5.4.56 P-0-0578, Current for deceleration, absolute value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** The current for deceleration, with which the asynchronous motor is decelerated up to standstill in U/f operation or FXC operation, is entered in this parameter. When determining the motor parameters via "P-0-0565, C3600 Command Motor data identification", the value is automatically set to the rated current of the motor.

See also Functional Description "Voltage-Controlled Operation (Open-Loop U/f Control)"

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

**Use** The current for deceleration (P-0-0578) only takes effect in U/f operation or FXC operation of asynchronous to stop the motor.

**U/f operation**

In U/f operation, the current for deceleration can be deactivated by inputting zero in "P-0-0579, Current for deceleration, time period". This means that the motor is only stopped by U/f operation. The stopping, however, normally is improved by the activation of P-0-0578 by P-0-0579 unequal zero! P-0-0578 can be changed by value input, the minimum value is "P-0-4004, Magnetizing current".

**FXC operation**

In FXC operation it is impossible to deactivate the current for deceleration! When the value "0" is entered in "P-0-0579, Current for deceleration, time period", only the generated current is reduced, immediately after the detection of stopping (by means of calculation), from the value of P-0-0578 to "P-0-4004, Magnetizing current" \* "P-0-0532, Premagnetization factor". By P-0-0579 unequal zero, the current for deceleration can be maintained beyond the (calculated) motor standstill.

See also Parameter Description "P-0-0579, Current for deceleration, time period"

**P-0-0578 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	A eff	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
<b>MPB:</b>	s. Text / 500,000	s. Text
<b>MPC:</b>	s. Text / 500,000	s. Text
<b>MPE:</b>	s. Text / 500,000	s. Text
<b>MPM:</b>	s. Text / 500,000	s. Text

**5.4.57 P-0-0579, Current for deceleration, time period**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** In this parameter enter the time during which the current for deceleration (P-0-0578) is generated in the asynchronous motor in U/f operation or FXC operation.

See also Functional Description "Voltage-Controlled Operation (Open-Loop U/f Control)"

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

**Use** **U/f operation**

## Product-Specific Parameters

In U/f operation, the current for deceleration starts when, at velocity command value zero, the absolute value of the (calculated) actual velocity value falls below the value of "S-0-0124, Standstill window". If the absolute value of the velocity command value again exceeds the standstill window before P-0-0579 is over, the motor in U/f operation accelerates to the preset command value. If the command value remains at zero, the current flowing in the motor is caused by "P-0-0568, Voltage boost" after P-0-0579 is over.

### FXC operation

In FXC operation, the current for deceleration starts when, at velocity command value zero, the absolute value of the (calculated) actual velocity value falls below an internal frequency threshold. With the value of P-0-0579, however, the current for deceleration can be maintained beyond standstill (calculated actual velocity value "0").

After the time period of P-0-0579 is over, "P-0-4004, Magnetizing current" \* "P-0-0532, Premagnetization factor" is generated.

The time period of the current for deceleration which can be set can improve the stopping process in U/f operation or FXC operation, because the detection of stopping is inexact for sensorless motors. Adjust the value of P-0-0579 to the stopping behavior of the axis!



The default value of P-0-0579 is 0.5 sec. Entering zero deactivates the d.c. braking!

#### P-0-0579 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
Input	min./max.		Default value		
MPB:	0 / 60000		500		
MPC:	0 / 60000		500		
MPE:	0 / 60000		500		
MPM:	0 / 60000		500		

## 5.4.58 P-0-0580, Motor frequency

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** This is a display parameter for motor control in all operation modes. It has one decimal place and displays the motor frequency with sign.

#### P-0-0580 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	Hz	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.4.59 P-0-0590, Motor model frequency loop proportional gain

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

## Product-Specific Parameters

**Function** This parameter only takes effect in conjunction with "field-oriented current control" without encoder. Together with "P-0-0591, Motor model frequency loop integral action time", parameter P-0-0590 is used to parameterize the "frequency loop".

Based on the differences between motor model and measured currents, the frequency loop determines the current rotational frequency of the motor shaft. The output of the frequency loop supplies parameter "S-0-0040, Velocity feedback value" and is accordingly transmitted to the velocity loop.



Field-oriented current control without encoder is activated via "P-0-0045, Control word of current controller". If the function package "closed loop" is active, "operation without encoder" must be set in "P-0-074, Encoder type 1 (motor encoder)"!

See also Functional Description "Field-Oriented Current Control"

See also Functional Description "Automatic Setting of Motor Control"

**Use** Observe the following aspects when setting "P-0-0590":

- The value of "P-0-0590" depends on the motor type to be energized.
- During initial commissioning, this value is automatically calculated by executing "P-0-0565, C3600 Command Motor data identification" (with "current control without motor encoder" having been set).
- The calculated value should only be changed by especially trained service staff!

See also Parameter Descriptions "P-0-0591" and "P-0-0592"

## P-0-0590 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0,00 / 655,35	10,00
MPC:	0,00 / 655,35	10,00
MPE:	0,00 / 655,35	10,00
MPM:	0,00 / 655,35	10,00

## 5.4.60 P-0-0591, Motor model frequency loop integral action time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter only takes effect in conjunction with field-oriented current control without encoder. Together with "P-0-0590, Motor model frequency loop proportional gain", parameter P-0-0591 is used to parameterize the "frequency loop".

By means of the differences between motor model and measured currents, the frequency loop determines the current rotational frequency of the motor shaft. The output of the frequency loop supplies parameter "S-0-0040, Velocity feedback value" and is transmitted according to the velocity loop.



Field-oriented current control without encoder is activated via "P-0-0045, Control word of current controller". If the functional package "closed-loop" is active, "operation without encoder" has to be set in "P-0-0074, Encoder type 1 (motor encoder)"!

See also Functional Description "Field-Oriented Current Control"

Product-Specific Parameters

See also Functional Description "Automatic Setting of Motor Control "

**Use** Observe the following for the setting of P-0-0591:

- The value of P-0-0591 depends on the motor type to be controlled.
- During initial commissioning, this value is automatically calculated by executing "P-0-0565, C3600 Command Motor data identification" (with "current control without motor encoder" having been set).
- The calculated value should only be changed by especially trained service staff!

See also Parameter Description P-0-0590 and P-0-0592

**P-0-0591 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			0,0 / 100,0	5,0	
<b>MPC:</b>			0,0 / 100,0	5,0	
<b>MPE:</b>			0,0 / 100,0	5,0	
<b>MPM:</b>			0,0 / 100,0	5,0	

## 5.4.61 P-0-0592, Motor model adjustment factor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter only takes effect in conjunction with field-oriented current control without encoder.

The drive-internal motor model calculation carried out in the current loop clock is corrected by means of the adjust factor entered in P-0-0592 so that the motor currents determined by means of the motor model and the rotor flux comply with the real values.



Field-oriented current control without encoder is activated via "P-0-0045, Control word of current controller". If the functional package "closed-loop" is active, "operation without encoder" has to be set in "P-0-0074, Encoder type 1 (motor encoder)"!

See also Functional Description "Field-Oriented Current Control"

See also Functional Description "Automatic Setting of Motor Control"

**Use** Observe the following for the setting of P-0-0592:

- The value of P-0-0592 depends on the motor type to be controlled.
- During initial commissioning, this value is automatically calculated by executing "P-0-0565, C3600 Command Motor data identification" (with "current control without motor encoder" having been set).
- The calculated value should only be changed by especially trained service staff!

See also Parameter Description P-0-0590 and P-0-0591

**P-0-0592 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			0,000 / 1,000	0,100	

## Product-Specific Parameters

MPC:	0,000 / 1,000	0,100
MPE:	0,000 / 1,000	0,100
MPM:	0,000 / 1,000	0,100

## 5.4.62 P-0-0593, FXC: Total flux loop proportional gain

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	Parameter for the proportional gain of the flux control loop in "sensorless motor operation, flux-controlled". It is not necessary to adjust this value to the specific motor.					
	See also Functional Description "Sensorless Motor Operation, Flux-Controlled"					
P-0-0593 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	1/HENRY	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
	Input	min./max.			Default value	
	MPB:	0,01 / 50,00			1,00	
	MPC:	0,01 / 50,00			1,00	
	MPE:	0,01 / 50,00			1,00	
	MPM:	0,01 / 50,00			1,00	

## 5.4.63 P-0-0594, FXC: Total flux loop integral action time

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	<p>Parameter for the integral action time of the flux loop of sensorless, flux-controlled motor operation. The value should be checked and adjusted in motor-specific form. What is helpful is a run-up test with ramp-shaped velocity command value in approx. 2 s to 75% of the rated speed. The total current P-0-0440 should rapidly fall to a stationary value after the command value change has been started. To make the value of P-0-0440 fall more rapidly, reduce the value of P-0-0594.</p> <p>See also Functional Description "Sensorless Motor Operation, Flux-Controlled".</p>					
P-0-0594 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
	Input	min./max.		Default value		
	MPB:	0,001 / 1000,000		1,000		
	MPC:	0,001 / 1000,000		1,000		
	MPE:	0,001 / 1000,000		1,000		
	MPM:	0,001 / 1000,000		1,000		

## 5.4.64 P-0-0596, FXC: Frequency loop scaling factor of inertia

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Up to and including MPx07				

## Product-Specific Parameters

Parameter for the percentage activation of the total inertia of the axis for the integration behavior of the frequency controller in encoderless flux-controlled motor operation mode:

$$a = \frac{M_{th}}{P596/100\% + \Sigma J} = \frac{M_{th}}{P596/100\% + (P510 + P4010)}$$

$\alpha$ : Frequency command value slope of the frequency controller  
 $M_{th}$ : Theoretical maximum motor torque, calculated internally  
 $\Sigma J$ : Axis inertia  
P510: Inertia (P-0-0510)  
P596: Frequency controller scaling factor of inertia (FXC) in %  
*Fig. 5-130: Operating Principle of the Inertia Scaling Factor*

### As of MPx08

The parameter no longer affects the frequency command value slope of the frequency controller (frequency ramp) but only the integral action time of the frequency controller in encoderless flux-controlled motor operation mode:

$$T_{I\_fctrl\_FXC} = \frac{2 * \pi * J_{Axis\_MS\_FXC} * P-0-0596}{NPP * ct} = \frac{2 * \pi * (P-0-0510 + P-0-4010) * P-0-0596}{P-0-0018 * P-0-0051}$$

$T_{I\_fctrl\_FXC}$ : Integral action time of the FXC frequency controller  
 $J_{Axis\_MS\_FXC}$ : Effective inertia of the axis (motor-related)  
P-0-0596: Frequency loop scaling factor of inertia (FXC)  
PPZ: Number of pole pairs of the motor  
P-0-0018: Number of pole pairs/pole pair distance  
P-0-0510: Rotor inertia  
P-0-4010: Load inertia (motor-related)  
 $ct$ , P-0-0051: Torque/force constant

*Fig. 5-131: Integral Action Time of the FSC Frequency Controller*

### Use Up to and including MPx07

The value of P-0-0596 allows manipulating the pitch of the frequency ramp of the frequency controller (maximum frequency command value slope). The optimum value is reached at maximum acceleration of the motor. If the value is changed further, this will only cause the motor temperature to rise due to increased motor currents.



The frequency command value slope (ramp) becomes flattened if the value of P-0-0596 is increased.

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

### As of MPx08

The value of P-0-0596 can be used to manipulate the reaction time of the frequency controller. The reaction time becomes the longer, the higher the selected integral action time is.

#### P-0-0596 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			0,1 / 1000,0	100,0	
<b>MPC:</b>			0,1 / 1000,0	100,0	
<b>MPE:</b>			0,1 / 1000,0	100,0	
<b>MPM:</b>			0,1 / 1000,0	100,0	

## Product-Specific Parameters

## 5.4.65 P-0-0597, FXC: Current loop proportional gain

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter for the proportional gain of the current loop of sensorless, flux-controlled motor operation.

It is not necessary to adjust the value in motor-specific form. However, if overcurrent ("F8060 Overcurrent in power section") occurs during acceleration out of standstill, the value of P-0-0597 should be reduced (e.g. half the value).

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

P-0-0597 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

Input	min./max.	Default value
MPB:	1 / 2000	100
MPC:	1 / 2000	100
MPE:	1 / 2000	100
MPM:	1 / 2000	100

## 5.4.66 P-0-0598, FXC: Current loop integral action time

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter for the integral action time of the current loop of sensorless, flux-controlled motor operation.

It is not necessary to adjust the value in motor-specific form. However, if oscillation of the motor current (P-0-0440) occurs under load, you should first of all try to attenuate the oscillation by increasing the value of P-0-0598.

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

P-0-0598 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

Input	min./max.	Default value
MPB:	0,01 / 500,00	20,00
MPC:	0,01 / 500,00	20,00
MPE:	0,01 / 500,00	20,00
MPM:	0,01 / 500,00	20,00

## 5.4.67 P-0-0599, FXC: Slip frequency filter time constant

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter for slip compensation under load of a sensorless, flux-controlled asynchronous motor. The time constant of the slip frequency filter influences the reaction time of slip compensation in the case of load impulse.

## Product-Specific Parameters

**Use** It is not necessary to adjust the value in motor-specific form. It should be increased, however, when the motor under load gets "out of balance" and possibly stops, because the current limit of the device has been reached. Higher values slow down the reaction time of the speed slip compensation and this results in less current rise in the case of load impulse (**Attention:** The continuous current of the device must be sufficient for the stationary load case!)

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

<b>P-0-0599 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

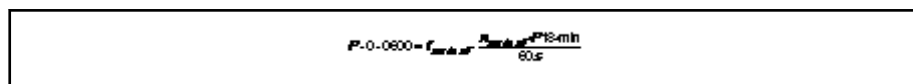
  

Input	min./max.	Default value
MPB:	0,001 / 1,000	0,050
MPC:	0,001 / 1,000	0,050
MPE:	0,001 / 1,000	0,050
MPM:	0,001 / 1,000	0,050

### 5.4.68 P-0-0600, FXC: Rated slip frequency

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** Parameter for slip compensation if a sensorless flux-controlled asynchronous motor is subject to load. Enter the slip frequency at rated power in this parameter to ensure that the slip of the motor can be compensated if the motor is under load.



P18: number of pole pairs (P-0-0018)  
 $f_{\text{nominal}}$ : rated frequency acc. to motor type plate  
 $n_{\text{nominal}}$ : rated speed acc. to motor type plate  
*Fig. 5-132: Calculating P-0-0600, FXC: Rated slip frequency*



The slip compensation acts in proportion with the value entered in "P-0-0600", for which reason it is ineffective if the minimum value is entered.

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

<b>P-0-0600 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Hz	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0,00 / 100,00	0,10
MPC:	0,00 / 100,00	0,10
MPE:	0,00 / 100,00	0,10
MPM:	0,00 / 100,00	0,10

### 5.4.69 P-0-0601, Configuration motor data identification

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		

# Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** This parameter is used to configure the method of determining the motor and control parameters of third-party motors on execution of "P-0-0565, C3600 Command Motor data identification".

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"

See also Functional Description "Determining the Parameter Values of Third-Party Motors"

## Structure

Bit	Designation/function	Comment
2/1/0	<b>x00:</b> Motor data identification (C3600) with the motor at standstill (default) <b>x01:</b> Motor data identification (C3600) with rotating motor shaft (applies only to rotary motors) <b>x10:</b> Determination of the magnetizing characteristic of asynchronous motors with rotating motor shaft (applies only to rotary motors)	As of MPx-16VRS
	<b>011:</b> Validity check of the number of pole pairs/pole pair distance and encoder resolution/encoder division period, with movement over two revolutions of the motor shaft or two pole pairs (including check of the rotational direction of motor and encoder). <b>100:</b> Check of the rotational direction of motor and encoder (movement over approx. half a pole pair) <b>101; 110; 111:</b> Unallowed combinations	As of MPx-17VRS

Tab.5-133: Configuring Command C3600

**Use Bit 2/ bit 1/ bit 0 (as of MPx-16VRS)**

Bit 2	Bit 1	Bit 0	Asynchronous motor
"don't care"	0	0	<b>Motor identification without movement:</b> This allows determining "P-0-4041, Motor magnetizing inductance" with low accuracy only, using the value preset in "P-0-4004".
"don't care"	0	1	<b>Motor identification with rotating motor:</b> "P-0-4041, Motor magnetizing inductance" can be determined with high accuracy. The motor shaft must be freely rotating (without load). The motor accelerates to half the nominal velocity.
"don't care"	1	0	Determination of the magnetizing characteristic with rotating motor. The motor accelerates to half the nominal velocity.

Tab.5-134: Aspects of Configuring Command C3600 (Applies Only to Asynchronous Motors)



As regards synchronous motors, command C3600 can only be used as of MPx-17!

**Bit 2/ bit 1/ bit 0 (as of MPx-17VRS)**

Product-Specific Parameters

Bit 2	Bit 1	Bit 0	Asynchronous motor	Synchronous motor
0	0	0	Motor identification without movement:	
			"P-0-4041, Motor magnetizing inductance" can only be determined with low accuracy, using the value preset in "P-0-4004, Magnetizing current".	"P-0-4016, Direct-axis inductance of motor" and "P-0-4017, Quadrature-axis inductance of motor" can only be determined with low accuracy (appropriate for motors without encoder)
0	0	1	Motor identification with rotating motor: <b>Note:</b> This setting is not allowed for linear motors!	
			"P-0-4041, Motor magnetizing inductance" can be determined with high accuracy. The motor shaft must be freely rotating (without load). The motor accelerates to half the nominal velocity.	"P-0-4016, Direct-axis inductance of motor" and "P-0-4017, Quadrature-axis inductance of motor" can be determined with high accuracy (only appropriate for motors without encoder). The motor shaft must be freely rotating (without load). The motor accelerates to half the nominal velocity.
0	1	0	Determination of the magnetizing characteristic is only required for asynchronous motors. The motor accelerates to half the nominal velocity.	(Not applicable to synchronous motors!)
0	1	1	The validity check can be carried for synchronous and asynchronous motors. The motors must be provided with a motor encoder. The motor moves no more than over 2 pole pair distances (linear motor) or no more than 2 revolutions (rotary motor) at low velocity (10 rpm or 1 m/min).	
1	0	0	The rotational direction of motor and encoder can be checked both with synchronous and asynchronous motors. The motors must be provided with a motor encoder. The motor moves no more than 0.5 pole pair distances (linear motor) or 0.5 pole pairs (rotary motor).	

Tab.5-135: Aspects of Configuring Command C3600 With Regard to Asynchronous and Synchronous Motors

### Acceleration with motor data identification with motion

When motor data identification with motion is selected, the motor shaft is accelerated to half the nominal speed within one second. If the motor torque or load inertia is high, this may exceed the acceleration capacity of the motor or drive. In such a case, the acceleration command value can be limited to a compatible value via "P-0-0569".

### WARNING

**Error when controlling motors and moving parts!**

The motor is set into motion on the controller side. The motion range and travel path (linear motors) must be kept clear. Attach cover and touch guard!

### P-0-0601 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Input	min./max.				Default value
MPB:	--- / ---				0x0
MPC:	--- / ---				0x0
MPE:	--- / ---				0x0
MPM:	--- / ---				0x0

## 5.4.70 P-0-0602, FXC: Minimum no-load current

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter sets the minimum value of the no-load current for FXC operation of sensorless synchronous motors (flux-generating current, "wattless current"). The sign causes different behavior of the intensity of the no-load current:

- With positive sign, "P-0-0602" takes full effect.
- With negative sign, the current at motor revolution is reduced to  $0.1 \cdot \text{"S-0-0111, Motor current at standstill"}$  (plus current due to friction torque). At motor standstill, "P-0-0602" takes full effect.



- As a matter of principle, the current at motor standstill can be influenced (reduced) proportionally to "P-0-0532, Pre-magnetization factor".
- The threshold for motor standstill detection is "S-0-0124, Standstill window".
- "P-0-0602" has no effect for asynchronous motors.

**Use**

The no-load current of the synchronous motor determines its load behavior and the motor temperature rise at no load:

- At motor revolution, the load impulse resistance rises as the no-load current is increased. The input is limited to 75% of "S-0-0111, Motor current at standstill".
- The motor standstill is improved as the no-load current is increased. The deceleration itself, however, is realized via "P-0-0578, Current for deceleration, absolute value" and "P-0-0579, Current for deceleration, time period".
- The no-load current improves the load impulse resistance and the motor standstill, but causes the motor temperature to rise, even if the motor has not been loaded. If the operating behavior allows this, the motor temperature rise can be minimized:
  - By reducing the no-load current via P-0-0532 (e.g., 50%) at motor standstill
  - By minimizing the no-load current by means of a negative sign of P-0-0602 (see above) with the motor rotating

The default value of **P-0-0602 =  $0.1 \cdot \text{"S-0-0111, Motor current at standstill"}$** ; the correct value on the application side must be defined at initial commissioning, if required!

See also Functional Description "Sensorless Motor Operation, Flux-Controlled (FXC Control) "

Product-Specific Parameters

<b>P-0-0602 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	A eff	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		s. Text / s. Text		0,000		
<b>MPC:</b>		s. Text / s. Text		0,000		
<b>MPE:</b>		s. Text / s. Text		0,000		
<b>MPM:</b>		s. Text / s. Text		0,000		

## 5.4.71 P-0-0610, Control word of current rms value generator

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** "Bit 0" of "P-0-0610" is used to set the cyclic calculation of the total current rms value. The result is shown in "P-0-0611".

Bit	Designation/function	Comment
0	<b>Cyclic calculation of the total current rms value</b>	
	0: Not active	
	1: Active	

Tab.5-136: P-0-0610, Control word of current rms value generator

<b>P-0-0610 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.4.72 P-0-0611, Current rms value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** If bit 0 of parameter "P-0-0610" is set, the rms value of the total current is calculated cyclically and output to "P-0-0611" for being displayed. Otherwise, the display shows the value previously output.

<b>P-0-0611 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	A eff	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.4.73 P-0-0640, Cooling type

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** The motors of the MSK und MSM lines can be operated in different cooling types. Depending on the particular motor type, cooling can be implemented as follows:

- Standard cooling (natural convection, non-ventilated)
- Surface ventilation
- Liquid Cooling
- Cooling with additional heat supply or heat discharge

See also Functional Description "Motor, Mechanical Axis System, Measuring Systems", "Current and Torque/Force Limitation"

**Use** Depending on realized the cooling type, the motor can carry different continuous currents. The characteristic continuous current of the above motors, however, is the one the motor can continuously carry with its standard cooling type (natural convection). It is stored in parameter "P-0-2111, Motor current at standstill, encoder memory" for the particular motor type and, along with other motor parameters, is loaded to the controller when the drive is switched on (P-0-2111 -> S-0-0111, Motor current at standstill).

This parameter has to be set to the realized cooling type. As a result:

- the 100% reference of the motor work load is adjusted to the realized cooling type,
- the thermal time constant of the motor effective in the motor temperature model is determined by means of the value of "P-0-4035, Thermal time constant of motor" (refers to standard cooling),
- the allowed continuous current, to which the firmware-internal motor temperature model limits, is determined. (S-0-0111, Motor current at standstill \* cooling type factor).

Realized motor cooling	P-0-0640, Cooling type	Cooling type factor	Comment
Nat. convection, non-ventilated	0 (default)	1,0	
Surface ventilation	1	1,5	
Liquid Cooling	2	1,9	
Nat. convection, non-ventilated, improved cooling (heat discharge at motor flange)	3	1,2	
Nat. convection, non-ventilated, thermal effect via motor flange (e.g. gear mounting)	4	0,85	

Tab.5-137: Cooling Type Factor in Relation to the Value of P-0-0640



The default value for "P-0-0640" is "0" which means that the reference value is initially set to the standard cooling type of the motor. For motors other than MSK and MSM, the only allowed value is "0"!

#### Adjusting the 100% value to the realized cooling type

In case of percentage-based scaling for torque/force data (bits 0...2 of S-0-0086, Torque/force data scaling type), this parameter can be used to adjust the reference value (100%) for MSK and MSM motors to the cooling type that has been realized.

## Product-Specific Parameters

With the cooling type factor, it is possible to calculate the reference value (100% value).

<b>P-0-0640 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	0 / 4		0		
	MPC:	0 / 4		0		
	MPE:	0 / 4		0		
	MPM:	0 / 4		0		

### 5.4.74 P-0-0641, Interpolation cmd value average value filter time constant

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** The parameter P-0-0641 takes effect on the filtering of the position command values with a moving average filter (see also command value adjustment of the interpolation modes). As an alternative to the calculation of the filter order from acceleration and jerk, the filter order can also be determined by entering a filter time.

With the average filter, the position command value profile can be smoothed after command value generation, and the acceleration and jerk can be reduced. This can be required for some mechanical systems to avoid excitation of machine resonances by the command value characteristic.

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "Positioning Block Mode"

See also Functional Description "Drive-Internal Interpolation"

**Use** The parameter P-0-0641 is used for the interpolation modes "drive-internal interpolation", "drive-controlled positioning" and "positioning block mode" to smooth the command value profile.

The following aspects have to be taken into account:

- By entering the filter time (value  $\geq T_{Ncyc}$ ), the calculation of the filter order from acceleration and jerk is switched off.
- The filter time preset in the parameter is applied during the initialization of the operation mode or when a new position is set.
- The effective filter order M is always displayed in "P-0-0042, Current position command average value filter order" ( $P-0-0042 = P-0-0641/T_{Ncyc}$ )
- The NC cycle time  $T_{Ncyc}$  is derived from the parameter S-0-0001.



The function constant filter order is switched off by default ( $P-0-0641 = 0$ ), the filter order is therewith calculated from acceleration and jerk.

<b>P-0-0641 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	0 / s. Text		0		
	MPC:	0 / s. Text		0		
	MPE:	0 / s. Text		0		
	MPM:	0 / s. Text		0		

## Product-Specific Parameters

## 5.4.75 P-0-0660.0.1, Configurable factory default values

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
Hardware	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Device parameter:	axis-specific		
Function	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
P-0-0660.0.1 - Attributes	Function:	Par	Editable:	PM
	Memory:	FIX_IDN_SP	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Data length:	4Byte var.		
	Format:	HEX		
	Decim. pl.:	0		
	Set-depend.:	--		
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.4.76 P-0-0660.0.128, Compact parameter diagnostics

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
Hardware	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Device parameter:	axis-specific		
Function	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
P-0-0660.0.128 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Data length:	1Byte var.		
	Format:	ASCII		
	Decim. pl.:	0		
	Set-depend.:	--		
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---



The functional principle of the parameter is documented only internally. Changes or evaluations are reserved to customer support.

## 5.4.77 P-0-0660.0.129, Instance parameter diagnostics

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
Hardware	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Device parameter:	axis-specific		
Function	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
P-0-0660.0.129 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Data length:	1Byte var.		
	Format:	ASCII		
	Decim. pl.:	0		
	Set-depend.:	--		
	Input	min./max.		Default value
	MPB:	--- / ---		---



The functional principle of the parameter is documented only internally. Changes or evaluations are reserved to customer support.

Product-Specific Parameters

MPC:	---	/	---	---
MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.4.78 P-0-0664, C6800 Control command device data archiving

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Command "C6800" is used to determine the device data archiving status. The status is stored in parameter "P-0-0669, Device data archiving, status" and can be read from this parameter after the command has been executed.



The comparison data of the CCD master and, in case of cross communication (CCD), the comparison data of the CCD slaves are read. To determine the status, this data is compared with the data stored in the machine archive.



The command cannot be executed if another device data archiving command (C6500, C6600 or C6700) is active.

### P-0-0664 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	---	---
MPC:	---	---
MPE:	---	---
MPM:	---	---

## 5.4.79 P-0-0665, C6500 Command Archive device data

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Command "C6500" is used to transfer the "device data to be backed up" from the active non-volatile memory (flash) to a machine archive. Device data comprises the data required for restoring a drive configuration (operating data, incl. firmware). The machine archive is filed to "Backup\Archive\Backup.zip" on the SD card.

The device data is restored manually using command C6600 or automatically on exiting the parameterization level in case a device is replaced.



Archiving also includes the device data of the CCD slaves where cross-communication (CCD) is applicable. When CCD slaves exist, execution of the command can take several minutes.



While the command is active, write accesses to the device data to be backed up should be avoided. The user should stop running PLC programs during runtime of the command. The command does not stop running PLC programs.

# Product-Specific Parameters



Command C6500 allows calling command C2200. As long as the latter is active, the flashing display changes from "C66" to "C22". If necessary, the call of command C2200 can be deactivated in "P-0-0668".

## P-0-0665 - Attributes

Function:	Cmd	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.4.80 P-0-0666, C6600 Command Restore device data

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** Command "C6600" is used to restore the "device data to be backed up" from the machine archive. Device data comprises the data required for restoring a drive configuration (operating data, incl. firmware). The machine archive is filed to "Backup\Archive\Backup.zip" on the SD card.

This requires that a machine archive has been generated at least once by using command C6500.

This command will fail if no machine archive is available.



The device data is also restored via cross-communication (CCD) in the CCD slaves.

When CCD slaves exist, execution of the command can take several minutes.



The user should stop running PLC programs before the command is started. Otherwise, they cannot be restored. The command does not stop running PLC programs.



Command C6600 is executed in two variants: "device replacement" and "device data restoration". "P-0-0669" indicates the variant which is executed.



Command C6600 allows calling command C2200. As long as the latter is active, the flashing display changes from "C66" to "C22".

### NOTICE

**Property damage caused by changed addressing of the SERCOS nodes!**

When the backup device data are restored, the correct distribution of the SERCOS addresses is not checked.

To prevent incorrect device data from being loaded to the drives, make sure that the SERCOS addresses are not changed in the time between backup and restoring of the device data.

Product-Specific Parameters

P-0-0666 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.4.81 P-0-0667, C6700 Command update of device data

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Command "C6700" is used to update the "device data to be backed up". Device data comprises the data required for restoring a drive configuration (operating data, incl. firmware).

The user provides the update on the SD card:

1. As update archive in the "User\Update\Archiv" directory. An update archive is a machine archive containing all device data or only a partial quantity of a machine archive. The update archive must have data type "\*.zip".
2. As individual device data files in the "User\Update\Axis..." directory. In this case, a device data file is a file that has been unpacked from a machine archive.



The device data is also updated via cross-communication (CCD) in the CCD slaves.

When CCD slaves exist, execution of the command can take several minutes.



The user should stop running PLC programs before the command is started. Otherwise, the PLC programs cannot be updated. The command does not stop running PLC programs.



Command C6700 allows calling command C2200. As long as the latter is active, the flashing display changes from "C67" to "C22".

### NOTICE

**Property damage caused by changed addressing of the SERCOS nodes!**

When the backup device data are restored, the correct distribution of the SERCOS addresses is not checked.

To prevent incorrect device data from being loaded to the drives, make sure that the SERCOS addresses are not changed in the time between backup and restoring of the device data.

P-0-0667 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		

## Product-Specific Parameters

MPC:	---	/	---	---
MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.4.82 P-0-0668, Device data archiving, configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is used to configure device data archiving.

Using command C6500, device data archiving allows filing the "device data to be backed up" from the active non-volatile memory (flash) to a machine archive. Device data comprises the data required for restoring a drive configuration (operating data, incl. firmware). The machine archive is filed to "Backup\Archive\Backup.zip" on the SD card. The device data is restored manually via command C6600.

**Structure**

Bit	Designation/function	Comment
0	<b>Machine archive monitoring</b> <b>0:</b> Tolerant mode: machine archive not monitored. <b>1:</b> Strict mode: The machine archive is monitored for being updated. <ul style="list-style-type: none"> <li>If the machine archive has not been updated, switching error C6604 is triggered.</li> <li>Updating with command C6700 is only possible with an updated machine archive.</li> <li>New drives (device exchange) are automatically updated to the device data from the machine archive.</li> </ul>	
15	<b>Application to operating data memory</b> <b>0:</b> Active <b>1:</b> Command C2200 is not executed within commands C6500, C6600 and C6700.	

Tab.5-138: Device Data Archiving Configuration

**P-0-0668 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.4.83 P-0-0669, Device data archiving, status

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter shows the current device data archiving status.

Using command C6500, device data archiving allows filing the "device data to be backed up" from the active non-volatile memory (flash) to a machine ar-

Product-Specific Parameters

chive. Device data comprises the data required for restoring a drive configuration (operating data, incl. firmware). The machine archive is filed to "Backup\Archive\Backup.zip" on the SD card. The device data is restored manually via command C6600.

Structure



The status is updated internal during initialization (booting) and by executing a device data archiving command. To update only the status, command C6800 must be executed.



Command C6600 is executed in two variants: "device replacement" and "device data restoration". The comparison value indicates the variant that is executed on starting command C6600. The "device replacement" variant is also executed automatically on exiting the parameterization level.

Value	Description	Comment
3-0	<b>Comparison value:</b> The status informs whether the machine archive has been updated. <b>0x0:</b> Machine archive has been updated <b>0x1:</b> Machine archive does not match the device data to be backed up <b>0x2:</b> New device detected <b>0x3:</b> An update has not been confirmed yet (E2667)	
7-4	<b>Activity:</b> The status value is not suitable for controlling the commands. <b>0x0:</b> No active command <b>0x1:</b> C6500: Machine archive is generated <b>0x2:</b> C6600: Machine archive is restored <b>0x3:</b> C6700: Device data is updated <b>0x4:</b> C6800: Control command is executed	
15-8	<b>Error:</b> during access to the machine archive or during access to the device data in the active non-volatile memory (flash). <b>0x0:</b> Without errors <b>0x1:</b> SD card access error <b>0x2:</b> Machine archive access error <b>0x3:</b> CCD slave access error <b>0x4:</b> Drive controller access error	

Tab.5-139: P-0-0669, Device data archiving, status

P-0-0669 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## Product-Specific Parameters

## 5.4.84 P-0-0680, Control panel: Configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPC»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function Structure** Parameter "P-0-0680.0.0" can be used to configure the control panel.

Bit	Significance	Comment
15	<b>Running text output in case of errors, warnings and command errors.</b> 0: Active - running text is still displayed. 1: Deactivated - the diagnostic number for an error, a warning or a command error is flashing when displayed.	
14	<b>Edit or View mode</b> 0: Edit mode - changes can be made using the control panel. 1: View mode - Input via the control panel is disabled. <b>Note:</b> If View mode is active, input can be enabled. To do this, the <ESC> and <ENTER> keys on the standard display must be pushed and held for 8 seconds. The menu is disabled again by returning to the standard display.	

Tab.5-140: Control panel: Connection setup

## P-0-0680 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>		<b>min./max.</b>	---	<b>Default value</b>	0x0
<b>MPC:</b>			---		0x0
<b>MPE:</b>			---		0x0
<b>MPM:</b>			---		0x0

## 5.4.85 P-0-0680.0.1, Control panel: Config. list of changeable app. parameters

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPC»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This list parameter serves to configure the menu structure for the editable "Quick Setup" parameters. 12 list elements result in one data set. The maximum number of data sets that can be configured is 32.



1. The list elements of the parameter must be entered in HEX format.
2. The short text, info text 1 and info text 2 list elements may not be empty (= 0).  
Allowed characters: Subset of the ASCII character set 0x20 to 0x7D. A blank is inserted for 0x00.

Product-Specific Parameters

Structure	List element	Significance	Description
	0	Ident number	Ident number of the parameter whose parameter datum can be edited via the control panel.
	1	List element	If a list parameter is applicable, the corresponding list element must be entered here.
	2	Axis number	<b>0:</b> Axis 1 <b>1:</b> Axis 2 (only possible for multi-axis device)
	3	Conversion factor	The parameter datum is divided by the conversion factor. The conversion factor must be $\geq 1$ .
	4	Short text	Up to 2 characters for short text. <b>Note:</b> There must be at least one valid character.
	5	Info text 1	4 characters for info text. <b>Note:</b> There must be at least one valid character.
	6	Info text 2	4 characters for info text. <b>Note:</b> There must be at least one valid character.
	7	Min value	Minimum input value for the parameter
	8	Max value	Maximum input value for the parameter
	9	Step size	This element defines the step size with which the parameter value can be reduced and increased by pushing the "down and up keys", respectively.
	10	Is not evaluated	Reserved
	11	Is not evaluated	Reserved
	12	Ident number	Ident number of the parameter whose parameter datum can be edited via the control panel.
	13	...	...

Tab.5-141: Configuring the Menu Structure for Editable Parameters

Example:

Connection setup

Data element:	Input:	List parameter input (HEX):
Ident number	P-0-1370	0x0000855A
List element	0	0x00000000
Axis number	0	0x00000000
Conversion factor	1	0x00000001
Short text	01	0x30310000
Info text 1	P-0-	0x502D302D
Info text 2	1370	0x31333730
Min value	-50	0xFFFFFCE
Max value	50	0x00000032
Step size	1	0x00000001

## Product-Specific Parameters

Dummy 1	0	0x00000000
Dummy 2	0	0x00000000

## P-0-0680.0.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		s. Text		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

## 5.4.86 P-0-0680.0.2, Ctrl panel: Config. list of app. parameters to be displayed

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This list parameter serves to configure the menu structure for the displayable "Actual Values" parameters. 10 list elements result in one data set. The maximum number of data sets that can be configured is 32.



1. The list elements of the parameter must be entered in HEX format.
2. The short text, info text 1 and info text 2 list elements may not be empty (= 0).

Allowed characters: Subset of the ASCII character set 0x20 to 0x7D. A blank is inserted for 0x00.

## Structure

List element	Significance	Description
0	Ident number	Ident number of the parameter whose parameter datum is displayed via the control panel.
1	List element	If a list parameter is applicable, the corresponding list element must be entered here.
2	Axis number	<b>0:</b> Axis 1 <b>1:</b> Axis 2 (only possible for multi-axis device)
3	Conversion factor	The parameter datum is divided by the conversion factor. The conversion factor must be $\geq 1$ .
4	Display format	<b>0:</b> Parameter datum is displayed in decimal format. <b>1:</b> Parameter datum is displayed in hexadecimal format.
5	Short text	Up to 2 characters for short text. <b>Note:</b> There must be at least one valid character.
6	Info text 1	4 characters for info text. <b>Note:</b> There must be at least one valid character.
7	Info text 2	4 characters for info text. <b>Note:</b> There must be at least one valid character.
8	Is not evaluated	Reserved

## Product-Specific Parameters

List element	Significance	Description
9	Is not evaluated	Reserved
10	Ident number	Ident number of the parameter whose parameter datum is displayed via the control panel.
11	...	...

Tab.5-142: Configuring the Menu Structure for Displayable Parameters

Example:

### Connection setup

Data element:	Input:	List parameter input (HEX):
Ident number	P-0-1270	0x000084F6
List element	0	0x00000000
Axis number	0	0x00000000
Conversion factor	1	0x00000001
Display format	0	0x00000000
Short text	01	0x30310000
Info text 1	P-0-	0x502D302D
Info text 2	1270	0x31323730
Dummy 1	0	0x00000000
Dummy 2	0	0x00000000

### P-0-0680.0.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		s. Text		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

## 5.4.87 P-0-0686, Additive position command value, positioning velocity

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Maximum position change (=velocity) with which "S-0-0048, Additive position command value" is added to the synchronous position command value of the slave axis.



S-0-0048 is used to preset an additive offset for the synchronous position command value of the master axis position for slave axis.

See also Functional Description "Synchronization Modes"

**Use** The following has to be observed for usage:

- When a position synchronization mode is activated, drive-controlled synchronization is carried out. The profile is determined either by a 5<sup>th</sup> order

## Product-Specific Parameters

polynomial or by the parameters "P-0-0142, Synchronization acceleration" and "P-0-0143, Synchronization velocity".

- The way in which subsequent changes of S-0-0048 will be processed depends on bit 0 of "P-0-0155, Synchronization mode".
  - **Bit0 = 1:** Changes are smoothed by a 1<sup>st</sup> order filter
  - **Bit0 = 0:** Changes are defined via the parameters "P-0-0686, Additive position command value, positioning velocity" and "P-0-0687, Additive position command value, positioning acceleration".

P-0-0686 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		S-0-0044 / S-0-0044		1,0000		
MPC:		S-0-0044 / S-0-0044		1,0000		
MPE:		S-0-0044 / S-0-0044		1,0000		
MPM:		S-0-0044 / S-0-0044		1.0000		

## 5.4.88 P-0-0687, Additive position command value, positioning acceleration

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPM»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		axis-specific		

**Function** Maximum velocity change (=acceleration) with which "S-0-0048, Additive position command value" is added to the synchronous position command value of the slave axis.

See also Functional Description "Synchronization Modes"

See also Parameter Description "P-0-0686, Additive position command value, positioning velocity"

P-0-0687 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	S-0-0162
	Input		min./max.		Default value	
	MPB:		S-0-0160 / S-0-0160		100,000	
	MPC:		S-0-0160 / S-0-0160		100,000	
	MPE:		S-0-0160 / S-0-0160		100,000	
	MPM:		S-0-0160 / S-0-0160		100,000	

## 5.4.89 P-0-0688, Additive master axis position, positioning velocity

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPM»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
Funct. package(s):		synchronisation (ELS)		
Device parameter:		axis-specific		

**Function** Maximum position change (=velocity) with which "P-0-0054, Additive master axis position" is added to the master axis angle.



Parameter P-0-0054 is used to preset an additive offset to the effective master axis position.

See also Functional Description "Synchronization Modes"

**Use** The following has to be observed for usage:

## Product-Specific Parameters

- The adjustment to a preset offset is carried out with defined velocity and acceleration limitation.
- The limit values are parameterized in the parameters "P-0-0688, Additive master axis position, positioning velocity" and "P-0-0689, Additive master axis position, positioning acceleration".
- The velocity profile which is traveled when P-0-0054 has been changed then is trapezoidal.

<b>P-0-0688 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	rpm	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	0,0000 / 214748,3647		10,0000		
	<b>MPC:</b>	0,0000 / 214748,3647		10,0000		
	<b>MPE:</b>	0,0000 / 214748,3647		10,0000		
	<b>MPM:</b>	0,0000 / 214748,3647		10,0000		

### 5.4.90 P-0-0689, Additive master axis position, positioning acceleration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** Maximum velocity change (=acceleration) with which "P-0-0054, Additive master axis position" is added to the master axis angle.

See also Functional Description "Synchronization Modes"

See also Parameter Description "P-0-0688, Additive master axis position, positioning velocity"

<b>P-0-0689 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	rad/s²	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	0,000 / 4294967,295		10,000		
	<b>MPC:</b>	0,000 / 4294967,295		10,000		
	<b>MPE:</b>	0,000 / 4294967,295		10,000		
	<b>MPM:</b>	0,000 / 4294967,295		10,000		

## 5.5 P-0-0690 to P-0-0899 Synchronization Mode

### 5.5.1 P-0-0690, Additive velocity command value, process loop

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In addition to S-0-0037, parameter P-0-0690 is used to set an additive velocity command value.



P-0-0690 can preferably be used for drive-based process loops (by means of MLD)!

**Use** Observe the following when using P-0-0690:

- P-0-0690 takes effect in all operation modes in which the velocity loop is used.

## Product-Specific Parameters

- In the velocity synchronization mode, P-0-0690 is taken into account for generating the "In Synchronization" bit.
- In the case of drive-internal command value generation (Drive Halt, error reaction, ...), P-0-0690 is set to "0".

See also Functional Description "Velocity Control"

P-0-0690 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		S-0-0044 / S-0-0044			---	
MPC:		S-0-0044 / S-0-0044			---	
MPE:		S-0-0044 / S-0-0044			---	
MPM:		S-0-0044 / S-0-0044			---	

## 5.5.2 P-0-0691, Additive position command value, process loop

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		"open loop", "closed loop"			
Device parameter:		axis-specific			

**Function** Apart from S-0-0048, the parameter P-0-0691 is used to add a position command value.



P-0-0690 can preferably be used for drive-based process loops (by means of MLD)!

See also Functional Description "Control Loop Structure"

See also Functional Description "Synchronization Modes"

**Use** Observe the following aspects when using P-0-0691:

- P-0-0691 takes effect in the synchronization modes with outer position control loop (phase synchronization, cam, MotionProfile).
- The preset value of P-0-0691 is then smoothed with a 1st order filter, when bit 0 has not been set in "P-0-0155, Synchronization mode". In this case, "P-0-0060, Filter time constant additive pos. command" is used for the filter of P-0-0691.
- When bit 1 has been set in "P-0-0155, Synchronization mode", the parameter P-0-0691 takes effect in unfiltered form. The parameter "P-0-0060, Filter time constant additive position cmd value" is then used for filtering "S-0-0048, Additive position command value".
- Parameter P-0-0691 is taken into account for the generation of the bit "In Synchronization" (bit 8, "P-0-0089, Status word synchronization modes"). The bit is set when the following applies:  
 $|X_{\text{synch}} + S-0-0048 + P-0-0691 - P-0-0753| < S-0-0228$ .
- Parameter P-0-0691 is also taken into account for the generation of "P-0-0034, Position command additional actual value". The following applies:  $P-0-0034 = P-0-0753 - X_{\text{synch}} - P-0-0691$ .
- When "relative synchronization" has been set (bit 1, P-0-0155 = 1), there is no synchronization motion (with the master axis having stopped) when the synchronous operation mode is activated. Changes made afterwards in P-0-0691 are processed in relative form.

P-0-0691 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV

Product-Specific Parameters

Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0076 / S-0-0076		---		
MPC:	S-0-0076 / S-0-0076		---		
MPE:	S-0-0076 / S-0-0076		---		
MPM:	S-0-0076 / S-0-0076		---		

### 5.5.3 P-0-0692, Additive master axis position, process loop

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The value specified for "P-0-0692" is smoothed with a 1st order filter and then added to the sum of "P-0-0054, Additive master axis position" and "P-0-0053, Master axis position" or "P-0-0052, Actual position value of measuring encoder".

The time constant of the filter is defined with parameter "P-0-0693".

See also Functional Description "Control Loop Structure"

See also Functional Description "Synchronization Modes"

- Use** Observe the following aspects for parameterizing "P-0-0692":
- The maximum value (modulo value) of "P-0-0692" is determined by the master axis cycle.
  - The master axis cycle is the product of "P-0-0750, Master axis revolutions per master axis cycle", with  $2^{P-0-0084}$ .
  - Approximation to a new value always takes place over the shortest distance.

#### Record of Revisions

Version	Attribute	Comment
Up to MPx04VRS	Format: DEC_OV	

P-0-0692 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	-2147483648 / 2147483647		---		
	MPC:	-2147483648 / 2147483647		---		
	MPE:	-2147483648 / 2147483647		---		
	MPM:	-2147483648 / 2147483647		---		

### 5.5.4 P-0-0693, Filter time constant, add. master axis pos., process loop

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter determines the time constant of a 1st order filter. This filter is used to smooth "P-0-0692, Additive master axis position, process loop".

See also Functional Description "Synchronization Modes"

P-0-0693 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV

## Product-Specific Parameters

Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	2
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	0,00 / 655,35		0,00		
MPC:	0,00 / 655,35		0,00		
MPE:	0,00 / 655,35		0,00		
MPM:	0,00 / 655,35		0,00		

## 5.5.5 P-0-0694, Gear ratio fine adjustment, process loop

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** With the percentage-based value of this parameter, a factor is generated which takes effect in the electronic gear.

**Parameterization**

To generate the factor the preset value is divided by 100 and 1 is added.

See also Functional Description "Synchronization"

P-0-0694 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	s. Text / s. Text		---		
	MPC:	s. Text / s. Text		---		
	MPE:	s. Text / s. Text		---		
	MPM:	s. Text / s. Text		---		

## 5.5.6 P-0-0695, Angle offset begin of table, process loop

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Observe the following aspects for parameterizing P-0-0695:

- The master axis position after the electronic gear is reduced by the angle parameterized in P-0-0695.
- The range of values of P-0-0695 is from 0 to 360 degrees. 360 degrees (one master axis revolution) corresponds to a value of 2^P-0-0084.
- Approximation to a new value always takes place over the shortest distance.

See Functional Description "Control Loop Structure"

See also Functional Description "Synchronization Modes"

P-0-0695 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0,0000 / 359,9999		---		
	MPC:	0,0000 / 359,9999		---		
	MPE:	0,0000 / 359,9999		---		
	MPM:	0,0000 / 359,9999		---		

## 5.5.7 P-0-0696, Filter time constant, angle offset profile, process loop

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter determines the time constant of a 1 <sup>st</sup> order filter. This filter is used to smooth "P-0-0692, Additive master axis position, process loop".					
	See also Functional Description "Synchronization"					
P-0-0696 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,00 / 655,35			0,00	
	MPC:	0,00 / 655,35			0,00	
	MPE:	0,00 / 655,35			0,00	
	MPM:	0,00 / 655,35			0,00	

## 5.5.8 P-0-0697, Synchronization, master axis synchronous position

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter takes effect when single-step synchronization (bit 6 = 1) has been set in "P-0-0155, Synchronization mode". It defines the master axis position at which synchronism is to have been established.					
	See also Functional Description "Basic Functions of the Synchronization Modes"					
Use	After a synchronization mode has been activated, synchronization starts the next time "P-0-0776, Effective master axis position" passes the master axis start position. The master axis start position is calculated in the following way:					
	<div style="border: 1px solid black; padding: 10px; margin: 10px 0;"><math display="block">\text{master axis start position} = \% \text{master axis revolution (P - 0 - 0697 - P - 0 - 0698)}</math></div>					
	P-0-0697	Synchronization, master axis synchronous position				
	P-0-0698	Synchronization, master axis synchronization range				
	Fig.5-143:	Calculating master axis start position				
	Synchronization is completed when the master axis position has run through the master axis synchronization range and has reached the value indicated in this parameter. The parameter refers to the output of the electronic gear (parameter "P-0-0776, Effective master axis position").					
	The allowed range of values is between 0 and 359.9999°.					
P-0-0697 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		0,0000 / 359,9999		0,0000	
	MPC:		0,0000 / 359,9999		0,0000	
	MPE:		0,0000 / 359,9999		0,0000	
	MPM:		0,0000 / 359,9999		0,0000	

## Product-Specific Parameters

## 5.5.9 P-0-0698, Synchronization, master axis synchronization range

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter takes effect when single-step synchronization (bit 6 = 1) has been set in "P-0-0155, Synchronization mode". It defines the distance within which synchronism is to have been established.					
	See also Functional Description "Basic Functions of the Synchronization Modes"					
P-0-0698 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,0000 / 429496,7295			180,0000	
	MPC:	0,0000 / 429496,7295			180,0000	
	MPE:	0,0000 / 429496,7295			180,0000	
	MPM:	0,0000 / 429496,7295			180,0000	

## 5.5.10 P-0-0700, MotionProfile, master axis switching position

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	While the "MotionProfile" mode is active, changes in the sequence of motion can be made in the second, inactive data set. The parameter defines the position at which switching to the selected inactive set takes place.					
	See also Functional Description: "MotionProfile With Real/Virtual Master Axis"					
Use	The active set is selected with "P-0-0088, Control word synchronization modes", bit 9. When all changes have been parameterized and the "profile check" for the inactive set has been successfully carried out, it is possible to switch to this set.					
	Switching takes place when "P-0-0227, Cam table, access angle" passes the switch angle set in this parameter. Switching is acknowledged with bit 3 of "P-0-0089, Status word synchronization modes". After switching has taken place, the bits of status word and control word are identical.					
P-0-0700 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,0000 / 359,9999			0,0000	
	MPC:	0,0000 / 359,9999			0,0000	
	MPE:	0,0000 / 359,9999			0,0000	
	MPM:	0,0000 / 359,9999			0,0000	

## 5.5.11 P-0-0701, Motion step 1, slave axis initial position

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

Product-Specific Parameters

**Function** This parameter takes effect when absolute position processing of the "MotionProfile" has been set in bit 10 of "P-0-0088, Control word synchronization modes".

After synchronization, the position command value generated in the "MotionProfile" mode corresponds to the position set in this parameter, when "P-0-0227, Cam table, access angle" is zero, i.e. at the beginning of the 1st motion step.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

**P-0-0701 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPC:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPE:</b>	S-0-0076 / S-0-0076	0,0000
<b>MPM:</b>	S-0-0076 / S-0-0076	0,0000

## 5.5.12 P-0-0702, MotionProfile, diagnosis, set 0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** A validation check is carried out for the sequence of motion parameterized for the "MotionProfile" mode in set 0.

If one of the checks results in discrepancy, a number is displayed in this parameter. The cause of the discrepancy can be taken from this number. For the significances of the numbers, see the diagnostic message "F2004 Error in MotionProfile".

See also Functional Description "Motion Profile With Real/Virtual Master Axis"

**P-0-0702 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0 / 100	---
<b>MPC:</b>	0 / 100	---
<b>MPE:</b>	0 / 100	---
<b>MPM:</b>	0 / 100	---

## 5.5.13 P-0-0703, Number of motion steps, set 0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter determines, for block 0 of "MotionProfile" mode, of how many motion steps the sequence of motion consists which is processed per master axis revolution.

**MPx-07VRS and below:** If relative actual position value reference has been set (P-0-0088, Control word synchronization modes, bit 10 = 1), the sequence of motion must consist of at least two steps.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

## Product-Specific Parameters

<b>P-0-0703 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		1 / 8			8	
<b>MPC:</b>		1 / 8			8	
<b>MPE:</b>		1 / 8			8	
<b>MPM:</b>		1 / 8			8	

## 5.5.14 P-0-0704, Master axis velocity, set 0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter specifies at which constant velocity the master axis moves when set 0 of the "MotionProfile" mode is active.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

**Use** Indicating the master axis velocity is necessary when a motion step is used for which the slave axis velocity is determined (standard profile rest in velocity, velocity in velocity or velocity in rest). The given value must refer to the output of the electronic gear.

<b>P-0-0704 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	1/min	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		0,1000 / 10000,0000			100,0000	
<b>MPC:</b>		0,1000 / 10000,0000			100,0000	
<b>MPE:</b>		0,1000 / 10000,0000			100,0000	
<b>MPM:</b>		0,1000 / 10000,0000			100,0000	

## 5.5.15 P-0-0705, List of master axis initial positions, set 0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter determines, for set 0 of the "MotionProfile" mode, at which master axis positions (or table access angles) the motion steps begin.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

**Use** Setting is such that motion step 1 begins at master axis initial position "0". The first element of this list must therefore be "zero". This list must have at least as many elements as set 0 has motion steps (P-0-0703).

<b>P-0-0705 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Deg	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		0,0000 / 359,9999			s. Text	
<b>MPC:</b>		0,0000 / 359,9999			s. Text	
<b>MPE:</b>		0,0000 / 359,9999			s. Text	
<b>MPM:</b>		0,0000 / 359,9999			s. Text	

## 5.5.16 P-0-0706, List of motion laws, set 0

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter determines, for set 0 of the "MotionProfile" mode, which properties the individual motion steps have.

See also Functional Description: "MotionProfile With Real/Virtual Master Axis"

### Structure

Bit	Designation/function	Comment
3...0	<b>Profile of motion step</b> 0000: Analytic profile 0001: Cam table 1 (P-0-0072) 0010: Cam table 2 (P-0-0092) 0011: Cam table 3 (P-0-0780) 0100: Cam table 4 (P-0-0781) 0101: Cam table 5 (P-0-0782) 0110: Cam table 6 (P-0-0783) 0111: Cam table 7 (P-0-0784) 1000: Cam table 8 (P-0-0785)	
12...8	<b>Profile type</b> 0 0000: R-R with inclined sine curve 0 0001: R-R with 5th order polynomial 0 0010: R-V 0 0100: V-R 0 0110: V 0 0111: V-V 1 0010: R-R VLim	

R-R	Rest in Rest
R-R VLim	Rest in Rest with limited velocity
R-V	Rest in Velocity
V-R	Velocity in Rest
V	Constant Velocity
V-V	Velocity in Velocity
Tab.5-144:	Motion Laws

**Use** When the bits 0...3 are "0", the profile of the step is determined by the bits 8...12. If bits 0...3 represent a number between 1 and 8, the profile of this step is determined by the corresponding cam table (no. 1...8). 8) bestimmt. This list must have at least as many elements as set 0 has motion steps (P-0-0703).

### P-0-0706 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
MPB:	0x0 / 0x1200	s. Text
MPC:	0x0 / 0x1200	s. Text

## Product-Specific Parameters

<b>MPE:</b>	0x0 / 0x1200	s. Text
<b>MPM:</b>	0x0 / 0x1200	s. Text

## 5.5.17 P-0-0707, List of distances, set 0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This list determines, for set 0 of the "MotionProfile" mode, which distances are traveled in the individual motion steps.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

**Use** If a standard profile and not a cam table has been selected in the motion step, the distance determines the path which is traveled in the corresponding step. If a cam table has been selected, the traveled path results from the product of distance and last value of the table.

If absolute position processing has been set for this operation mode, the sum of distances of the involved motion steps must be "0" or a multiple of the modulo value.

This list must have at least as many elements as set 0 has motion steps (P-0-0703).

<b>P-0-0707 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>	S-0-0076 / S-0-0076	s. Text
<b>MPC:</b>	S-0-0076 / S-0-0076	s. Text
<b>MPE:</b>	S-0-0076 / S-0-0076	s. Text
<b>MPM:</b>	S-0-0076 / S-0-0076	s. Text

## 5.5.18 P-0-0708, List of slave axis velocities, set 0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This list determines, for set 0 of the "MotionProfile" mode, which slave axis velocities occur in the individual motion steps at the beginning or at the end.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

**Use** Indicating the slave axis velocity is necessary when one of the standard profiles R-V (Rest in Velocity), V-R (Velocity in Rest) or V-V (Velocity in Velocity) has been selected in the motion step.

Taking master axis range, distance and parameterized master axis velocity (P-0-0704) into account, the coefficients of the 5th order polynomial are calculated in such a way that the parameterized velocity results at the slave axis at the end (for R-V) or at the beginning (for V-R and V-V) of the motion step.

If constant velocity has been selected in the mode of a step, the slave axis velocity resulting from the values of master axis range, distance and parameterized master axis velocity is calculated and displayed in the respective list element.

This list must have at least as many elements as set 0 has motion steps (P-0-0703).

Product-Specific Parameters

<b>P-0-0708 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	S-0-0044 / S-0-0044		s. Text	
		MPC:	S-0-0044 / S-0-0044		s. Text	
		MPE:	S-0-0044 / S-0-0044		s. Text	
		MPM:	S-0-0044 / S-0-0044		s. Text	

## 5.5.19 P-0-0709, MotionProfile, diagnosis, set 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b>	axis-specific		

**Function** A validation check is carried out for the sequence of motion parameterized for the "MotionProfile" mode in set 1.

If one of the checks results in discrepancy, a number is displayed in this parameter. The cause of the discrepancy can be taken from this number.

See Diagnostic Description "F2004 Error in MotionProfile "

See also Functional Description "Motion Profile With Real/Virtual Master Axis"

<b>P-0-0709 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0 / 100		---	
		MPC:	0 / 100		---	
		MPE:	0 / 100		---	
		MPM:	0 / 100		---	

## 5.5.20 P-0-0710, Number of motion steps, set 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b>	axis-specific		

**Function** This parameter determines, for block 1 of "MotionProfile" mode, of how many motion steps the sequence of motion consists which is processed per master axis revolution.

**MPx-07VRS and below:** If relative actual position value reference has been set (P-0-0088, Control word synchronization modes, bit 10 = 1), the sequence of motion must consist of at least two steps.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

<b>P-0-0710 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	1 / 8		8	
		MPC:	1 / 8		8	
		MPE:	1 / 8		8	
		MPM:	1 / 8		8	

## Product-Specific Parameters

## 5.5.21 P-0-0711, Master axis velocity, set 1

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter specifies at which constant velocity the master axis moves when set 1 of the "MotionProfile" mode is active.					
	See also Functional Description "MotionProfile With Real/Virtual Master Axis"					
Use	Indicating the master axis velocity is necessary when a motion step is used for which the slave axis velocity is determined (standard profile rest in velocity, velocity in velocity or velocity in rest). The given value must refer to the output of the electronic gear.					
P-0-0711 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	1/min	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,1000 / 10000,0000			100,0000	
	MPC:	0,1000 / 10000,0000			100,0000	
	MPE:	0,1000 / 10000,0000			100,0000	
	MPM:	0,1000 / 10000,0000			100,0000	

## 5.5.22 P-0-0712, List of master axis initial positions, set 1

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter determines, for set 1 of the "MotionProfile" mode, at which master axis positions (or table access angles) the motion steps begin. See also Functional Description "MotionProfile With Real/Virtual Master Axis"					
Use	Setting is such that motion step 1 begins at master axis initial position "0". The first element of this list must therefor be "zero".  This list must have at least as many elements as set 1 has motion steps (P-0-0710).					
P-0-0712 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:				0,0000 / 359,9999	s. Text
	MPC:				0,0000 / 359,9999	s. Text
	MPE:				0,0000 / 359,9999	s. Text
	MPM:				0,0000 / 359,9999	s. Text

## 5.5.23 P-0-0713, List of motion laws, set 1

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter determines, for set 1 of the "MotionProfile" mode, which properties the individual motion steps have.				

## Product-Specific Parameters

See also Functional Description "Motion Profile With Real/Virtual Master Axis"

This list must have at least as many elements as set 1 has motion steps (P-0-0710).

See Parameter Description "P-0-0706, List of motion laws, set 0"

### P-0-0713 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0x0 / 0x700	s. Text
MPC:	0x0 / 0x700	s. Text
MPE:	0x0 / 0x700	s. Text
MPM:	0x0 / 0x700	s. Text

## 5.5.24 P-0-0714, List of distances, set 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This list determines, for set 1 of the "MotionProfile" mode, which distances are traveled in the individual motion steps.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

**Use** If a standard profile and not a cam table has been selected in the motion step, the distance determines the path which is traveled in the corresponding step. If a cam table has been selected, the traveled path results from the product of distance and last value of the table. If absolute position processing has been set for this operation mode, the sum of distances of the involved motion steps must be "0" or a multiple of the modulo value.

This list must have at least as many elements as set 1 has motion steps (P-0-0710).

### P-0-0714 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	s. Text
MPC:	S-0-0076 / S-0-0076	s. Text
MPE:	S-0-0076 / S-0-0076	s. Text
MPM:	S-0-0076 / S-0-0076	s. Text

## 5.5.25 P-0-0715, List of slave axis velocities, set 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This list determines, for set 1 of the "MotionProfile" mode, which slave axis velocities occur in the individual motion steps at the beginning or at the end.

See also Functional Description "MotionProfile With Real/Virtual Master Axis"

**Use** Indicating the slave axis velocity is necessary when one of the standard profiles R-V (Rest in Velocity), V-R (Velocity in Rest) or V-V (Velocity in Velocity) has been selected in the motion step.

## Product-Specific Parameters

Taking master axis range, distance and parameterized master axis velocity (P-0-0711) into account, the coefficients of the 5th order polynomial are calculated in such a way that the parameterized velocity results at the slave axis at the end (for R-V) or at the beginning (for V-R and V-V) of the motion step.

If constant velocity has been selected in the mode of a step, the slave axis velocity resulting from the values of master axis range, distance and parameterized master axis velocity is calculated and displayed in the respective list element.

This list must have at least as many elements as set 1 has motion steps (P-0-0710).

P-0-0715 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		S-0-0044 / S-0-0044		s. Text		
<b>MPC:</b>		S-0-0044 / S-0-0044		s. Text		
<b>MPE:</b>		S-0-0044 / S-0-0044		s. Text		
<b>MPM:</b>		S-0-0044 / S-0-0044		s. Text		

## 5.5.26 P-0-0750, Master axis revolutions per master axis cycle

Allocation	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		synchronisation (ELS)			
<b>Device parameter:</b>		axis-specific			

**Function** Parameter "P-0-0750" defines the modulo range for the master axis parameters which are involved in the generation of parameter "P0-0775, Resulting master axis position" (including P0-0775). The information on the range of the master axis cycle must be given to the drive so that the overflows of the master axis position can be processed correctly.

See also Functional Description "Synchronization Modes"

See also Functional Description "Velocity Synchronization With Real/Virtual Master Axis"

**Use** The master axis cycle is defined on the control unit side. It contains the number of master axis revolutions required in order to bring all drives, that are to follow the master axis, back to a defined position with respect to each other. The value of this parameter normally is set to the least common multiple (LCM) of the input revolutions of the master drive gear "P-0-0156" of the respective slave axes.

**Special case P-0-0750 = 0**

**Modulo scaling of slave axis:**

If value "0" is written to the parameter, the user has to write to "S-0-0103" in such a way that  $2^{32} - 2^{P-0-0084}$ , Number of bits per master axis revolution master axis revolutions downstream of the master axis gear correspond to the modulo range.  
Application: "flying saw."

**Absolute scaling of slave axis:**

With absolute scaling, value 0 must be written to parameter "P-0-0750". Make sure that the master axis range is not exceeded, that the master axis range value does not fall below the limit and that the derived slave axis position is not outside of the maximum travel range. Otherwise, this causes accidental axis motion.

**Master axis range with P-0-0750 = 0**

Product-Specific Parameters

Master axis range:  $-2^{31}$  increments to  $2^{31} - 1$  increments.

This corresponds to  $2^{(32 - P-0-0084)}$  master axis revolutions.

P-0-0750 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 2047	1
MPC:	0 / 2047	1
MPE:	0 / 2047	1
MPM:	0 / 2047	1

## 5.5.27 P-0-0751, Synchronization divisions per command cycle slave axis

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** A division of the command value cycle is defined with this parameter. The number of divisions that are contained in the command value cycle is indicated in parameter P-0-0751.

See also Functional Description "Synchronization Modes"

**Use** This means that the command value cycle is divided by the value of parameter P-0-0751 in order to determine the division. The size of the command value cycle is contained in parameter "P-0-0754, Command value cycle". The synchronization division can be selected for synchronization in parameter "P-0-0155, Synchronization mode". The distance traveled during the synchronization process won't be longer than the defined division. The position to which the slave axis synchronizes is calculated by means of modulo division from the synchronous position command value in the command value cycle. The synchronization division can be smaller or greater than a load revolution of the drive.

P-0-0751 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 32767	1
MPC:	1 / 32767	1
MPE:	1 / 32767	1
MPM:	1 / 32767	1

## 5.5.28 P-0-0752, Load revolutions per actual value cycle slave axis

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** With modulo position scaling, the actual value cycle determines the maximum range of position data at the slave axis to which control of "operation mode position synchronization with subordinate operation modes" relates. Via parameter P-0-0752, the number of modulo ranges S-0-0103 is given of which the actual value cycle consists. The actual position value within the actual value cycle can be taken from parameter "P-0-0753, Position actual value in actual value cycle".

**Use** The actual value cycle is required if, in the case of one of the subordinate operation modes of the position synchronization mode, synchronization is to be

## Product-Specific Parameters

carried out in a range greater or smaller than the modulo value S-0-0103. The synchronization range in these cases is determined by the command value cycle or a division of it.

See also Functional Description "Synchronization Modes"

If several electronic gear ratios are to be set at an axis (e.g. because of different formats), there are several command value cycles resulting at this axis. The actual value cycle then has to be set in such a way that it corresponds to the least common multiple (LCM) of these command value cycles.

If the electronic gear is not to be changed, the actual value cycle is set in such a way that it complies with the command value cycle or a multiple of it.

If synchronization is to be carried out only within the modulo range, the number of "load revolutions per actual value cycle slave axis" can be set to "1".

## P-0-0752 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	1 / 65535	1
<b>MPC:</b>	1 / 65535	1
<b>MPE:</b>	1 / 65535	1
<b>MPM:</b>	1 / 65535	1

## 5.5.29 P-0-0753, Position actual value in actual value cycle

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In the operation modes "phase synchronization", "cam" and "MotionProfile" and in conjunction with modulo position scaling, this parameter displays the current actual position value which the mentioned operation modes use to close the position loop.

See also Functional Description "Operation Modes for Synchronization"

**Use** The actual position value in the actual value cycle is within a range that is generated depending on bit 4 of parameter "P-0-0155, Synchronization mode":

- If bit 4 ="0", the modulo range of the actual value cycle is generated by multiplication of "P-0-0752, Load revolutions per actual value cycle slave axis" with "S-0-0103, Modulo value".
- With bit 4="1", the actual value cycle corresponds to the value of "P-0-0754, Command value cycle".

Setting this position command value occurs via the command "Set absolute position procedure" or "Drive-controlled homing" for the position command value, which is configured in Phase 2 or in PM (parameter mode) in parameter "S-0-0520, Control word of axis controller "

When, for example, "phase synchronization with virtual master axis, encoder 1" has been set as operation mode, the parameter "P-0-0753" changes by analogy to the position command value 1. Its range is limited to the "S-0-0103, Modulo value". Homing of the actual position value 1 then causes "P-0-0753" to be set to the same value as actual position value 1.

The position status of the actual position value in the actual value cycle can be taken from bit 4 of parameter "P-0-0089, Status word synchronization modes".

## Product-Specific Parameters

When activating the operation mode for synchronization, the travel distance for synchronization is determined with the actual position value in the actual value cycle. The result is a limitation of the travel distance to the synchronization range (command value cycle, division of the command value cycle or modulo range) that has been set.

### P-0-0753 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.5.30 P-0-0754, Command value cycle

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	---			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** In processes with different machining cycles, the drives must be able to synchronize over several master axis revolutions or divisions of a master axis revolution. This property is defined via the so-called command value cycle. The command value cycle is automatically set internally and gives the range of the synchronous position command values of an axis operated in the operation modes "phase synchronization", "cam" or "MotionProfile".

The data of the following parameters are used for calculation:

- P-0-0156, Master drive gear input revolutions
- P-0-0157, Master drive gear output revolutions
- P-0-0159, Slave drive feed travel
- P-0-0750, Master axis revolutions per master axis cycle
- P-0-0755, Gear reduction
- S-0-0103, Modulo value

**Use** This applies to modulo scaling:

$$\text{Command value cycle} = \text{P-0-0750} \cdot \frac{\text{P-0-0157}}{\text{P-0-0156}} \cdot \text{S-0-0103}$$

Fig.5-145: Modulo Scaling

For the operation modes "cam" and "MotionProfile", a linear, phase-synchronous gear reduction path can be activated via bit 4 of "P-0-0086, Configuration word synchronous operation modes". If "P-0-0755,, Gear reduction"!= "0", the command value cycle is calculated according to the following formula.

$$\text{Command value cycle} = \frac{\text{Cmd value cycle}}{\text{P-0-0755}}$$

Fig.5-146: Cam

## Product-Specific Parameters

The command value cycle can be selected in parameter "P-0-0155, Synchronization mode" as a range for synchronization. With "P-0-0751, Synchronization divisions per command cycle slave axis", a division of the command value cycle can be defined. This division can also be selected for synchronization in "P-0-0155".

P-0-0754 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 5.5.31 P-0-0755, Gear reduction

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to set a movement that is phase synchronous with the master axis, in the operation modes "cam" and "MotionProfile". With an endlessly turning axis, the forward movement is realized with the linear component, the compensatory movements via the cam.

The linear component is switched on by bit 4 of "P-0-0086, Configuration word synchronous operation modes".

**Use** The following parameters are used to calculate the additive synchronous position command values  $XSynch_{Add}$ :

- P-0-0776, Effective master axis position
- P-0-0061, Angle offset begin of profile
- P-0-0755, Gear reduction
- S-0-0103, Modulo value

Depending on the type of position scaling, the following formulas are used to calculate the additive synchronous position command values  $XSynch_{Add}$ .

$$XSynchAdd = \frac{P-0-0776 - P-0-0061}{P-0-0755} * \frac{S-0-0103}{2^{P-0-0084}}$$

Fig.5-147: Generating the Additive Synchronous Position Command Value With Modulo Scaling



When using the parallel phase-synchronous movement, it is necessary to set modulo position scaling.

P-0-0755 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.			Default value	
MPB:		0 / 32767			1	
MPC:		0 / 32767			1	
MPE:		0 / 32767			1	
MPM:		0 / 32767			1	

## 5.5.32 P-0-0756, Virtual master axis, scaling type

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--	--	--
	Funct. package(s):	synchronisation (ELS)		
	Device parameter:	device-specific		

**Function** This parameter defines the scaling type, the measurement unit and the processing format for the position/velocity and acceleration data for the virtual master axis. The jerk is not mentioned separately because the jerk data are derived from this parameter.



The position data and the velocity data have 4 decimal places. Acceleration and jerk have 2 decimal places.

### Structure

Bit	Position data	Velocity data	Acceleration data
2-0	<b>Scaling type:</b> 001: Linear scaling 010: Rotary scaling	<b>Scaling type:</b> 001: Linear scaling 010: Rotary scaling	<b>Scaling type:</b> 001: Linear scaling 010: Rotary scaling
4	<b>Unit for linear scaling</b> 0: Millimeter [mm] 1: Inch [in] <b>Unit for rotary scaling</b> 0: Angular degree 1: Reserved	<b>Unit for linear scaling</b> 0: mm/min 1: in/min <b>Unit for rotary scaling</b> 0: Revolution [r/min] 1: Reserved	<b>Unit for linear scaling</b> 0: mm/s <sup>2</sup> 1: in/s <sup>2</sup> <b>Unit for rotary scaling</b> 0: Radiant [rad/s <sup>2</sup> ] 1: Reserved
7	<b>modulo format</b> 0: Absolute scaling 1: Modulo scaling	Irrelevant	Irrelevant

Tab.5-148: P-0-0756, Virtual master axis, scaling type

P-0-0756 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0x82		
	MPC:	--- / ---		0x82		
	MPE:	--- / ---		0x82		
	MPM:	--- / ---		0x82		

## 5.5.33 P-0-0757, Virtual master axis, modulo value

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--	--	--
	Funct. package(s):	synchronisation (ELS)		
	Device parameter:	device-specific		

**Function** When bit 7 was set to "1" in parameter "P-0-0756, Virtual master axis, scaling type", parameter "P-0-0757, Virtual master axis, modulo value" determines the numeric range in which the virtual position data run (0 to modulo value).

**Use** The unit of the parameter corresponds to the selected scaling of the position data.

## Product-Specific Parameters

<b>P-0-0757 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		0,0000 / 214748,3647		360,0000		
<b>MPC:</b>		0,0000 / 214748,3647		360,0000		
<b>MPE:</b>		0,0000 / 214748,3647		360,0000		
<b>MPM:</b>		0,0000 / 214748,3647		360,0000		

## 5.5.34 P-0-0758, Virtual master axis, actual position value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--	--	--
	<b>Funct. package(s):</b>	synchronisation (ELS)		
<b>Device parameter:</b>		device-specific		

**Function** This parameter displays the virtual actual position value.

**Use** With the master axis generator deactivated ("P-0-0917, Control word of master axis generator", bit 0 = 0), it is possible to pre-initialize the actual position value in the parameter mode or in the operating mode.

<b>P-0-0758 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		-214748,3648 / 214748,3647		---		
<b>MPC:</b>		-214748,3648 / 214748,3647		---		
<b>MPE:</b>		-214748,3648 / 214748,3647		---		
<b>MPM:</b>		-214748,3648 / 214748,3647		---		

## 5.5.35 P-0-0759, Virtual master axis, actual velocity value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--	--	--
	<b>Funct. package(s):</b>	synchronisation (ELS)		
<b>Device parameter:</b>		device-specific		

**Function** This parameter displays the virtual actual velocity value. When switching to the operating mode, the actual velocity value is initialized with 0.

**Use** With the master axis generator deactivated ("P-0-0917, Control word of master axis generator", bit 0 = 0), it is possible to pre-initialize the actual velocity value in the operating mode. This can be necessary, for example, when switching from a master axis (P-0-0052, P-0-0053) to the internal virtual master axis "P-0-0761, Master axis position for slave axis" in control.

<b>P-0-0759 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	OM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		-214748,3648 / 214748,3647		---		
<b>MPC:</b>		-214748,3648 / 214748,3647		---		
<b>MPE:</b>		-214748,3648 / 214748,3647		---		
<b>MPM:</b>		-214748,3648 / 214748,3647		---		

## 5.5.36 P-0-0760, Virtual master axis, positioning control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--	--	--

Product-Specific Parameters

Funct. package(s): synchronisation (ELS)  
Device parameter: device-specific

Function  
Structure

This parameter is used as control word for virtual positioning.

Bit	Designation/function	Comment
0	<b>Acceptance of positioning command values</b> Applied by toggling	
2/1	<b>Positioning activation</b> 00: Positioning active, started by changing bit 0 Positioning aborted by: 01: Infinite travel in positive direction 10: Infinite travel in negative direction 11: Stopping the axis (positioning stop)	
3	<b>Type of positioning command value</b> 0: Absolute 1: Relative	
4	<b>Dedicated point for positioning command values</b> 0: Last effective target position 1: Current actual position value	
12	<b>Activation of secondary master</b> 0: Positioning mode 1: Secondary master	

Tab.5-149: P-0-0760, Virtual master axis, positioning control word

Use

**Bit 4 Dedicated point for positioning command values**

**Bit 4 = 0:** Reference for positioning is the previous target position (P-0-0767), i.e., any possibly existing residual path is taken into account for positioning.

**Bit 4 = 1:** Reference for positioning is the current actual position value (P-0-0758); as a result, a possibly existing residual path is not traveled.



If positioning is absolute, bit 4 has to be taken into account only in modulo mode of the virtual master axis generator.

**Bit 12: Activation of secondary master**

If bit 12 is set, the phase-synchronous motion of the secondary master (P-0-0761) to a primary master is active. The primary master is defined via parameter "P-0-0924, Selection primary master". If bit 12 is set, the low-order bits are without effect in "P-0-0760".

P-0-0760 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.5.37 P-0-0761, Master axis position for slave axis

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		synchronisation (ELS)			
	Device parameter:		device-specific			
Function	This parameter contains the value of the signal source specified by parameter "P-0-0916, Master axis format converter signal selection", wherein this value has been converted to master axis format. The master axis format of the internal virtual master axis VmAxisInt (P-0-0761) is defined via "P-0-0917; bit 4".					
P-0-0761 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.5.38 P-0-0762, Virtual master axis, velocity limit value

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		synchronisation (ELS)			
	Device parameter:		device-specific			
Function	This parameter is used during "dynamic jerk adjustment" to define the limit up to which an increase in velocity is allowed. In addition, a specified positioning velocity is checked and limited.					
P-0-0762 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,0000 / 214748,3647			10000,0000	
	MPC:	0,0000 / 214748,3647			10000,0000	
	MPE:	0,0000 / 214748,3647			10000,0000	
	MPM:	0,0000 / 214748,3647			10000,0000	

## 5.5.39 P-0-0763, Modulo factor, master axis format converter

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	device-specific			
Function	This parameter defines the master axis cycle/modulo value for generating the internal virtual master axis position VmAxisInt "P-0-0761, Master axis position for slave axis" provided it was previously switched to effective by setting "P-0-0917; bit 4".				

**P-0-0763 > 0**

The value of this parameter defines the number of master axis revolutions per master axis cycle of the internal virtual master axis. The master axis cycle of the internal virtual master axis comprises a range from 0 increments to  $P-0-0763 * 2^{P-0-0773} - 1$  increments.

## Product-Specific Parameters

The modulo value of the internal virtual master axis then corresponds to  $P-0-0763 * 2^{P-0-0773}$  increments.

### P-0-0763 = 0

In this case, the master axis cycle ranges from  $-2^{31}$  increments to  $2^{31} - 1$  increments. This corresponds to  $2^{(32 - P-0-0773)}$  master axis revolutions.



The default setting of the parameter is not active.



This parameter is used in cases where the generated internal virtual master axis VmAxisInt is used as master axis source for remote axes having a master axis format that differs from the CCD master axis/local axis.

#### P-0-0763 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 2047	1
MPC:	0 / 2047	1
MPE:	0 / 2047	1
MPM:	0 / 2047	1

## 5.5.40 P-0-0764, Master axis speed

#### Allocation

Contained in 16VRS:	«MPB»	«-»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	synchronisation (ELS)			
Device parameter:	axis-specific			

#### Function

The master axis speed corresponds to the difference of the master axis values of parameter "P0-0775, Resulting master axis position" per position loop interrupt of the drive. The master axis speed is given in rpm.

See also Functional Description: "Synchronization Modes"

#### P-0-0764 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	rpm	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.5.41 P-0-0765, Modulo factor measuring encoder

#### Allocation

Contained in 16VRS:	«MPB»	«-»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	Servo(compensation), synchronisation (ELS)			
Device parameter:	axis-specific			

#### Function

Parameter "P-0-0765, Modulo factor measuring encoder" defines the absolute range of the measuring encoder. It is entered as a factor of  $2^{P-0-0084}$ , Number of bits per master axis revolution, so that the following applies:

Modulo range of measuring encoder = modulo factor measuring encoder \*  $2^{P-0-0084}$

## Product-Specific Parameters

If 0 is entered as value for "P-0-0765", the position data range of the measuring encoder reaches from  $-2^{31}$  increments to  $2^{31}-1$  increments.

This corresponds to  $2^{(32 - P-0-0084)}$  measuring encoder revolutions.

See also Functional Description "Measuring Encoder"

**Use** This is the range in which the measuring encoder is evaluated and displayed. If the modulo factor of the measuring encoder \*  $2^{P-0-0084}$  is less than the absolute display range of the measuring encoder (automatically defined by selecting the encoder), bit 6 is set in parameter "P-0-0328, Type of position encoder for measuring encoder" absolute encoder evaluation is possible).

**P-0-0765 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0 / 2047	1
<b>MPC:</b>	0 / 2047	1
<b>MPE:</b>	0 / 2047	1
<b>MPM:</b>	0 / 2047	1

## 5.5.42 P-0-0766, Virtual master axis, positioning command value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--	--	--
	<b>Funct. package(s):</b>	synchronisation (ELS)		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is used to specify the target position (absolute position) or a relative travel distance for the master axis generator.



The effective target position to which the virtual axis positions can be read at any time from "P-0-0767, Virtual master axis, effective target position"!



After the drive has been switched on, the value of "P-0-0766" is set to zero.

**Use** When the edge of bit 0 of "P-0-0760, Virtual master axis, positioning control word" is changed, the master axis generator travels to a virtual axis position which corresponds to "P-0-0766, Virtual master axis, positioning command value", this being controlled by an internally generated position command value.

The master axis generator takes the following additional positioning data into account:

- P-0-0770, Virtual master axis, positioning velocity
- P-0-0771, Virtual master axis, positioning acceleration
- P-0-0772, Virtual master axis, positioning deceleration
- P-0-0913, Virtual master axis, positioning jerk

**P-0-0766 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	-214748,3648 / 214748,3647---	---
<b>MPC:</b>	-214748,3648 / 214748,3647---	---
<b>MPE:</b>	-214748,3648 / 214748,3647---	---
<b>MPM:</b>	-214748,3648 / 214748,3647---	---

## 5.5.43 P-0-0767, Virtual master axis, effective target position

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	synchronisation (ELS)		
	Device parameter:	device-specific		
Function	Via this parameter the current target position (absolute position) can be read when the virtual master axis is positioned.			
Use	The parameter is initialized depending on the following settings:			
	<ul style="list-style-type: none"><li>the value of "P-0-0766, Virtual master axis, positioning command value", if it has been defined as absolute target position,</li><li>the sum of the previous value of "P-0-0767, Virtual master axis, effective target position" and "P-0-0766, Virtual master axis, positioning command value", if the new target position relates to the previous target position ( "P-0-0760, Virtual master axis, positioning control word", bit 4 = 0 (previous target position)),</li><li>the sum of the actual position value "P-0-0758, Virtual master axis, actual position value" and "P-0-0766, Virtual master axis, positioning command value" at the time toggling takes place, if the target position relates to the current actual position value (P-0-0760, bit 4 = 1 (current actual position value)).</li></ul>			
P-0-0767 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT	Comb. check:	--
			Data length:	4Byte
		Format:	DEC_MV	
		Decim. pl.:	4	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.5.44 P-0-0768, Virtual master axis, positioning status

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	synchronisation (ELS)		
	Device parameter:	device-specific		
Function	The parameter is formed while the virtual master axis is active. The parameter contains status bits of the virtual positioning generator.			
Structure				
	Bit	Significance	Comment	
	0	Target position reached P-0-0767 = P-0-0758		
	1	Acknowledgement bit P-0-0760, Virtual master axis, positioning control word, bit 0		
	2	IN_TARGET POSITION = ( P-0-0767 - P-0-0758   < P-0-0911) &&   P-0-0759   < P-0-0912		
	3	Interpolator stopped		
	4	Constant command velocity		
	5	Drive accelerates		
	6	Drive decelerates		

## Product-Specific Parameters

8	Synchroniz. of second. master completed	
12	Jog mode active (P-0-0760, bits 1 and 2)	

Tab.5-150: P-0-0768, Virtual master axis, positioning status

**Use** When the bit is set, the secondary master (P-0-0761) moves synchronously with the primary master either relatively or absolutely.

<b>P-0-0768 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.5.45 P-0-0769, Virtual master axis, command value mode

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	device-specific			

**Function** In the case of virtual modulo scaling, this parameter defines the allowed direction of rotation of the "virtual master axis" of the master axis generator for positioning processes.

**Structure**

Bit	Designation/function	Comment
1/0	<b>00: positive direction</b> Only positive direction of rotation is allowed for positioning (relative/absolute). <b>01: negative direction</b> Only negative direction of rotation is allowed for positioning (relative/absolute). <b>10: shortest distance</b> Both positive and negative directions of rotation are allowed for positioning (relative/absolute).	

Tab.5-151: P-0-0769, Virtual master axis, command value mode

<b>P-0-0769 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		0x0 / 0x2		0x0		
MPC:		0x0 / 0x2		0x0		
MPE:		0x0 / 0x2		0x0		
MPM:		0x0 / 0x2		0x0		

## 5.5.46 P-0-0770, Virtual master axis, positioning velocity

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter presets the velocity command value (positioning velocity command value) of the virtual master axis.

Product-Specific Parameters

<b>P-0-0770 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	0,0000 / 214748,3647			10,0000	
	<b>MPC:</b>	0,0000 / 214748,3647			10,0000	
	<b>MPE:</b>	0,0000 / 214748,3647			10,0000	
	<b>MPM:</b>	0,0000 / 214748,3647			10,0000	

## 5.5.47 P-0-0771, Virtual master axis, positioning acceleration

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		synchronisation (ELS)			
	Device parameter:		device-specific			
Function	This parameter presets the acceleration command value of the virtual master axis.					
P-0-0771 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,00 / 21474836,47			100,00	
	MPC:	0,00 / 21474836,47			100,00	
	MPE:	0,00 / 21474836,47			100,00	
	MPM:	0,00 / 21474836,47			100,00	

## 5.5.48 P-0-0772, Virtual master axis, positioning deceleration

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		synchronisation (ELS)			
	Device parameter:		device-specific			
Function	This parameter presets the deceleration command value of the virtual master axis.					
P-0-0772 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	2
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,00 / 21474836,47			100,00	
	MPC:	0,00 / 21474836,47			100,00	
	MPE:	0,00 / 21474836,47			100,00	
	MPM:	0,00 / 21474836,47			100,00	

## 5.5.49 P-0-0773, Number of bits per master axis revolution, format converter

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	device-specific			
Function	This parameter defines the resolution of the internal virtual master axis VmAxisInt "P-0-0761 Master axis position for slave axis" provided it was previously switched to effective by setting bit 4 "Master axis format of internal virtual master axis (VmAxisInt)" of parameter "P-0-0917, Control word of master axis generator". The numerical value corresponds to the exponent of a power of two. The default setting of this parameter is 20. As a result, one master axis revolution corresponds to 2 <sup>20</sup> (1048576) increments per master axis revo				

## Product-Specific Parameters

lution. If bit 4 of parameter "P-0-0917" is not set (default setting), the resolution of the internal virtual master axis VmAxisInt "P-0-0761, Master axis position for slave axis" is defined by parameter "P-0-0084, Number of bits per master axis revolution".



This parameter is used in cases where the generated internal virtual master axis VmAxisInt is used as master axis source for remote axes having a master axis format that differs from the CCD master axis/local axis.

## P-0-0773 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	16 / 31	20
MPC:	16 / 31	20
MPE:	16 / 31	20
MPM:	16 / 31	20

## 5.5.50 P-0-0774, Virtual master axis, positioning window shortest distance

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
Hardware	--			
Funct. package(s):	synchronisation (ELS)			
Device parameter:	device-specific			

**Function** This parameter allows determining a symmetrical position range relative to the current position (target position window). Within the symmetrical position range it is always possible to move to a target position over the shortest distance even if only one direction of movement has been determined for positioning in "P-0-0769, Virtual master axis, command value mode".

## P-0-0774 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,0000 / 214748,3647	0,0000
MPC:	0,0000 / 214748,3647	0,0000
MPE:	0,0000 / 214748,3647	0,0000
MPM:	0,0000 / 214748,3647	0,0000

## 5.5.51 P-0-0775, Resulting master axis position

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPM»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
Hardware	--			
Funct. package(s):	synchronisation (ELS)			
Device parameter:	axis-specific			

**Function** The resulting master axis position is the master axis position which takes effect at the input of the master drive gear in the synchronous operation modes. Depending on the parameterization, the resulting master axis position consists of several different master axis positions and is generated in the drive in the position loop clock.

See also Functional Description "Synchronization Modes"

**Use** The resulting master axis position consists of the sum of three master axis positions.

**Position synchronization or velocity synchronization active:**

## Product-Specific Parameters

Generation is defined via bit 7 and 6 of parameter "P-0-0088, Control word synchronization modes".

Bits 7/6	Master axis	P-0-0775
0 0	P-0-0053	P-0-0053 + P-0-0054 + P-0-0692
0 1	P-0-0761 as of MPx-17V06	P-0-0761 + P-0-0054 + P-0-0692
1 0	P-0-0052	P-0-0052 + P-0-0054 + P-0-0692
1 1	P-0-0787 as of MPx-17V06	-P-0-0787 + P-0-0054 + P-0-0692

### Other active synchronous operation modes:

- Synchronous operation mode with real master axis:  
 $P-0-0775 = P-0-0052 + P-0-0054 + P-0-0692$
- Synchronous operation mode with virtual master axis:  
The resulting master axis position is generated as follows depending on bits 7 and 6 of parameter "P-0-0088, Control word synchronization modes":
  - Bit 7/6 = x0:  $P-0-0775 = P-0-0053 + P-0-0054 + P-0-0692$
  - Bit 7/6 = 01:  $P-0-0775 = P-0-0761 + P-0-0054 + P-0-0692$  as of MPx-17V06
  - Bit 7/6 = 11:  $P-0-0775 = P-0-0787 + P-0-0054 + P-0-0692$  as of MPx-17V06

### No synchronous operation mode active:

If function package "IndraMotion MLD" is activated or one of the two synchronous operation modes (position synchronization or velocity synchronization) is configured, the following is applicable:

Bits 7/6	Master axis	P-0-0775
0 0	P-0-0053	P-0-0053 + P-0-0054 + P-0-0692
0 1	P-0-0761 as of MPx-17V06	P-0-0761 + P-0-0054 + P-0-0692
1 0	P-0-0052	P-0-0052 + P-0-0054 + P-0-0692
1 1	P-0-0787 as of MPx-17V06	P-0-0787 + P-0-0054 + P-0-0692

If the additive "IndraMotion MLD" function package is not activated and none of the two "position synchronization or velocity synchronization" modes is configured, then the following applies:

- Synchronous operation mode with real master axis  
 $P-0-0775 = P-0-0052 + P-0-0054 + P-0-0692$
- Synchronous operation mode with virtual master axis  
The resulting master axis position is generated as follows depending on bits 6 and 7 of parameter "P-0-0088, Control word synchronization modes":
  - Bit 7/6 = X0:  $P-0-0775 = P-0-0053 + P-0-0054 + P-0-0692$
  - Bit 7/6 = 01:  $P-0-0775 = P-0-0761 + P-0-0054 + P-0-0692$  as of MPx-17V06
  - Bit 7/6 = 11:  $P-0-0775 = P-0-0787 + P-0-0054 + P-0-0692$  as of MPx-17V06

### P-0-0775 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.5.52 P-0-0776, Effective master axis position

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The effective master axis position is the resulting master axis position "P-0-0775" after the master drive gear "P-0-0157/P-0-0156" and the gear ratio fine adjustment "P-0-0083". With modulo scaling, the effective master axis position is limited to 2<sup>P-0-0084</sup>. The parameter is only generated with active synchronous operation mode.

See also Functional Description "Synchronization Modes"

P-0-0776 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.5.53 P-0-0777, Effective master axis velocity

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** The effective master axis velocity is "P-0-0764, Master axis speed" after the master drive gear P-0-0157/P-0-0156 and the gear ratio fine adjustment P-0-0083.

See also Functional Description "Synchronization Modes"

P-0-0777 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	rpm	Extr. val. ch.:	--	Decim. pl.:	4
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.5.54 P-0-0778, Synchronous position command value

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The synchronous position command value is the synchronous position command value of the slave axis derived from the resulting master axis position (P-0-0775). It is determined depending on the synchronous operation mode with outer position control loop that has been set.

Product-Specific Parameters

See also Functional Description "Synchronization Modes"

P-0-0778 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.5.55 P-0-0779, Synchronous velocity

Allocation

Contained in 16VRS:	«MPB»	«-»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

Function

The synchronous velocity is the differentiated synchronous position command value P-0-0778 per controller cycle.

See also Functional Description "Synchronization Modes"

See also Functional Description "Phase Synchronization with Real/Virtual Master Axis"

P-0-0779 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.5.56 P-0-0780, Cam table 3

Allocation

Contained in 16VRS:	«MPB»	«-»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

Function

Parameter "P-0-0780" contains a table with data points tab (φ) for the profile of cam 3.

See also Functional Description "Electronic Cam With Real/Virtual Master Axis"

Use

Rexroth IndraDrive supports up to 8 cam tables which can be divided into the following groups:

- 4 cam tables with 3 to 1024 data points (P-0-0072, P-0-0092, P-0-0780, P-0-0781)
- 4 cam tables with 3 to 128 data points (P-0-0782, P-0-0783, P-0-0784, P-0-0785)



The individual data points of the table are interconnected by means of cubic spline interpolation.

P-0-0780 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV

## Product-Specific Parameters

Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-799,999999 / 799,999999	s. Text
MPC:	-799,999999 / 799,999999	s. Text
MPE:	-799,999999 / 799,999999	s. Text
MPM:	-799,999999 / 799,999999	s. Text

## 5.5.57 P-0-0781, Cam table 4

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "P-0-0781" contains a table with data points tab ( $\phi$ ) for the profile of cam 4.

See also Functional Description of Operation Mode "Electronic Cam With Real/Virtual Master Axis"

**Use** Rexroth IndraDrive supports up to 8 cam tables which can be divided into the following groups:

- 4 cam tables with 3 to 1024 data points (P-0-0072, P-0-0092, P-0-0780, P-0-0781)
- 4 cam tables with 3 to 128 data points (P-0-0782, P-0-0783, P-0-0784, P-0-0785)



The individual data points of the table are interconnected by means of cubic spline interpolation.

See also Parameter Description "P-0-0072, Cam table 1"

## P-0-0781 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-799,999999 / 799,999999	s. Text
MPC:	-799,999999 / 799,999999	s. Text
MPE:	-799,999999 / 799,999999	s. Text
MPM:	-799,999999 / 799,999999	s. Text

## 5.5.58 P-0-0782, Cam table 5

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter P-0-0782 contains a table with data points tab ( $\phi$ ) for the profile of cam 5.

See also Functional Description "Electronic Cam With Real/Virtual Master Axis"

**Use** Rexroth IndraDrive supports up to 8 cam tables which can be divided into the following groups:

- 4 cam tables with 3 to 1024 data points (P-0-0072, P-0-0092, P-0-0780, P-0-0781)
- 4 cam tables with 3 to 128 data points (P-0-0782, P-0-0783, P-0-0784, P-0-0785)

Product-Specific Parameters



The individual data points of the table are interconnected by means of cubic spline interpolation.

P-0-0782 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	6
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		-799,999999 / 799,999999		s. Text	
<b>MPC:</b>		-799,999999 / 799,999999		s. Text	
<b>MPE:</b>		-799,999999 / 799,999999		s. Text	
<b>MPM:</b>		-799,999999 / 799,999999		s. Text	

## 5.5.59 P-0-0783, Cam table 6

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Parameter P-0-0783 contains a table with data points tab (φ) for the profile of cam 6.  See also Functional Description of the operation mode "Electronic Cam With Real/Virtual Master Axis"				
Use	Rexroth IndraDrive supports up to 8 cam tables which can be divided into the following groups: <ul style="list-style-type: none"><li>4 cam tables with 3 to 1024 data points (P-0-0072, P-0-0092, P-0-0780, P-0-0781)</li><li>4 cam tables with 3 to 128 data points (P-0-0782, P-0-0783, P-0-0784, P-0-0785)</li></ul>				



The individual data points of the table are interconnected by means of cubic spline interpolation.

See also Parameter Description "P-0-0072, Cam table 1"

P-0-0783 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	6
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		-799,999999 / 799,999999		s. Text	
<b>MPC:</b>		-799,999999 / 799,999999		s. Text	
<b>MPE:</b>		-799,999999 / 799,999999		s. Text	
<b>MPM:</b>		-799,999999 / 799,999999		s. Text	

## 5.5.60 P-0-0784, Cam table 7

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Parameter P-0-0784 contains a table with data points tab (φ) for the profile of cam 7.  See also Functional Description "Electronic Cam With Real/Virtual Master Axis"				
Use	Rexroth IndraDrive supports up to 8 cam tables which can be divided into the following groups:				

## Product-Specific Parameters

- 4 cam tables with 3 to 1024 data points (P-0-0072, P-0-0092, P-0-0780, P-0-0781)
- 4 cam tables with 3 to 128 data points (P-0-0782, P-0-0783, P-0-0784, P-0-0785)



The individual data points of the table are interconnected by means of cubic spline interpolation.

## P-0-0784 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-799,999999 / 799,999999	s. Text
MPC:	-799,999999 / 799,999999	s. Text
MPE:	-799,999999 / 799,999999	s. Text
MPM:	-799,999999 / 799,999999	s. Text

## 5.5.61 P-0-0785, Cam table 8

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware		--			
Funct. package(s):		"open loop", "closed loop"			
Device parameter:		axis-specific			

**Function** Parameter "P-0-0785" contains a table with data points tab ( $\phi$ ) for the profile of cam 8.

See also Functional Description "Electronic Cam With Real/Virtual Master Axis"

**Use** Rexroth IndraDrive supports up to 8 cam tables which can be divided into the following groups:

- 4 cam tables with 3 to 1024 data points (P-0-0072, P-0-0092, P-0-0780, P-0-0781)
- 4 cam tables with 3 to 128 data points (P-0-0782, P-0-0783, P-0-0784, P-0-0785)



The individual data points of the table are interconnected by means of cubic spline interpolation.

See also Parameter Description "P-0-0072, Cam table 1"

## P-0-0785 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-799,999999 / 799,999999	s. Text
MPC:	-799,999999 / 799,999999	s. Text
MPE:	-799,999999 / 799,999999	s. Text
MPM:	-799,999999 / 799,999999	s. Text

## 5.5.62 P-0-0786, Modulo value actual value cycle

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware		--			
Funct. package(s):		"open loop", "closed loop"			
Device parameter:		axis-specific			

Product-Specific Parameters

**Function** The parameter P-0-0786 is used to display the modulo value for the actual value cycle. It is the range for parameter "P-0-0753, Position actual value in actual value cycle".

See also Functional Description "Synchronization Modes"

<b>P-0-0786 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

### 5.5.63 P-0-0787, Group axis 1 position

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
<b>Device parameter:</b>		axis-specific			

**Function** "Group axis 1 position" serves as group axis between the IndraMotion MLD-M and a higher-level control or as a second virtual master axis which is identical with the virtual master axis position in "P-0-0053, Master axis position". The group axis is used to specify cyclic master axis command values at time-equidistant intervals (NC clock).

"P-0-0787" is used as primary master axis for secondary master axis operation or directly as primary master axis for the master axis format converter of the virtual axis.

"P-0-0787" serves as a second virtual master axis for the real synchronous operation modes in addition to the following master axes:

- P-0-0053, Master axis position
- P-0-0761, Master axis position for slave axis
- P-0-0052, Actual position value of measuring encoder

See also Functional Description "Virtual Master Axis Generator"

<b>P-0-0787 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Incr	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

### 5.5.64 P-0-0788, Group axis 1 position, fine-interpolated

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter displays the group axis position of parameter "P-0-0787, Group axis 1 position" fine interpolated with regard to the position loop clock.

See also Functional Description "Virtual Master Axis Generator"

## Product-Specific Parameters

<b>P-0-0788 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Incr	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.5.65 P-0-0789, Master axis position, fine-interpolated

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays the master axis position of the parameter "P-0-0053, Master axis position" fine interpolated with regard to the position loop clock.

See also Functional Description "Synchronization Modes"

<b>P-0-0789 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Incr	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.5.66 P-0-0806, Current mains voltage crest value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** For HCS03 devices (converters), this parameter displays the current crest value of the mains voltage.

This parameter does not exist for HCS01/02 and HCQ/HCT devices (converters) and inverters (HMS, HMD).

<b>P-0-0806 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	V	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.5.67 P-0-0809, Properties of charging circuit

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This list parameter displays the data for the soft-start charging circuit. It is stored in the power section in non-volatile form.

See also Functional Description "Power Supply"

Product-Specific Parameters

<b>P-0-0809 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	LT_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0,00 / 655,35		---	
		MPC:	0,00 / 655,35		---	
		MPE:	0,00 / 655,35		---	
		MPM:	0,00 / 655,35		---	

## 5.5.68 P-0-0810, Minimum mains crest value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	device-specific		

**Function** For HCx converters, it is possible to set an individual minimum value for the crest value of the mains voltage in this parameter. This value is only effective, if it is greater than the minimum value of the mains connection voltage range!

**For HCS01/2 and HCQ/HCT** If the mains crest value, when the converter is switched on, is lower than the value in P-0-0810, the diagnostic message "E2814 Undervoltage in mains" is generated.

**For HCS03** If the mains crest value, when the converter is switched on or operated, is lower than the value in P-0-0810, the diagnostic message "E2814 Undervoltage in mains" is generated.



For HCS devices, the mains voltage crest value detected when switching on is displayed in "P-0-0815, Nominal mains voltage crest value"!

<b>P-0-0810 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	V	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0 / 780		s. Text	
		MPC:	0 / 780		s. Text	
		MPE:	0 / 780		s. Text	
		MPM:	0 / 780		s. Text	

## 5.5.69 P-0-0815, Nominal mains voltage crest value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	device-specific		

**Function** This parameter for HCS converters displays the mains voltage crest value that was measured when the mains voltage was switched in the first time.

From this value the standard value for the undervoltage threshold (P-0-0114), the standard minimum value of the mains voltage crest value (P-0-0810) and the standard switch-on threshold of a braking resistor (P-0-0858) are derived.

<b>P-0-0815 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	V	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	

## Product-Specific Parameters

MPE:	---	---	---
MPM:	---	---	---

## 5.5.70 P-0-0816, Amplifier temperature 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Indicates the current temperature of a second temperature sensor on the power section. This sensor is available for HCS03.1 devices.

The parameter P-0-0816 is always available, even if there is no second temperature sensor available. In this case the value "0" is displayed.

The corresponding warning and switch-off thresholds are "E2040 Amplifier overtemperature 2 prewarning" and "F2040 Amplifier overtemperature 2 shut-down".

P-0-0816 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0208	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.5.71 P-0-0819, Energy counter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter displays the energy which was supplied to the drive. The energy is determined by means of the operating time as the sum of the effective power.

P-0-0819 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_MV
	Unit:	kWh	Extr. val. ch.:	--	Decim. pl.:	2
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-20000000,00 / 20000000,00	---
MPC:	-20000000,00 / 20000000,00	---
MPE:	-20000000,00 / 20000000,00	---
MPM:	-20000000,00 / 20000000,00	---

## 5.5.72 P-0-0833, Braking resistor threshold

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The braking resistor is required for limiting the DC bus voltage. The braking resistor is switched on, if the DC bus voltage is higher than the voltage threshold set in "P-0-0833, Braking resistor threshold".

The switch-on threshold of the braking resistor is defined by the dielectric strength of the motor (P-0-0853).

## Product-Specific Parameters

See Functional Description "Information on the Braking Resistor and the DC Bus Resistor Unit HLB01"

**Use** When using HLB01 resistor units, they must be operated "independently of the line voltage" and the reference value in "P-0-0860" must be set to "00" in all other components involved.



- When converters are operated in parallel operation or group supply, make sure that the switch-on/switch-off thresholds are the same. In addition, it is recommended that the balancing function be left active (P-0-0860).
- If braking resistor units of the HLB01 type are used for limiting the DC bus voltage, bit 12 must be set to 1 in parameter "P-0-0860, Converter configuration" in the DC bus, when converters of the HCS03 type are connected. This deactivates the reduction of the regenerative power which has been activated at the converter due to the missing braking resistor.
- Motors with different dielectric strengths may not be operated on devices which are connected to a DC bus.

### P-0-0833 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	V	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.5.73 P-0-0844, thermal load of Braking resistor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter displays the percentage-based thermal energy currently stored in the braking resistor in relation to its maximum allowed energy content.

If the load rises to a value exceeding the prewarning threshold, prewarning "E2820 Braking resistor overload prewarning" is displayed. Once a load of 100% is reached, the device generates error "F2820" and reacts with the error reaction set for F2 errors. The braking resistor function remains active during the deceleration phase.

As of MPx17: The prewarning threshold is defined by parameter "P-0-0469, Prewarning threshold of therm. load of braking resistor".

To allow a quick check of the thermal load of the braking resistor during a machining cycle, a value can be written to the display value that is greater than the current load prior to the machining cycle. If the value after the machining cycle is lower than the set value and the value defined in "P-0-0467, Maximum value thermal load of Braking resistor" is lower than 100%, the machining cycle is not limited by the braking resistor.

### P-0-0844 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.5.74 P-0-0851, Short-time energy counter

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	---	---	---
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Similar to "P-0-0819, Energy counter", this parameter serves to display the energy consumed by the drive. Resolution is 1 Ws. This allows evaluation of the energy consumption of individual machining cycles which can take from a few seconds to as long as several hours. The parameter is not stored and is zero after the drive has been switched on.

P-0-0851 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	Ws	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-2147483648 / 2147483647	---
MPC:	-2147483648 / 2147483647	---
MPE:	-2147483648 / 2147483647	---
MPM:	-2147483648 / 2147483647	---

## 5.5.75 P-0-0853, Max. DC bus voltage, motor

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	---	---	---
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** If a motor is not suitable for the maximum DC bus voltage defined by the device, the maximum allowed DC bus voltage for the motor (output voltage of the converter) must be entered in this parameter. This parameter defines the threshold for switching off the power output stage and the switch-on threshold of the braking resistor (if present). The reduction becomes effective if the voltage entered here is lower than the values defined by the device. Subject to the device, the switch-on voltage of the braking resistor is reduced as compared with the switch-off threshold of the power output stage.

In case of Bosch Rexroth motors with encoder data memory (MSK: 950 V; MSM: 420 V) the parameter is set automatically.

Observe the following aspects for parameter setting:

The switch-on voltage of the braking resistor is checked with the line voltage.

**BG 1:** The braking resistor switch-on voltage may not be lower than 108% of "P-0-0815, Nominal mains voltage crest value".

See also Functional Description "Power Supply"

P-0-0853 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	V	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	420,0 / 950,0	900,0
MPC:	420,0 / 950,0	900,0
MPE:	420,0 / 950,0	900,0
MPM:	420,0 / 950,0	900,0

## 5.5.76 P-0-0858, Data of external braking resistor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This list parameter is used to specify for the converter the type data of an externally connected braking resistor.

Usable HLR braking resistors are assigned to the corresponding HCS devices in documentation "Rexroth IndraDrive, Supply Units and Power Sections; Project Planning Manual".

For type data of the HLR braking resistors, please refer to documentation "Rexroth IndraDrive, Additional Components; Project Planning Manual".

See also Functional Description "Power Supply"

The list parameter has the following structure:

List element no.	Name	Unit	Decimal places	Length in bytes
0	Nominal braking resistance	Ohm	4	4
1	Braking resistor continuous power	W	4	4
2	Max. regenerative power to be absorbed	KWs	4	4
3	Up to MPx-17VRS: Braking resistor switch-on threshold As of MPx-18VRS: List element not available	V	4	4
4	Not supported As of MPx-18VRS: List element not available		4	4

Tab.5-152: Data of External Braking Resistor

**Use** Observe the following aspects for parameterizing "P-0-0858":

- To activate an external braking resistor, this must be configured in parameter "P-0-0860, Converter configuration".
- If the braking resistor activation function has been activated via "P-0-0860, Converter configuration", the braking resistor data have to be correct. They are compared with device-dependent limit values.
- Up to MPx-17VRS:  
If the dielectric strength of the motor requires a reduced DC bus voltage, the switch-on threshold of the braking resistor must also be reduced as compared with the default value, if necessary. The value in list element no. 3 becomes effective as braking resistor switch-on threshold, if this has been configured in parameter "P-0-0860, Converter configuration".
  - HCS01.1E-...-02-...** : The value in list element 3 must be at least 108 % of "P-0-0815, Nominal mains voltage crest value" and may be no more than 390 V (default).
  - HCS01.1E-...-03-...** : The value in list element 3 must be at least 130 % of "P-0-0815" and may be no more than 820 V (default).
- As of MPx-18VRS:

## Product-Specific Parameters

If the dielectric strength of the motor requires a reduced DC bus voltage, the switch-on threshold of the braking resistor must also be adjusted. This is achieved by entering the maximum DC bus voltage allowed for the motor in "P-0-0853, Max. DC bus voltage, motor". List element no. 3 of "P-0-0858" is no longer relevant!



If the value entered in list element no. 3 is too low, this is verified when power supply is connected (HCS03/04) or after the first soft start (HCS01/02, HCQ, HCT), and the diagnostic message "F2825 Switch-on threshold braking resistor too low" is signaled.

## P-0-0858 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		s. Text		
MPC:	--- / ---		s. Text		
MPE:	--- / ---		s. Text		
MPM:	--- / ---		s. Text		

## 5.5.77 P-0-0859, Data of internal braking resistor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«-»	«MPC»
Hardware	optional drives card				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	device-specific				

**Function** For converters the type data of the device-internal braking resistor are displayed in this list parameter. The parameter is stored in non-volatile form in the power section.

## Structure

Element No.	Name	Unit	Decimal places	Length in bytes
0	nominal braking resistance	Ohm	4	4
1	braking resistor continuous power	W	4	4
2	max. regenerative power to be absorbed	kWs	4	4

Tab.5-153: Data of the internal braking resistor

## P-0-0859 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	LT_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.5.78 P-0-0860, Converter configuration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	device-specific				

Product-Specific Parameters

**Function** This parameter serves to make basic settings for the power section of converters.

See also Functional Description "Power Supply"

**Structure** The bits of the parameter have the following significance:

Bit	Designation/function	Comment
0	<b>Source of the power supply of the converter</b> 0: Line voltage (default) 1: DC bus	As of MPx-17VRS in connection with bit 14
1	<b>HMS/HMD as module bus master</b> 0: Deactivated (default) 1: Activated	As of MPx-18VRS
8	<b>Braking resistor (internal / external)</b> 0: Internal braking resistor is activated 1: External braking resistor is activated, internal braking resistor deactivated.	
9	<b>Braking resistor switch-on threshold adjusted depending on load</b> 0: Active, threshold is increased, proportionally to the thermal load, up to 30 V above the reference value 1: Inactive	Up to MPx-17VRS Not relevant as of MPx-18VRS Always active if allowed by the device
11/10	<b>Selection of braking resistor switch-on threshold (reference values)</b> 00: ON = DC820V (HCS01.1E-....-03-....) or DC390V (HCS01.1E-....-02-....) 01: ON = list element 3 of "P-0-0858, Data of external braking resistor" (max. DC820V or max. DC390V, see above) 11: Not adjustable	Up to MPx-17VRS Not relevant as of MPx-18VRS
13	<b>Phase monitoring of line voltage (HCS01 only)</b> 0: Deactivated (e.g., for single-phase operation) 1: Active *Monitoring for phase failure can only be deactivated for HCS01 devices.	Single-phase operation only possible with HCS01
14	<b>Converter at energy store (DC bus)</b> 0: Energy store not available 1: Energy store available	As of MPx-17VRS in connection with bit 0
15	Reserved	

Tab.5-154: Relevant Bits of P-0-0860

**Use** Observe the following aspects for parameter setting:

- **Bit 0: Power supply**

# Product-Specific Parameters

This bit defines whether the power supply of the converter is achieved via the power connection (converter operation, default) or via the DC bus (inverter operation).



In a converter the supply unit and inverter are combined in one device.

## Bit 0 and bit 14: Power supply, operation mode, as of MPx17VRS

It is also possible to configure a converter, e.g. HCS01, as an inverter. The different modes are described below.

Converter operation mode	Use	Parameterization	To be Noticed
Converter operation (default setting)	The converter is supplied with line voltage; if necessary, additional inverters are connected to its DC bus, however, no DC energy store.	P-0-0860, bit 0 = "0" and bit 14 = "0"	P-0-0114 can be used (the undervoltage threshold can be raised).
Converter operation with energy store in the DC bus	The converter is supplied with line voltage; if necessary, additional inverters and, moreover, a DC energy store, are connected to its DC bus.	P-0-0860, bit 0 = "0" and bit 14 = "1"	<ul style="list-style-type: none"> <li>Setting for, e.g., pitch drives of wind turbines.</li> <li>Status message "Ab" even if there is no line voltage because only the DC bus voltage is monitored (P-0-0114).</li> <li>No error message in the event of a power failure; only a warning can be set.</li> </ul>
Inverter operation	The converter is supplied on the DC side exclusively via the DC bus connection; any possibly existing DC energy store is not relevant for parameterization.	P-0-0860, bit 0 = "1", bit 14 is not relevant.	P-0-0114 is of no relevance.

P-0-0114 Undervoltage threshold

Tab.5-155: Difference Between the Individual Operation Modes

### Supplementary Instructions On Converters With Energy Store In the DC Bus

The converter at energy store setting is to be selected whenever a converter (HCS01/HCQ/HCT) can be operated without power supply, i.e. the power voltage must be ensured via an energy store connected on the DC side. In this mode, the status message "Ab" (ready for power output) is exclusively derived from parameter "P-0-0114, Undervoltage threshold".



When an energy store is available, the undervoltage threshold (P-0-0114) must be set to a value that is lower than the output voltage of the energy store.

### Use • Bit 9: Braking resistor switch-on threshold adjusted depending on load

When several HCS devices are connected via the DC bus, the load of the braking resistors must be balanced. This is achieved by increasing the switch-on and switch-off thresholds directly proportionally to the thermal load of the braking resistor controlled by the device. The maximum increase is 30 volts above the reference value. This ensures equal thermal load for all braking resistors.

This bit is no longer relevant as of MPx-18VRS. The load-dependent increase in the braking resistor switch-on threshold is not active in devices

## Product-Specific Parameters

of size 1 (230V supply). The function is always active in all other devices.



The current braking resistor switch-on threshold is displayed in "P-0-0844".

- **Bits 11/10: Selection of braking resistor switch-on threshold (reference value)**

If it is dynamic, the braking resistor switch-on threshold is increased dependent on the load. If the thermal load of the braking resistor is 0 percent, the reference value can be selected and adjusted.

These bits are no longer relevant as of MPx-18VRS. The braking resistor switch-on threshold is derived from the dielectric strength of the motor (P-0-0853).

- **Bit 13: Phase failure monitoring**

HCS01 devices can monitor the connected phases of the mains and the failure of one or two phases is diagnosed with "F2818 Phase failure". When devices are operated in single-phase mode (provided they are approved for this mode), phase monitoring of the line voltage must be deactivated.



If devices are not suitable for constant single-phase operation, deactivation of phase failure monitoring results in a reduction of the maximum and continuous currents to 25% of the nominal values.

### P-0-0860 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		s. Text		
MPC:	--- / ---		s. Text		
MPE:	--- / ---		s. Text		
MPM:	--- / ---		s. Text		

## 5.5.79 P-0-0861, Power supply status word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter serves to display the status of the power supply.

See also Functional Description "Power Supply"

### Structure

Bit	Designation/function	Comment
0	Drive ready for power output 0: No 1: Yes	
1	Soft start procedure completed (converter only) 0: No 1: Yes	

## Product-Specific Parameters

Bit	Designation/function	Comment
2	<b>Line voltage available</b> (converter only) 0: No 1: Yes	
3	<b>Supply ready for power output</b> 0: No, DC bus "not ok" 1: Yes, DC bus "ok"	
4	<b>Error on soft start</b> (converter only) 0: No 1: Yes	
5	<b>Soft start relay supplied with current</b> (converter only) 0: No 1: Yes	
6	<b>Error of supply unit converter F28xx</b> (converter only) 0: No 1: Yes	
7	<b>Braking resistor overload warning active</b> 0: No 1: Yes	
8	<b>3 phases available</b> 0: No 1: Yes	
9	<b>Ready for operation, supply/BB relay state</b> 0: No/BB relay contact open 1: Yes/BB relay contact closed BB relay state only if the "converter in feed-in mode" is parameterized (P-0-0860, bit 0 = 0).	
10	<b>Device overtemperature 2 prewarning</b> Temperature sensor 3 active 0: No 1: Yes	
11	<b>F2040 Device overtemperature 2 shutdown or F2022 Device temperature monitor defective</b> Temperature sensor 3 active? 0: No 1: Yes	
12	<b>E2050 Device overtemp. prewarning active</b> 0: No 1: Yes	

Product-Specific Parameters

Bit	Designation/function	Comment
13	F2018 Device overtemperature shutdown or F2022 Device temperature monitor defective active 0: No 1: Yes	
14	E2040 Device overtemperature 2 prewarning active 0: No 1: Yes	
15	F2040 Device overtemperature 2 shutdown or F2022 Device temperature monitor defective (for temperature measurement 2) active 0: No 1: Yes	

Tab.5-156: Power Supply Status Word

P-0-0861 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.6 P-0-0900 to P-0-0999 Encoder Emulation

### 5.6.1 P-0-0900, Encoder emulation signal selection list

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	optional drives card				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** The following table represents the signals possible for emulation and their special features with regard to emulation.

#### Incremental encoder emulation

Emulation signal	Scaling (P-0-0901.0.3, Encoder emulation resolution)	Scaling P-0-0901.0.4, Encoder emulation zero pulse offset P-0-0901.0.5, Encoder emulation zero pulse distance	Sources for signal jumps	Handling of signal jumps
S-0-0051, Position feedback value 1	S-0-0076 [mm] or [lines/revolution]	Lines	Indirectly by control via S-0-0148, P-0-0012	Internally with extrapolation on changeover
S-0-0053, Position feedback value 2	S-0-0076 [mm] or [lines/revolution]	Lines	Indirectly by control via S-0-0148, P-0-0012	Internally with extrapolation on changeover

## Product-Specific Parameters

Emulation signal	Scaling (P-0-0901.0.3, En- coder emulation res- olution)	Scaling P-0-0901.0.4, En- coder emulation zero pulse offset P-0-0901.0.5, En- coder emulation zero pulse distance	Sources for signal jumps	Handling of signal jumps
S-0-0386, Active position feedback value	S-0-0076 [mm] or [lines/revolution]	Lines	Indirectly by control via S-0-0148, P-0-0012	Internally with ex- trapolation on changeover
P-0-0434, Position com- mand value of controller	S-0-0076 [mm] or [lines/revolution]	Lines	P-0-0901.0.2 via control unit	Externally by stop- ping emulation via the control unit
P-0-0052, Actual position value of measuring en- coder	[Lines/revolution]	Lines	Indirectly by control via P-0-0012, Internally on mark detection	Internally with ex- trapolation on changeover
			P-0-0087 via control unit	Externally by stop- ping emulation via the control unit
P-0-0775, Resulting mas- ter axis position	[Lines/revolution]	Lines	P-0-0053 via control unit	Externally by stop- ping emulation via the control unit
P-0-0776, Effective mas- ter axis position	[Lines/revolution]	Lines	P-0-0053 via control unit, changeover "AB -> AF"	Externally by stop- ping emulation via the control unit
Motor encoder signal	P-0-4014 [mm] or [lines/revolution]	No parameterization possible	Internally on mark detection	Internally with ex- trapolation on changeover
P-0-0901.0.7, Encoder emulation, external signal	[Lines/revolution]	Lines		Externally by stop- ping emulation via the control unit

Tab.5-157: "Features" of Emulator Signals

See also Functional Description "Encoder Emulation"

**Absolute encoder emulation (SSI encoder emulation)**

Emulation signal	Scaling (P-0-0901.0.3, En- coder emulation resolution)	Sources for signal jumps	Handling of signal jumps
S-0-0051, Position feedback value 1	Bit per revolution unit [bit]	Indirectly by control via S-0-0148, P-0-0012	Internally with extrapolation on changeover
S-0-0053, Position feedback value 2	Bit per revolution unit [bit]	Indirectly by control via S-0-0148, P-0-0012	Internally with extrapolation on changeover
S-0-0386, Active position feedback value	Bit per revolution unit [bit]	Indirectly by control via S-0-0148, P-0-0012	Internally with extrapolation on changeover
P-0-0434, Position command value of controller	Bit per revolution unit [bit]	P-0-0901.0.2 via control unit	Externally by stopping emula- tion via the control unit

Product-Specific Parameters

P-0-0052, Actual position value of measuring encoder	Bit per revolution unit [bit]	Indirectly by control via P-0-0012, Internally on mark detection	Internally with extrapolation on changeover
		P-0-0087 via control unit	Externally by stopping emulation via the control unit
P-0-0775, Resulting master axis position	Bit per revolution unit [bit]	P-0-0053 via control unit	Externally by stopping emulation via the control unit
P-0-0776, Effective master axis position	Bit per revolution unit [bit]	P-0-0053 via control unit, changeover "AB -> AF"	Externally by stopping emulation via the control unit
P-0-0901.0.7, Encoder emulation, external signal	Bit per revolution unit [bit]		Externally by stopping emulation via the control unit

Tab.5-158: "Features" of Emulator Signals

P-0-0900 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.6.2 P-0-0901.x.1, Encoder emulation signal selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter serves to configure (control) the incremental and SSI encoder emulation. It allows defining the signal to be emulated.

See also Functional Description "Encoder Emulation"

**Use** **Supported emulation signals, signal selection list**

The signals to be emulated, which are supported by the drive, can be found in parameter "P-0-0900, Encoder emulation signal selection list".

### Configuration

Configuration is achieved by entering the desired IDN from list parameter "P-0-0900" in parameter "P-0-0901.0.1, Encoder emulation signal selection list".



If incremental encoder emulation is activated, it is also possible, if necessary, to activate a mere emulation of the motor encoder signal via bit 12 of "P-0-0901.0.2", irrespective of the setting in "P-0-0901.0.1"!

P-0-0901.x.1 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

Product-Specific Parameters

### 5.6.3 P-0-0901.x.2, Encoder emulation control parameter

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter is used to configure (control) emulation of the encoder.



Except for bit 7, all changes to P-0-0901.0.2 can only be made in PM.

See also Functional Description "Encoder Emulation"

**Structure** The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
1/0	<b>Emulation activation</b> (SSI or incremental) 00: Encoder emulation deactivated 01: Incremental encoder emulation 10: Absolute encoder emulation	
4	<b>Dead time compensation</b> (only for IGS) 0: Switched off 1: Active	
7	<b>Temporary stop</b> (only for IGS) 0: Emulation active 1: Emulation stopped	
10/9/8:	<b>Oversampling/overclocking</b> (only for IGS) 000: None 001: 2-fold 010: 4-fold 011: 8-fold 100: 16-fold 101: 32-fold 110: 64-fold 111: 128-fold	
12	<b>Emulation type of incremental encoder emulation</b> 0: Signal emulation 1: Motor encoder emulation	

Tab.5-159: Structure of P-0-0901.0.2, Encoder emulation control parameter

**Use** Observe the following aspects for parameter setting:

- **Bit 7 - Temporary stop:** Serves to stop the emulator output temporarily. If the control sets this bit, there will be no further increment output. This is required in case the control changes the signal to be emulated in jumps but this jump is not to be emulated because it may result in error message F2053.

## Product-Specific Parameters

- **Bits 10/9/8 - Oversampling/overclocking:** Serve to select the overclocking of the emulator signals in order to increase the resolution of the emulation signals and to reduce the signal jitter.



An increase in overclocking results in a reduction of the maximum output frequency (e.g., no oversampling → 4 MHz, 8-fold oversampling → 500 kHz and 128-fold oversampling → 32 kHz).

- **Bit 12 - Emulation type of incremental encoder emulation:**



The parameterization of bit 12 affects the output of the zero pulse. If bit 12 = 0, the zero pulse is only output when the drive has been homed (cf. S-0-0403). If bit 12 = 1, the zero pulse is output immediately after switchon.

### P-0-0901.x.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	+	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		0x0		
MPC:	--- / ---		0x0		
MPE:	--- / ---		0x0		
MPM:	--- / ---		0x0		

## 5.6.4 P-0-0901.x.3, Encoder emulation resolution

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** P-0-0901.0.3 is used to parameterize the resolution of the emulated incremental encoder (incremental) or the emulated SSI encoder (absolute).



Units, limit values and reference variables are depending on the encoder emulation used, the motor type and the scaling parameterized in "S-0-0076".

See also Functional Description "Encoder Emulation"

### Use Incremental encoder emulation

If an incremental encoder is emulated, the number of encoder marks of the incremental encoder to be emulated must be entered in "P-0-0901.0.3".

Formats and units are variable:

- Rotary motor: Lines/revolution
- Linear motor: mm or inch

Observe the following aspects when parameterizing "P-0-0901.0.3":

- Input range for incremental encoder emulation:  $1 - 262144 = (2^{18})$
- The maximum signal frequency of the emulated signals may not exceed the maximum allowed output frequency of 1 MHz. The number of increments must be adjusted according to the velocity.



If overclocking is increased (cf. P-0-0901.0.2), the maximum output frequency is reduced (e.g., oversampling of 8 → 1 MHz, with 16 → 500 kHz and with 32 → 250 kHz!).

## Product-Specific Parameters

**Example parameterization** for incremental encoders with linear scaling:

How high can the maximum number of encoder marks be set with linear scaling (with load reference), a velocity of max. 3000 rpm, a feed constant of 65 mm, and a gear ratio of 5?

Note:  $f_{\max.} = 1 \text{ MHz}$ , since overclocking is only 8-fold!

If  $v_{\text{load}} = 39000 \text{ mm/min} = 650 \text{ mm/s} = 0.65 \text{ m/s}$

$P-0-0901.0.3_{\max} = v_{\max}/f_{\max} = 650 \text{ mm/s} / 1 \text{ MHz} = 0.00065 \text{ mm} = 0.65 \text{ }\mu\text{m}$

**SSI emulation:**

If an absolute encoder in SSI format is emulated, the desired bit width of the SSI position to be output must be entered here.

Formats and units are variable:

- Rotary motor: bit/revolution
- Linear motor (linear scaling): bits/mm or bits/inch

Observe the following aspects when parameterizing "P-0-0901.0.3":

- Input range with SSI emulation: 8 bits... 24 bits
- SSI emulation always involves a transfer of 24 bits, wherein the resolution of one motor revolution and therefore the absolutely representable travel range can be defined by the setting in "P-0-0901.0.3".

**Example parameterization for SSI emulation:**

If "P-0-0901.0.3" = 12 bits/revolution, then one motor revolution has a resolution of 12 bits (= 4096 increments) and can be absolutely represented with a maximum of  $2^{12}$  (4096) revolutions.

**P-0-0901.x.3 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Lines/Rev	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0 / 16777216	4000
<b>MPC:</b>	0 / 16777216	4000
<b>MPE:</b>	0 / 16777216	4000
<b>MPM:</b>	0 / 16777216	4000

## 5.6.5 P-0-0901.x.4, Encoder emulation zero pulse offset

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** In case of incremental encoder emulation, this parameter allows offsetting the position of the zero pulse (reference pulse) within the parameterized zero pulse distance (P-0-0901.0.5).

See also Functional Description "Encoder Emulation"

**Use** Observe the following aspects when parameterizing "P-0-0901.0.4":

- Entries can be made in any phase, even during ongoing operation. However, the drive should be at standstill while a value is entered.
- The input is made in lines of the emulator resolution, with formats and units being variable as follows:
  - Rotary motor: lines
  - Linear motor (or linear scaling): mm or inch

Product-Specific Parameters



The offset must be less than the zero pulse distance parameterized in "P-0-0901.0.5".

P-0-0901.x.4 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Lines	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 16777216	0
MPC:	0 / 16777216	0
MPE:	0 / 16777216	0
MPM:	0 / 16777216	0

## 5.6.6 P-0-0901.x.5, Encoder emulation zero pulse distance

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter is used to define the distance between two successive zero pulses during incremental encoder emulation, in relation to the travel distance.

Formats, units and maximum values are variable:

- Rotary motor: lines (max value =  $2^{32}$  lines)
- Linear motor: mm or Inch (max. value = **S-0-0278**)

See also Functional Description "Encoder Emulation"

**Use** Observe the following aspects when parameterizing "P-0-0901.0.5":

- Parameterization of  $P-0-0901.0.5 = P-0-0901.0.3$  (standard case):  
One zero pulse per revolution (or per mm) is generated.
- Parameterization of  $P-0-0901.0.5 < P-0-0901.0.3$  (cyclic zero pulse output):  
More zero pulse than one are generated per revolution (or per mm). If, for example, a zero pulse is required after every 180 degrees,  $P-0-0901.0.5 = 0.5 * P-0-0901.0.3$  must be parameterized.



Please note that, if cyclic output is selected, no more than one zero pulse can be output per output cycle (i.e., position loop clock).

- Parameterization of  $P-0-0901.0.5 = N * P-0-0901.0.3$ :  
One **zero pulse** is generated within **N revolutions** (or per N mm). This allows, for example, generating only one single zero pulse over the entire travel range at the machine zero point.



Entering "0" is not allowed.

If one zero pulse is desired per revolution, the value entered in "P-0-0901.0.3" must also be entered in "P-0-0901.0.5". It is also possible to output a zero pulse only every x revolutions; in this case,  $P-0-0901.0.5 = x * P-0-0901.0.3$  is correct.

The value is entered in emulator resolution lines.

P-0-0901.x.5 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

## Product-Specific Parameters

Unit:	Lines	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	1 / 4294967295		4000		
MPC:	1 / 4294967295		4000		
MPE:	1 / 4294967295		4000		
MPM:	1 / 4294967295		4000		

## 5.6.7 P-0-0901.x.6, Encoder emulation assignment

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter serves to specify the axis which is assigned to the encoder emulation of the particular optional slot.

In order to assign an axis to the optional slot of the encoder emulation, the corresponding axis number must be entered in this parameter. This is above all important for double-axis devices, particularly if only one emulator card is inserted.

The assignment parameter serves to configure which one of the two axes is to be emulated by this card.

*Example:*

P-0-0901.3.6 = 2

This means that the emulator card at interface 3 (see structure instance) emulates axis 2.

See also Functional Description "Encoder Emulation"

P-0-0901.x.6 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	1 / s. Text		s. Text		
	MPC:	1 / s. Text		s. Text		
	MPE:	1 / s. Text		s. Text		
	MPM:	1 / s. Text		s. Text		

## 5.6.8 P-0-0901.0.7, Encoder emulation, external signal

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter specifies an external signal which is to be emulated. To achieve this, it can be selected from the "P-0-0901.0.1" signal selection. To emulate signals which are transmitted via the master communication interface, this parameter must be included in the cyclic telegram.

See also Functional Description "Encoder Emulation"

P-0-0901.0.7 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	-2147483648 / 2147483647		---		

Product-Specific Parameters

MPC:	-2147483648 / 2147483647 ---
MPE:	-2147483648 / 2147483647 ---
MPM:	-2147483648 / 2147483647 ---

## 5.6.9 P-0-0901.0.8, Encoder emulation, modulo value of external signal

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to specify the modulo value for processing external supplied emulation signals. The modulo value defines the numerical value at which the position data overflow to "0" and therefore serves to control the zero pulse output.

See also Functional Description "Encoder Emulation"

### P-0-0901.0.8 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	Incr/Rev	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 2147483647	4000
MPC:	0 / 2147483647	4000
MPE:	0 / 2147483647	4000
MPM:	0 / 2147483647	4000

## 5.6.10 P-0-0910, SSI control parameter

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter serves to configure the hardware of the SSI encoder input on option "MD2".

**Structure** The following bits are defined:

Bit	Designation/function	Comment
3... 0	<b>Baud rate:</b> 0001: 125kHz 0011: 250 kHz 0111: 500 kHz 1111: 1,000 kHz	
4	<b>Coding:</b> 0: Cray code 1: Binary	
7... 5	<b>Error bits:</b> 000: None 001: GA13 (PFB) 010: GA14 (PosErr) 100: GA15 (TransmitterErr)	

## Product-Specific Parameters

Bit	Designation/function	Comment
12... 8	SSI data format => number of transmitted bits 01101: Single-turn 11001: Multi-turn Linear encoder depending on data format	
15	24V monitoring: 0: Activated 1: Deactivated	Deactivation is useful if no IOs are used.

Tab.5-160: P-0-0910, SSI control parameter

**Use** The following aspects have to be observed for use:

- The maximum cable length is directly linked with the baud rate.
- For the data to be set, please refer to the encoder manufacturer's appropriate data sheet.

## P-0-0910 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.6.11 P-0-0911, Virtual master axis, positioning window

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	synchronisation (ELS)		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is used to generate bit 2 of "P-0-0768, Virtual master axis, positioning status".

See also Parameter Description "P-0-0768, Virtual master axis, positioning status"

## P-0-0911 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0,0000 / 214748,3647		1,0000		
<b>MPC:</b>	0,0000 / 214748,3647		1,0000		
<b>MPE:</b>	0,0000 / 214748,3647		1,0000		
<b>MPM:</b>	0,0000 / 214748,3647		1,0000		

## 5.6.12 P-0-0912, Virtual master axis, standstill window

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	synchronisation (ELS)		
	<b>Device parameter:</b>	device-specific		

**Function** To recognize the standstill of the virtual master axis a threshold value for the velocity is entered in this parameter. Standstill is detected, if the absolute value of the actual velocity value falls below this threshold. This parameter is required to generate bit 2 of P-0-0768, Virtual master axis, positioning status.

Product-Specific Parameters

See also Parameter Description "P-0-0768, Virtual master axis, positioning status"

P-0-0912 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,0000 / 214748,3647	10,0000
MPC:	0,0000 / 214748,3647	10,0000
MPE:	0,0000 / 214748,3647	10,0000
MPM:	0,0000 / 214748,3647	10,0000

## 5.6.13 P-0-0913, Virtual master axis, positioning jerk

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	device-specific			

**Function** The jerk limits the change in acceleration per time unit in the positioning and velocity modes of the virtual master axis.

The limit value specified in this parameter is effective if a trapezoidal acceleration progress is set in parameter "P-0-0917, Control word of master axis generator". In this case, the value specified can only be exceeded with active dynamic jerk adjustment.

If a "sine<sup>2</sup>-shaped acceleration progress" (P-0-0917) is set, the jerk value specified here is ignored.

P-0-0913 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,00 / 21474836,47	0,00
MPC:	0,00 / 21474836,47	0,00
MPE:	0,00 / 21474836,47	0,00
MPM:	0,00 / 21474836,47	0,00

## 5.6.14 P-0-0914, Virtual master axis, velocity threshold positioning

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	synchronisation (ELS)			
	<b>Device parameter:</b>	device-specific			

**Function** By means of this parameter it is possible to set a threshold value for the actual velocity.

If the actual velocity is above the threshold value, the drive moves to a target position without reversing the direction of rotation, even if the setting in "P-0-0769, Virtual master axis, command value mode" should cause the direction of rotation to be reversed.



By entering the value "0" the velocity threshold is deactivated, i.e. drive always moves to the target position as determined in "P-0-0769, Virtual master axis, command value mode"!

P-0-0914 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	0,0000 / 214748,3647	10,0000
MPC:	0,0000 / 214748,3647	10,0000
MPE:	0,0000 / 214748,3647	10,0000
MPM:	0,0000 / 214748,3647	10,0000

## 5.6.15 P-0-0915, Master axis format converter IDN list signal selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	synchronisation (ELS)		
	Device parameter:	axis-specific		

**Function** This parameter specifies all parameters which can be converted into master axis format.

- S-0-0000, Dummy parameter
- S-0-0051, Position feedback value 1
- S-0-0053, Position feedback value 2
- S-0-0386, Active position feedback value
- P-0-0052, Actual position value of measuring encoder
- P-0-0434, Position command value controller
- P-0-0753, Position actual value in actual value cycle
- P-0-0758, Virtual master axis, actual position value
- P-0-1270, PLC Global Register A0
- P-0-1271, PLC Global Register A1
- P-0-1272, PLC Global Register A2
- P-0-1273, PLC Global Register A3
- P-0-1274, PLC Global Register A4
- P-0-1275, PLC Global Register A5
- P-0-1276, PLC Global Register A6
- P-0-1277, PLC Global Register A7
- P-0-1771, CCD: AT real-time container 1, slave 1
- P-0-1772, CCD: AT real-time container 1, slave 2
- P-0-1773, CCD: AT real-time container 1, slave 3
- P-0-1774, CCD: AT real-time container 1, slave 4
- P-0-1775, CCD: AT real-time container 1, slave 5
- P-0-1776, CCD: AT real-time container 1, slave 6
- P-0-1777, CCD: AT real-time container 1, slave 7



The number of possible parameters can vary depending on the firmware derivative.

## P-0-0915 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		

Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.6.16 P-0-0916, Master axis format converter signal selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--		
Funct. package(s):	synchronisation (ELS)			
	axis-specific			
Device parameter:				
Function	This parameter is used to select the parameter whose value is to be converted into the format of the master axis.			
	The IDNs of the parameters that can be selected are listed in "P-0-0915, Master axis format converter IDN list signal selection". It is only possible to select these parameters!			
P-0-0916 - Attributes	Function:	Par	Editable:	++
	Memory:	PARAM_SP	Validity ch.:	PM->OM
Unit:	--		Extr. val. ch.:	--
			Comb. check:	--
Cycl. tra.:	--		Set-depend.:	--
Input	min./max.		Default value	
	---		0	
MPB:	---		0	
	---		0	
MPC:	---		0	
	---		0	
MPE:	---		0	
	---		0	
MPM:	---		0	
	---		0	

## 5.6.17 P-0-0917, Control word of master axis generator

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--		
Funct. package(s):	synchronisation (ELS)			
	device-specific			
Device parameter:				
Function	This parameter serves to activate and deactivate the virtual master axis generator. In addition, it is used to make positioning interpolator settings and to define the master axis format of the internal virtual master axis VmAxisInt (P-0-0761, Master axis position for slave axis)-			
Structure				
Bit	Designation/function			Comment
0	Master axis generator activation			
	0: Master axis generator deactivated			
1	Master axis generator activated			
2	Selection of acceleration curve			As of
	0: Trapezoidal			MPx-17V08
1	Sine <sup>2</sup> -shaped			

## Product-Specific Parameters

3	<b>Deactivation of dynamic jerk adjustment</b> <b>0:</b> Jerk adjustment active <b>1:</b> Jerk adjustment not active	As of MPx-17V08
4	<b>Master axis format of internal virtual master axis (VmAxisInt)</b> <b>Note:</b> Can only be edited in parameter mode. <b>0:</b> Corresponds to the format defined by parameters "P-0-0750" and "P-0-0084". ⇒ master axis format of synchronous operation modes <b>1:</b> Corresponds to the format defined by parameters "P-0-0763" and "P-0-0773". ⇒ own master axis format (special case)	As of MPx-17V10

## Structure

**Bit 0: Master axis generator activation**

**0:** The master axis generator is not active.

**1:** The master axis generator or secondary master mode is active if the "P-0-0758, Virtual master axis, actual position value" is entered in parameter "P-0-0916, Master axis format converter signal selection".

**Bit 2: Selection of acceleration progress for the positioning interpolator**

**0:** The change in acceleration and deceleration during positioning, jogging and stopping is trapezoidal. The progress is "triangular" if the particular end value of "P-0-0771" or "P-0-0772" is not reached. The change in acceleration and deceleration is defined by parameter "P-0-0913, Virtual master axis, positioning jerk".

**1:** The change in acceleration and deceleration during positioning, jogging and stopping is sine<sup>2</sup>-shaped. The positioning jerk set in parameter "P-0-0913" is **not** taken into account.



If bit 2 = 1, jerk limitation is not active. There will be an acceleration jump if a current motion is interrupted in the acceleration or deceleration phase. For this reason, cyclic commanding of the interpolator should be avoided.

**Bit 3: Deactivation of dynamic jerk adjustment**

**0:** The "dynamic jerk adjustment" is active. If the positioning jerk (P-0-0913) is reduced during an acceleration or deceleration phase, this might result in an undesired slow degradation of acceleration or deceleration. As a result, the velocity exceeds the desired target value with overshooting. The "dynamic jerk adjustment" increases the positioning jerk to such a degree that the specified "P-0-0762, Virtual master axis, velocity limit value" is not exceeded.

**1:** The "dynamic jerk adjustment" is switched off.

**Bit 4: Master axis format of internal virtual master axis (VmAxisInt)**

**0:** The master axis format of the internal virtual master axis VmAxisInt (P-0-0761, Master axis position for slave axis) is defined by parameters "P-0-0750 Master axis revolutions per master axis cycle" and "P-0-0084, Number of bits per master axis revolution" and corresponds to the master axis format used by the synchronous operation modes.

**1:** The master axis format of the internal virtual master axis VmAxisInt (P-0-0761) is defined by parameters "P-0-0763 Modulo factor, master axis

## Product-Specific Parameters

format converter" and "P-0-0773, Number of bits per master axis revolution, format converter".



Bit 4 = 1 is required in cases where the generated internal virtual master axis VmAxisInt is used as master axis source for remote axes having a master axis format that differs from the CCD master axis/local axis. If bit 4 = 1 in MLD-M system mode, the local master axis format of the synchronous operation modes (defined by P-0-0750 and P-0-0084) of the CCD master axis is no longer automatically set for the CCD slave axes when the CCD phase is switched from P2 to P4.

### P-0-0917 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0x0 / 0xFFFF	0x0
MPC:	0x0 / 0xFFFF	0x0
MPE:	0x0 / 0xFFFF	0x0
MPM:	0x0 / 0xFFFF	0x0

## 5.6.18 P-0-0918, Feed travel internal virtual master axis

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	synchronisation (ELS)		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is required for the virtual master axis of the internal master axis generator if the virtual master axis has absolute scaling. The distance parameterized there corresponds to 2<sup>P-0-0084</sup> increments (one revolution of the master axis).

### P-0-0918 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,0000 / 214748,3647	360,0000
MPC:	0,0000 / 214748,3647	360,0000
MPE:	0,0000 / 214748,3647	360,0000
MPM:	0,0000 / 214748,3647	360,0000

## 5.6.19 P-0-0919, Synchronization mode, secondary master

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	synchronisation (ELS)		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter determines how the secondary master synchronizes with the primary master.

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
1	<b>Relative synchronization</b> 0: Absolute synchronization 1: Relative synchronization	
2	<b>Synchronization range</b> 0: 360° (1 master axis revolution) 1: Master axis cycle	
6	<b>Synchronization method</b> 0: 2-step synchronization 1: 1-step synchronization	
7	<b>Mode for 1-step synchronization</b> 0: Absolutely synchronous with master axis 1: Relatively synchronous with master axis	
9	<b>Optimization of synchronization path</b> 0: No optimization 1: Optimization	Only effective when bit 6 = 1

Tab.5-161: Synchronization Mode, Secondary Master

**Use Bit 1: Absolute synchronization (bit 1 = 0)**

The position established in relation to the primary master axis is always absolute.

**Relative synchronization (bit 1 = 1)**

The only action is an adjustment of the velocity.

**Bit 2:** Bit 2 defines the synchronization range in absolute synchronization mode. The distance to be traveled is limited to this range.

**Bit 6:** Selection of 1-step synchronization (not in relative synchronization mode).

**Bit 7: Absolutely synchronous with master axis (bit 7 = 0):**

The synchronization path has been completely traveled when the primary master axis reaches the parameterized synchronous position (after gear and fine adjust).

**Relatively synchronous with master axis (bit 7 = 1):**

Synchronization starts immediately at the current position of the primary master axis. It is completed after the primary master axis has traveled through the parameterized synchronization range (after gear and fine adjust). The parameterized synchronous position is ineffective.

**Bit 9: Optimization of synchronization path (bit 9 = 1):**

If single-step synchronization is selected (bit 6 = 1), the required synchronization path of the secondary master axis is optimized by adding or subtracting synchronization ranges. This aims at preventing any turning point in the position curve in the added synchronization profile. In this case, there won't be any maximum in the velocity curve (overshooting) and no change of the acceleration sign.

Path optimization is only possible with modulo axes.

## P-0-0919 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN

Product-Specific Parameters

Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
Input			min./max.	Default value	
MPB:			0x0 / 0x3FF	0x0	
MPC:			0x0 / 0x3FF	0x0	
MPE:			0x0 / 0x3FF	0x0	
MPM:			0x0 / 0x3FF	0x0	

## 5.6.20 P-0-0920, Synchronization acceleration, secondary master

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	synchronisation (ELS)				
	Device parameter:	device-specific				
Function	This parameter indicates the acceleration or deceleration with which the secondary master accelerates or decelerates when its velocity is adjusted to the velocity of the primary master. For position adjustment, this parameter is used to set the acceleration and deceleration of the superimposed motion.					
	Scaling / unit: 1E-3 rad/s <sup>2</sup> .					
P-0-0920 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	rad/s <sup>2</sup>	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,000 / 4294967,295			100,000	
	MPC:	0,000 / 4294967,295			100,000	
	MPE:	0,000 / 4294967,295			100,000	
	MPM:	0,000 / 4294967,295			100,000	

## 5.6.21 P-0-0921, Synchronization velocity, secondary master

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	synchronisation (ELS)				
	Device parameter:	device-specific				
Function	For position adjustment, this parameter is used to set the velocity of the superimposed motion.					
	Scaling / unit: 1E-4 rpm.					
P-0-0921 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	rpm	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,0000 / 429496,7295			100,0000	
	MPC:	0,0000 / 429496,7295			100,0000	
	MPE:	0,0000 / 429496,7295			100,0000	
	MPM:	0,0000 / 429496,7295			100,0000	

## 5.6.22 P-0-0922, Preferred synchronization direction, secondary master

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	synchronisation (ELS)			
	Device parameter:	device-specific			
Function	The distance to be traveled for transition to absolute synchronization is determined in the second step of synchronization position adjustment).				

## Product-Specific Parameters

Where modulo axes are concerned, the overlaid motion of the secondary master can be made in positive or negative direction. The preferred synchronization direction defines the direction in which the drive is to move.

## Structure

Bit	Designation/function	Comment
0	Shortest distance	
1	Positive direction	
2	negative direction	

Tab.5-162: Preferred Synchronization Direction, Secondary Master

## Use

If the shortest distance to absolute synchronization is shorter than parameter "P-0-0923, Synchroniz. window for shortest distance, secondary master", the shortest way distance is traveled while the preferred direction specified is ignored.

## P-0-0922 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	0 / 2		0		
MPC:	0 / 2		0		
MPE:	--- / ---		0		
MPM:	0 / 2		0		

### 5.6.23 P-0-0923, Synchroniz. window for shortest distance, secondary master

## Allocation

Contained in 16VRS:	«-»	«-»	«-»	
Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
Hardware	--			
Funct. package(s):	synchronisation (ELS)			
Device parameter:	device-specific			

## Function

For synchronization of the secondary master, a preferred direction (P-0-0922) must have been parameterized for position adjustment. This window suspends the preferred direction within a defined window. If the difference between primary master and secondary master is within the window, synchronization takes place over the shortest distance. With P-0-0923 = 0, the function is deactivated.

Scaling / unit: 1E-4 degrees.

## P-0-0923 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	0,0000 / 429496,7295		0,1000		
MPC:	0,0000 / 429496,7295		0,1000		
MPE:	0,0000 / 429496,7295		0,1000		
MPM:	0,0000 / 429496,7295		0,1000		

### 5.6.24 P-0-0924, Selection primary master

## Allocation

Contained in 16VRS:	«-»	«-»	«-»	
Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
Hardware	--			
Funct. package(s):	synchronisation (ELS)			
Device parameter:	device-specific			

Product-Specific Parameters

**Function** This parameter is used to select the primary master for secondary master operation of the virtual axis. This functionality is mainly used for the CCD master axis with active MLD-M system mode.

See also Functional Description "Virtual Master Axis Generator"

**Structure**

Bit	Designation/function	Comment
1/0	00: P-0-0787, Group axis 1 position 01: P-0-0052, Actual position value of measuring encoder 10: P-0-0053, Master axis position	

Tab.5-163: P-0-0924, Selection primary master

<b>P-0-0924 - Attributes</b>	<b>Function:</b> Par	<b>Editable:</b> ++	<b>Data length:</b> 2Byte
	<b>Memory:</b> PARAM_SP	<b>Validity ch.:</b> PM->OM	<b>Format:</b> DEC_OV
	<b>Unit:</b> --	<b>Extr. val. ch.:</b> +	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b> MDT	<b>Comb. check:</b> --	<b>Set-depend.:</b> --

Input	min./max.	Default value
MPB:	0 / 2	1
MPC:	0 / 2	1
MPE:	0 / 2	1
MPM:	0 / 2	1

## 5.6.25 P-0-0925, Master drive gear input revolutions, secondary master

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	synchronisation (ELS)		
	Device parameter:	device-specific		

**Function** Together with P-0-0926, this parameter determines the master drive gear which is used for phase-synchronous operation of the virtual axis.

<b>P-0-0925 - Attributes</b>	<b>Function:</b> Par	<b>Editable:</b> ++	<b>Data length:</b> 2Byte
	<b>Memory:</b> PARAM_SP	<b>Validity ch.:</b> PM->OM	<b>Format:</b> DEC_OV
	<b>Unit:</b> --	<b>Extr. val. ch.:</b> +	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b> MDT	<b>Comb. check:</b> --	<b>Set-depend.:</b> --

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	--- / ---	1
MPM:	1 / 65535	1

## 5.6.26 P-0-0926, Master drive gear output revolutions, secondary master

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	synchronisation (ELS)		
	Device parameter:	device-specific		

**Function** Together with P-0-0925, this parameter determines the master drive gear which is used for phase-synchronous operation of the virtual axis.

<b>P-0-0926 - Attributes</b>	<b>Function:</b> Par	<b>Editable:</b> ++	<b>Data length:</b> 2Byte
	<b>Memory:</b> PARAM_SP	<b>Validity ch.:</b> PM->OM	<b>Format:</b> DEC_OV
	<b>Unit:</b> --	<b>Extr. val. ch.:</b> +	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b> MDT	<b>Comb. check:</b> --	<b>Set-depend.:</b> --

Input	min./max.	Default value
MPB:	1 / 65535	1
MPC:	1 / 65535	1
MPE:	--- / ---	1
MPM:	1 / 65535	1

## Product-Specific Parameters

## 5.6.27 P-0-0927, Master drive gear fine adjustment, secondary master

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		synchronisation (ELS)			
	Device parameter:		device-specific			
Function	This parameter sets a factor used for phase-synchronous operation of the virtual axis. With this factor (1 + P-0-0927), the position of the primary master is multiplied after the master drive gear.					
P-0-0927 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	6
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	-799,999999 / 799,999999		0,000000		
	MPC:	-799,999999 / 799,999999		0,000000		
	MPE:	--- / ---		0,000000		
	MPM:	-799,999999 / 799,999999		0,000000		

## 5.6.28 P-0-0928, Additive master axis position, secondary master

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	synchronisation (ELS)				
	Device parameter:	device-specific				
Function	This parameter allows offsetting the secondary master in relation to the master axis position which is calculated from the primary masster and the electronic gear by means of fine adjustment.					
	The unit of the parameter is degrees and the data has 4 decimal places.					
P-0-0928 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	Deg	Extr. val. ch.:	--	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	-214748,3648 / 214748,3647		---		
	MPC:	-214748,3648 / 214748,3647		---		
	MPE:	-214748,3648 / 214748,3647		---		
	MPM:	-214748,3648 / 214748,3647		---		

## 5.6.29 P-0-0929, Change velocity of add. master axis posit., secondary master

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	synchronisation (ELS)				
	Device parameter:	device-specific				
Function	Parameter "P-0-0929" serves to define the maximum velocity at which the current value of a "P-0-0928, Additive master axis position, secondary master" is moved to a new one.					
	The unit of the parameter is rpm and the data has 4 decimal places.					
P-0-0929 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	rpm	Extr. val. ch.:	+	Decim. pl.:	4
	Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0.0000 / 214748.3647		10.0000		

Product-Specific Parameters

MPC:	0,0000 / 214748,3647	10,0000
MPE:	0,0000 / 214748,3647	10,0000
MPM:	0,0000 / 214748,3647	10,0000

### 5.6.30 P-0-0930, Change accel. of add. master axis posit., secondary master

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--		
Funct. package(s):	synchronisation (ELS)			
Device parameter:	device-specific			
Function	Parameter "P-0-0930" indicates the acceleration and deceleration with which "P-0-0928" is changed.  The unit of the parameter is rad/s <sup>2</sup> and the data has 3 decimal places.			
P-0-0930 - Attributes	Function:	Par	Editable:	++
	Memory:	PARAM_SP	Validity ch.:	PM->OM
Unit:	rad/s <sup>2</sup>	Extr. val. ch.:	+	Decim. pl.:
	Cycl. tra.:	MDT	Comb. check:	--
Input	min./max.		Default value	
	MPB:	0,000 / 4294967,295	10,000	
MPC:	0,000 / 4294967,295		10,000	
	MPE:	0,000 / 4294967,295	10,000	
MPM:	0,000 / 4294967,295		10,000	

### 5.6.31 P-0-0931, Synchronous position, secondary master

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--		
Funct. package(s):	synchronisation (ELS)			
Device parameter:	device-specific			
Function	This parameter is only effective during single-step synchronization in secondary master operation.  This requires that the absolute master-axis-synchronous synchronization mode is set. These settings are made in parameter "P-0-0919, Synchronization mode, secondary master".  This parameter indicates the position of the primary master, at which the synchronization motion is completed and the secondary master is synchronous. The value range is defined by the master axis cycle (P-0-0750).			
P-0-0931 - Attributes	Function:	Par	Editable:	++
	Memory:	PARAM_SP	Validity ch.:	PM->OM
Unit:	Deg	Extr. val. ch.:	--	Decim. pl.:
	Cycl. tra.:	MDT	Comb. check:	--
Input	min./max.		Default value	
	MPB:	0,0000 / 214748,3647	0,0000	
MPC:	0,0000 / 214748,3647		0,0000	
	MPE:	0,0000 / 214748,3647	0,0000	
MPM:	0,0000 / 214748,3647		0,0000	

### 5.6.32 P-0-0932, Synchronization range, secondary master

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--		
Funct. package(s):	synchronisation (ELS)			
Device parameter:	device-specific			
Function	This parameter specifies the range of the primary master, within which the synchronization of the secondary master takes place. This specification refers to the output of the electronic gear of the secondary master.			

## Product-Specific Parameters



This parameter is only effective during single-step synchronization in secondary master operation.

## P-0-0932 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Deg	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			0,0000 / 429496,7295	180,0000	
<b>MPE:</b>			0,0000 / 429496,7295	180,0000	
<b>MPM:</b>			0,0000 / 429496,7295	180,0000	

## 5.7 P-0-1000 to P-0-1099 Encoder Evaluation

## 5.7.1 P-0-1000, Kind of encoder 1, encoder memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the case of motors with encoder data memory (MKE, MSK etc.), the characteristic value for the type and specific features of encoder 1 (motor encoder) can be read from this parameter.

See also Functional Description: "Rexroth Housing Motors With Encoder Data Memory"

**Use** The value that has been read allows identifying the encoder incorporated in the motor:

Value of P-0-1000	Encoder type	Specific feature
0xc001	EnDat	Single-turn encoder
0xe001	EnDat	Multi-turn encoder
0x4001	EnDat	Length measurement system
0x00x2	HIPERFACE	Single-turn encoder
0x00x7	HIPERFACE	Multi-turn encoder
0x0011	MSM motor encoder	Single- or multi-turn



This parameter is invalid for motors without encoder data memory!


## P-0-1000 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	FEEDB_I2C	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			--- / ---	---	
<b>MPE:</b>			--- / ---	---	
<b>MPM:</b>			--- / ---	---	

## 5.7.2 P-0-1001, Encoder 1 resolution, encoder memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	The value for the motor encoder resolution, that is stored in the encoder data memory, is stored in this parameter.					
	In the case of motors with encoder data memory (MSK, MKE etc.), the value is copied to the effective parameter "S-0-0116, Resolution of feedback 1" when the controller is initialized (transition to phase 4).					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-1001 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	FEEDB_I2C	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.7.3 P-0-1002, Absolute encoder offset 1, encoder memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	This parameter is required for homing absolute motor encoders. The value is the difference between the zero point of the motor encoder and the machine zero point in the position data format of the motor encoder.					
	<div> Customers cannot interpret the value!</div>					
See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"						
P-0-1002 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	FEEDB_I2C	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		Input	min./max.		Default value	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.7.4 P-0-1010, Kind of encoder 2, encoder memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	In the case of optional encoders with encoder data memory, the characteristic value for the type and specific features of encoder 2 can be read from this parameter.				

## Product-Specific Parameters

**Use** The encoder 2 can be identified by the value that has been read:

Value of P-0-1010	Encoder type	Specific feature
0x4001	EnDat	Absolute encoder lin.
0xc001	EnDat	Single-turn encoder rot.
0xe001	EnDat	Multi-turn encoder rot.
0x00x2	HIPERFACE	Single-turn encoder
0x00x7	HIPERFACE	Multi-turn encoder



This parameter is invalid for encoders without data memory!

## P-0-1010 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	FEEDB_I2C	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.7.5 P-0-1011, Encoder 2 resolution, encoder memory

## Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	closed loop			
Device parameter:	axis-specific			

## Function

The value for the resolution of the optional encoder (encoder 2), that is stored in the encoder data memory, is stored in this parameter.

The value is copied to the effective parameter "S-0-0117, Resolution of feedback 2" when the controller is initialized (transition to phase 4).

See also Functional Description "Optional Encoder"

## P-0-1011 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	FEEDB_I2C	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.7.6 P-0-1012, Absolute encoder offset 2, encoder memory

## Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	closed loop			
Device parameter:	axis-specific			

## Function

This parameter is required for homing absolute optional encoders. The value is the difference between the zero point of the optional encoder and the machine zero point in the position data format of the encoder 2.



Customers cannot interpret the value!

Product-Specific Parameters

<b>P-0-1012 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	FEEDB_I2C	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.7.7 P-0-1020, Kind of encoder 3, encoder memory

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)		
		<b>Device parameter:</b>	axis-specific		

**Function** In the case of measuring encoders with encoder data memory, the characteristic value for the type and specific features of encoder 3 can be read from this parameter.

See also Functional Description "Measuring Encoder"

**Use** The encoder 3 (measuring encoder) can be identified by the value that has been read:

Value of P-0-1020	Encoder type	Specific feature
0x4001	EnDat	Absolute encoder lin.
0xc001	EnDat	Single-turn encoder rot.
0xe001	EnDat	Multi-turn encoder rot.
0x00x2	HIPERFACE	Single-turn encoder
0x00x7	HIPERFACE	Multi-turn encoder

Tab.5-164: Allocation of Value of P-0-1020, Encoder Mode 3, Encoder Memory



This parameter is invalid for encoders without data memory!

<b>P-0-1020 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	FEEDB_I2C	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.7.8 P-0-1021, Encoder 3 resolution, encoder memory

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)		
		<b>Device parameter:</b>	axis-specific		

**Function** The value for the resolution of the measuring encoder (encoder 3) that is stored in the encoder data memory is stored in this parameter.

## Product-Specific Parameters

The value is copied to the effective parameter "P-0-0327, Encoder resolution of measuring encoder" when the controller is initialized (transition to phase 4).

See also Functional Description "Measuring Encoder"

## P-0-1021 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	FEEDB_I2C	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.7.9 P-0-1022, Absolute encoder offset 3, encoder memory

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** The parameter "P-0-1022, Absolute encoder offset 3, encoder memory" is required for homing an absolute measuring encoder. The value is the difference between the zero point of the optional encoder and the machine zero point in the position data format of the encoder 3 (measuring encoder).



Customers cannot interpret the value!

See also Functional Description "Measuring Encoder"

## P-0-1022 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	FEEDB_I2C	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.7.10 P-0-1031, Content of encoder memory optional slot 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameters displays the content read of the encoder data memory at optional slot 1.

## P-0-1031 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

Product-Specific Parameters

## 5.7.11 P-0-1032, Content of encoder memory optional slot 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This parameters displays the content read of the encoder data memory at optional slot 2.					
P-0-1032 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.7.12 P-0-1033, Content of encoder memory optional slot 3

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameters displays the content read of the encoder data memory at optional slot 3.					
P-0-1033 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.7.13 P-0-1034, Content of encoder memory optional slot 4

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameters displays the content read of the encoder data memory at optional slot 4.					
P-0-1034 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.7.14 P-0-1035, Content of encoder memory optional slot 5

Allocation	Contained in 16VRS:	«-»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«-»

## Product-Specific Parameters

	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	This parameters displays the content read of the encoder data memory at optional slot 5.					
P-0-1035 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.7.15 P-0-1036, Content of encoder memory optional slot 6

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	This parameters displays the content read of the encoder data memory at optional slot 6.				
P-0-1036 - Attributes	Function:	Par	Editable:	--	
	Memory:	--	Validity ch.:	--	
	Unit:	--	Extr. val. ch.:	--	
	Cycl. tra.:	--	Comb. check:	--	
			Data length:	1Byte var.	
			Format:	HEX	
			Decim. pl.:	0	
			Set-depend.:	--	
		Input	min./max.		Default value
		MPB:	--- / ---		---
	MPC:	--- / ---		---	
	MPE:	--- / ---		---	
	MPM:	--- / ---		---	

## 5.7.16 P-0-1044, Master comm. engineering over IP: Status IP communication

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Via parameter P-0-1044, the status information on the current state of IP communication with engineering over IP can be read at the master communication interface of the device. The parameter contains general information on IP communication and device-dependent information.

**Structure** The general status information of IP communication is contained in parameter P-0-1044, preferably in the first 8 bits. The bits 8 to 31 contain the device-dependent information.

The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
1/0	<b>State of internal memory TCP/IP stack</b> 00: No problem with internal memory 01: Internal memory space full 10: Internal memory space intermittently filled	
3/2	Reserved	

Product-Specific Parameters

Bit	Designation/function	Comment
6/4	<b>Default gateway information</b> 000: Not set 001: From master comm. engineering over IP (S-0-1022) 010: From SERCOS III master (CCD) (P-0-1643) 100: From engineering (P-0-1533)	
7	Reserved	
9/8	<b>Setting of device gateway information</b> 00: No gateway information set 01: Active gateway information manually set 10: Active gateway information automatically generated	
11/10	<b>Status of device gateway information</b> 00: Gateway information not used 01: Gateway address which was read is active 10: Gateway address which was read has not been activated up to now	
12	<b>Status of device network mask</b> 0: Network mask which was read is active 1: Network mask which was read has not been activated up to now	
15/13	Reserved	
17/16	<b>Setting of device IP address</b> 00: No IP address set 01: Active IP address manually set 10: Active IP address automatically set	
20/18	<b>Status of IP address</b> 000: No IP address available for activation 001: IP address which was read is active 010: IP address which was read has not been activated up to now 100: "Duplicate IP Address", address not active	
21	Reserved	
22	<b>Validity of device IP settings</b> 0: IP settings valid 1: Invalid IP settings (address and gateway in different networks)	
23	<b>Status of IP communication</b> 0: IP communication possible 1: No IP communication possible (resources missing)	

## Product-Specific Parameters

Bit	Designation/function	Comment
25/24	<b>Status of FPGA Rx Buffer Port1</b> 00: FPGA Rx Buffer Port1 able to receive data 01: FPGA Rx Buffer Port1 temporarily busy 10: FPGA Rx Buffer Port1 permanently busy	
27/26	<b>Status of FPGA Rx Buffer Port2</b> 00: FPGA Rx Buffer Port2 able to receive data 01: FPGA Rx Buffer Port2 temporarily busy 10: FPGA Rx Buffer Port2 permanently busy	
29/28	<b>Status of FPGA Tx Buffer Port1</b> 00: FPGA Tx Buffer Port1 able to receive data 01: FPGA Tx Buffer Port1 temporarily busy 10: FPGA Tx Buffer Port1 permanently busy	
31/30	<b>Status of FPGA Tx Buffer Port2</b> 00: FPGA Tx Buffer Port2 able to receive data 01: FPGA Tx Buffer Port2 temporarily busy 10: FPGA Tx Buffer Port2 permanently busy	

Tab.5-165: P-0-1044, Status information IP Communication, Master Comm. Engineering Over IP

P-0-1044 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.8 P-0-1100 to P-0-1299 Velocity Control

### 5.8.1 P-0-1118, Velocity controller command filter

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter defines the time constant of the velocity command value filter. The filter can be used to improve the overshoot behavior of the velocity controller.



The filter is deactivated by entering a time constant that is less than or equal to the sampling time (clock rate) of the position controller.

See also Functional Description "Control Section Design and Performance"

See also Functional Description "Velocity Control"

P-0-1118 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

Product-Specific Parameters

Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
Input	min./max.		Default value		
MPB:	0,0 / 6553,5		0,0		
MPC:	0,0 / 6553,5		0,0		
MPE:	0,0 / 6553,5		0,0		
MPM:	0,0 / 6553,5		0,0		

## 5.8.2 P-0-1119, Velocity mix factor feedback 1 & 2

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	The "velocity mix factor" parameter determines the ratio of the actual velocity values between the motor encoder and the optional encoder. See also Functional Description "Notes on Commissioning"				
Use	The input is percentage-based; the following applies: <b>0%:</b> The speed controller works solely with the velocity of encoder 1. <b>100%:</b> The speed controller works solely with the velocity of encoder 2 (optional encoder). If no optional encoder is available, the parameter is set to 0%.				



If encoder 2 (optional encoder) is used as the only control encoder, the value is to be set to 100%.

### P-0-1119 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
Input	min./max.		Default value		
MPB:	0,0 / 100,0		0,0		
MPC:	0,0 / 100,0		0,0		
MPE:	0,0 / 100,0		0,0		
MPM:	0,0 / 100,0		0,0		

## 5.8.3 P-0-1120, Velocity control loop filter: Filter type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter allows activating and selecting up to 4 different filters (2nd order). "Firmware variant MPE" features only two filters. See also Functional Description "Velocity Loop"				

## Product-Specific Parameters

Use

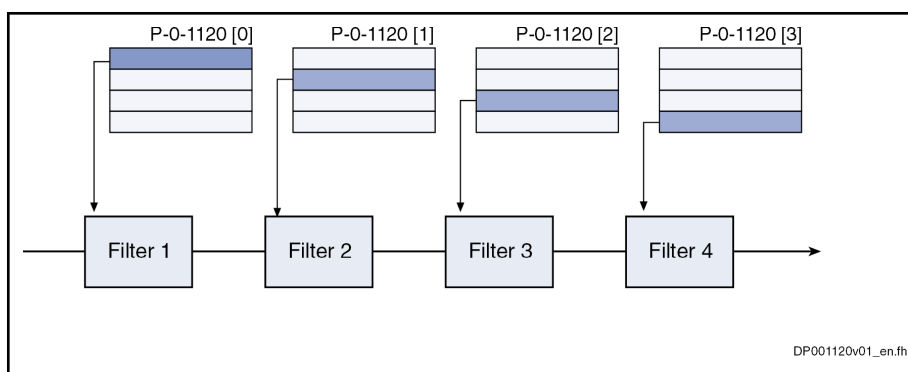


Fig.5-166: Parameterizable filter cascade

The following filter types can be selected:

- **0:** Filter switched off
- **1:** Low-pass filter activated  
→ P-0-1121, Velocity control loop filter: limit frequency of low pass
- **2:** Band-stop filter activated  
→ P-0-1122, Velocity control loop filter: bandwidth of band-stop filter  
→ P-0-1123, Velocity control loop filter: center frequency of band-stop filter
- **3:** 2nd order filter activated (as of MPx-17V06)  
→ P-0-1140, Velocity control loop filter: numerator natural frequency  
→ P-0-1141, Velocity control loop filter: denominator natural frequency  
→ P-0-1142, Velocity control loop filter: numerator damping  
→ P-0-1143, Velocity control loop filter: denominator damping



All of the above filter parameters "P-0-1120, P-0-1121, P-0-1122, P-0-1123, P-0-1140, P-0-1141, P-0-1142, and P-0-1143 " are list parameters each comprising 4 elements (element 1 for filter 1, element 2 for filter 2, ...).

The content of "P-0-1120, Velocity control loop filter: Filter type" consists of 4 elements:

- **P-0-1120[0]** → Filter type for filter 1
- **P-0-1120[1]** → Filter type for filter 2
- **P-0-1120[2]** → Filter type for filter 3
- **P-0-1120[3]** → Filter type for filter 4

## P-0-1120 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2

Input	min./max.	Default value
<b>MPB:</b>	0 / 3	s. Text
<b>MPC:</b>	0 / 3	s. Text
<b>MPE:</b>	0 / 3	s. Text
<b>MPM:</b>	0 / 3	s. Text

## 5.8.4 P-0-1121, Velocity control loop filter: Limit frequency of low pass

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** The parameter serves to parameterize the base frequency of the four filters ("firmware variant MPE" features only two filters) which can be selectively activated via "P-0-1120". The value is entered in Hz, i.e., the actual frequency ( $f = 1/T$ ) at which damping of -3 dB is intended (weakening of the amplitude to 0.707 of the input amplitude) is entered.

See also Functional Description "Notes on Commissioning"

See also Functional Description "Velocity Loop"

**Use**

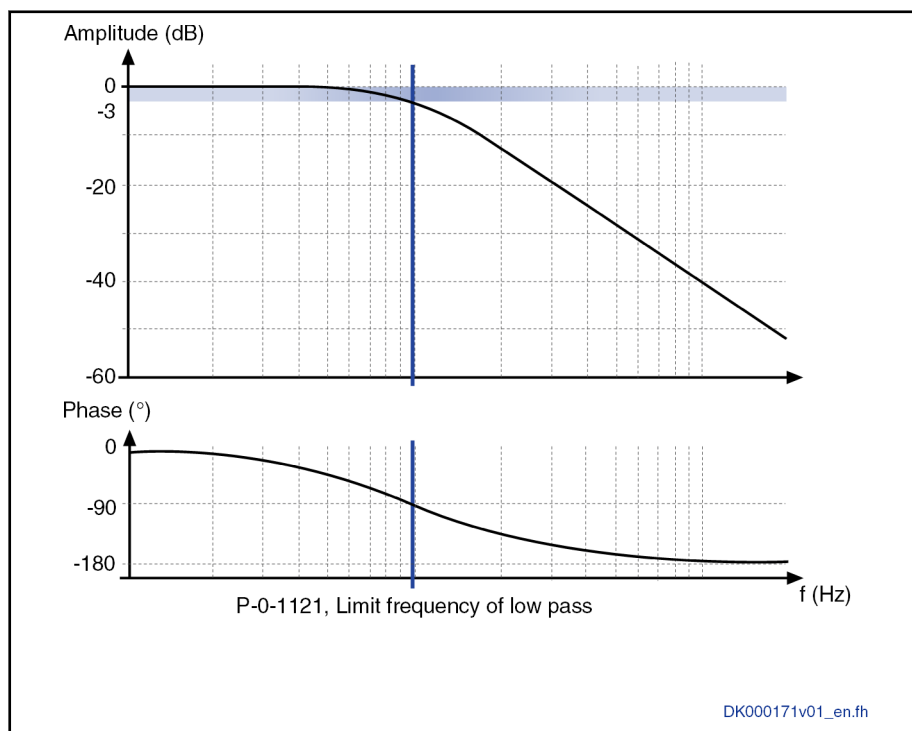


Fig.5-167: Frequency Response of 2nd Order Low-Pass Filter

The content of "P-0-1121" consists of 4 elements:

- **P-0-1121[0]** → cut-off frequency for low-pass filter 1
- **P-0-1121[1]** → cut-off frequency for low-pass filter 2
- **P-0-1121[2]** → cut-off frequency for low-pass filter 3
- **P-0-1121[3]** → cut-off frequency for low-pass filter 4



However, a list element in "P-0-1121" is only relevant if the corresponding list element has been set to "1" (filter type = low-pass filter) in "P-0-1120".

### P-0-1121 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Hz	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	4,0 / 4000,0		s. Text		
<b>MPC:</b>	4,0 / 4000,0		s. Text		
<b>MPE:</b>	4,0 / 4000,0		s. Text		
<b>MPM:</b>	4,0 / 4000,0		s. Text		

## Product-Specific Parameters

## 5.8.5 P-0-1122, Velocity control loop filter: Bandwidth of band-stop filter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter serves to parameterize the bandwidth of the four band-stop filters ("firmware variant MPE" features only two filters) which can be selectively activated via P-0-1120 [n] = 2. The value is entered in Hz, i.e., the actual frequency ( $f = 1/T$ ) is entered.

See also Functional Description "Notes on Commissioning"

See also Functional Description "Velocity Loop"

**Use**

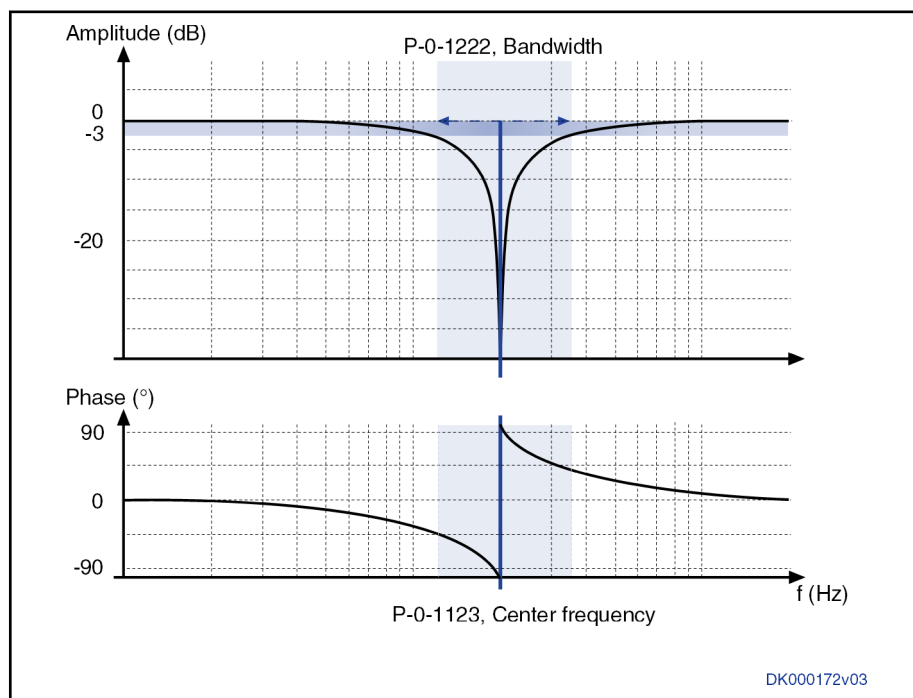


Fig.5-168: Frequency Response of Band-Stop Filter

The content of "P-0-1122" consists of 4 elements:

- P-0-1122[0] → Bandwidth for band-stop filter 1
- P-0-1122[1] → Bandwidth for band-stop filter 2
- P-0-1122[2] → Bandwidth for band-stop filter 3
- P-0-1122[3] → Bandwidth for band-stop filter 4



However, a list element in "P-0-1122" is only relevant if the corresponding list element has been set to "2" (filter type = band-stop filter) in "P-0-1120".

## P-0-1122 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Hz	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
MPB:	10,0 / 1000,0	s. Text
MPC:	10,0 / 1000,0	s. Text
MPE:	10,0 / 1000,0	s. Text
MPM:	10,0 / 1000,0	s. Text

## 5.8.6 P-0-1123, Vel. cont. loop filter: Center frequency of band-stop filter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter serves to parameterize the mid-band frequency of the four band-stop filters ("firmware variant MPE" features only two filters) which can be selectively activated via P-0-1120 [n] = 2. The value is entered in Hz, i.e., the actual frequency ( $f = 1/T$ ) is entered.

See also Functional Description "Notes on Commissioning"

**Use**

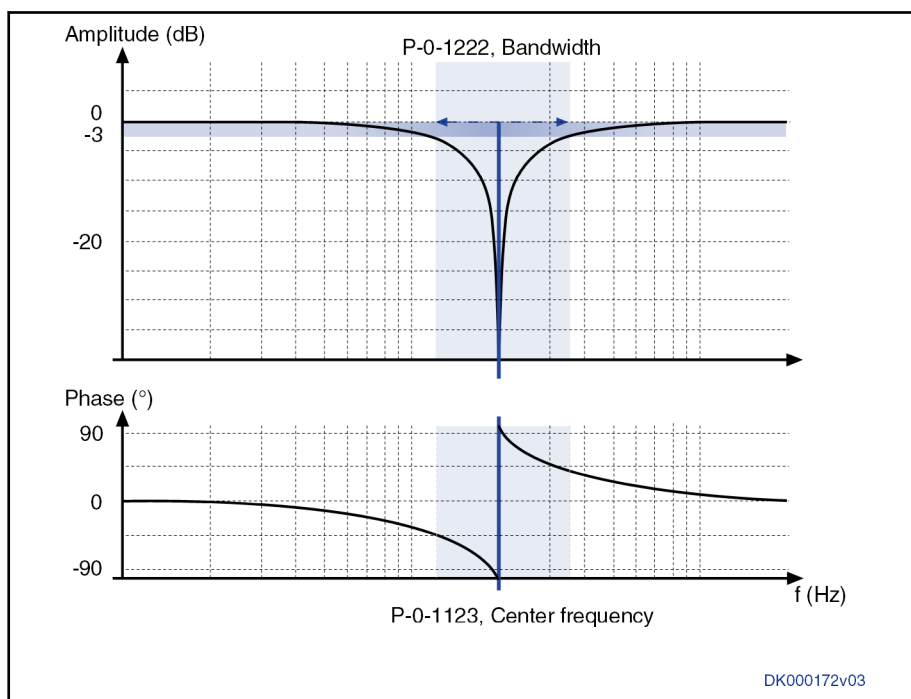


Fig. 5-169: Amplitude characteristic of a band-stop filter depending on the bandwidth (qualitative)

The content of "P-0-1123, Velocity control loop filter: The band-stop filter mid-band frequency" consists of 4 elements:

- P-0-1123[0] → Mid-band frequency for band-stop filter 1
- P-0-1123[1] → Mid-band frequency for band-stop filter 2
- P-0-1123[2] → Mid-band frequency for band-stop filter 3
- P-0-1123[3] → Mid-band frequency for band-stop filter 4



However, a list element in "P-0-1123" is only relevant if the corresponding list element has been set to "2" (filter type = band-stop filter) in "P-0-1120".

### P-0-1123 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Hz	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2
Input			min./max.	Default value	
MPB:			4,0 / 4000,0	s. Text	
MPC:			4,0 / 4000,0	s. Text	

## Product-Specific Parameters

MPE:	4,0 / 4000,0	s. Text
MPM:	4,0 / 4000,0	s. Text

## 5.8.7 P-0-1126, Velocity control loop: Acceleration feedforward

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used for activating and setting a variable acceleration feedforward in the "velocity control" mode.

See also Functional Description "Velocity Loop"

See also Functional Description "Position Loop"

**Use Operating Principle**

The differentiated velocity command value (acceleration command value) is multiplied by the value of parameter "P-0-1126" in order to add (feedforward) a corresponding additive torque command value.

The feedforward value (additive torque/force command value) can be smoothed by a subsequent low-pass filter "(P-0-0180)".



This kind of feedforward can, for example, be used to minimize the command value deviation in the acceleration phase.

**Input values**

Entering a value greater than "0" in "P-0-1126" activates the acceleration feedforward control (P-0-1126 = 0 → switched off).

For optimum parameterization of the acceleration feedforward, the following values have to be entered in "P-0-1126":

- Total mass (motor + load) in kg (linear motor), and the
- Total mass inertia (motor + load), in relation to the motor output shaft, in  $\text{gm}^2$  (rotary motor)



Depending on the respective mechanical system, the input value of "P-0-1126" has to be adjusted on site.

**Unit, decimal places**

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor (rotary or linear) entered in "P-0-4014, Type of construction of motor":

- Rotary motor:  $\text{mN} \cdot \text{m} / \text{rad/s}^2 \rightarrow \text{g} \cdot \text{m}^2$
- Linear motor:  $\text{mN} / \text{mm/s}^2 \rightarrow \text{kg}$ .

**P-0-1126 - Attributes**

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	$\text{mNm}/(\text{rad/s}^2)$	Extr. val. ch.:	+	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
MPB:	0,0000 / 214748,3647	0,0000
MPC:	0,0000 / 214748,3647	0,0000
MPE:	0,0000 / 214748,3647	0,0000
MPM:	0,0000 / 214748,3647	0,0000

## 5.8.8 P-0-1129, Cogging torque compensation value

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPM» «MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM» «MPC»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** As of MPx-17V08

This parameter is the active compensation value of the cogging torque compensation. It is added to the output of the velocity controller as an additive torque/force value and is not limited by S-0-0082/S-0-0083.

**Use** Internal cogging torque compensation:

The drive generates the value from a table with the function being active.

External cogging torque compensation:

A control delivers the value to the drive (e.g., MLD).



External writing to the parameter is not expedient while internal cogging torque compensation is active.

### P-0-1129 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0086 / S-0-0086	---
MPC:	S-0-0086 / S-0-0086	---
MPE:	S-0-0086 / S-0-0086	---
MPM:	S-0-0086 / S-0-0086	---

## 5.8.9 P-0-1130, Table of cogging torque compensation values pos. direction

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»
	Contained in 17VRS:	«MPB»	«-»	«MPM» «MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM» «MPC»
	Hardware	--		
	Funct. package(s):	Servo(compensation), synchronisation (ELS)		
	Device parameter:	axis-specific		

**Function** In this list parameter, 1024 position-dependent cogging torque/force correction values for positive (non-negated) direction of motion are stored. With active cogging torque/force compensation, the correction values are added to the torque/force command value depending on the motor position, when the motor moves in positive direction.

See also Functional Description of firmware "Compensation Functions / Corrections"

### P-0-1130 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0086 / S-0-0086	s. Text
MPC:	S-0-0086 / S-0-0086	s. Text
MPE:	S-0-0086 / S-0-0086	s. Text
MPM:	S-0-0086 / S-0-0086	s. Text

## Product-Specific Parameters

## 5.8.10 P-0-1131, Control word of cogging torque compensation

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** This parameter is used to activate cogging torque or cogging force compensation and to set the method of determining the compensation table.

See also Functional Description "Compensation Functions / Corrections"

**Structure** The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
0	<b>Cogging torque or cogging force compensation</b> 0: Inactive 1: Active	
1	<b>Range of action of cogging torque or cogging force compensation</b> 0: Total travel range; compensation values refer to one motor revolution or one pole pair width. 1: Limited position range, compensation within P-0-1145 and P-0-1146; compensation values refer to the total limited range.	
7... 2	<b>Reserved</b>	
13... 9	<b>Reserved</b>	
14	<b>Establishing the position reference between motor encoder and motor</b> 0: Automatically, default In case of absolute encoders (single- or multi-turn motor encoders) and relative encoders with one reference mark/ motor revolution or distance-coded reference marks. 1: By homing In case of relative encoders without reference mark or with several reference marks/motor revolution.	As of MPx-17VRS
15/8	<b>Settings for determining the cogging torque compensation tables</b> 00: Determine new tables in the case of axis motion: They refer to motor and connected mechanical axis system. 01: Determine new tables in the case of axis motion: Eliminate influence of unbalanced inertia by means of calculation, then store tables. 10: No action 11: Correct existing tables without axis motion: Determine influence of unbalanced inertia by means of calculation and eliminate it from the tables.	

Tab.5-170: Relevant Bits of "P-0-1131, Control word of cogging torque compensation"

Product-Specific Parameters

<b>P-0-1131 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			0x0	
	<b>MPC:</b>	--- / ---			0x0	
	<b>MPE:</b>	--- / ---			0x0	
	<b>MPM:</b>	--- / ---			0x0	

## 5.8.11 P-0-1132, Table of cogging torque compensation values neg. direction

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** In this list parameter, 1024 position-dependent cogging torque/force correction values for negative (non-negated) direction of motion are stored. With active cogging torque/force compensation, the correction values are added to the torque/force command value depending on the motor position, when the motor moves in negative direction.

See also Functional Description of firmware "Compensation Functions / Corrections"

<b>P-0-1132 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	S-0-0086 / S-0-0086			s. Text	
	<b>MPC:</b>	S-0-0086 / S-0-0086			s. Text	
	<b>MPE:</b>	S-0-0086 / S-0-0086			s. Text	
	<b>MPM:</b>	S-0-0086 / S-0-0086			s. Text	

## 5.8.12 P-0-1133, Status word of cogging torque compensation

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays:

- The velocity-dependent effectiveness of cogging torque compensation.
- The status of measured value recording during the determination of the compensation tables.

**Structure** The individual bits of the parameter have the following significance:

## Product-Specific Parameters

Bit	Designation/function	Comment
1, 0	<b>Status of effectiveness of cogging torque/force compensation</b> 0 0: Cogging torque compensation not active! 0 1: Effective, because S-0-0040 < P-0-1134 1 0: Effective in attenuated form, because P-0-1134 < S-0-0040 < P-0-1135 1 1: Without effect, because S-0-0040 > P-0-1135	
7...2	<b>Reserved</b>	
8	<b>Required number of measured values per position raster reached?</b> 0: Yes 1: No	
9	<b>Drive in range of measured value recording?</b> 0: No 1: Yes	
15...10	<b>Reserved</b>	

Tab.5-171: Relevant Bits of P-0-1133, Status word of cogging torque compensation

See also Functional Description of firmware "Compensation Functions / Corrections"

## P-0-1133 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.13 P-0-1134, Velocity threshold for attenuation of cogging torque compens

<b>Allocation</b>	<b>Contained in 16VRS:</b> «MPB» «-» «MPM» <b>Contained in 17VRS:</b> «MPB» «-» «MPM» «MPC» <b>Contained in 18VRS:</b> «MPB» «-» «MPM» «MPC» <b>Hardware</b> -- <b>Funct. package(s):</b> Servo(compensation), synchronisation (ELS) <b>Device parameter:</b> axis-specific
-------------------	--

**Function** In this parameter, enter the velocity threshold above which the cogging torque/force compensation values stored in P-0-1131 or P-0-1133 are used in attenuated form for motor control. At velocities below this velocity threshold, the compensation values are fully effective!

See also Functional Description of firmware "Compensation Functions / Corrections"

## P-0-1134 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	0,0000
MPC:	S-0-0044 / S-0-0044	0,0000
MPE:	S-0-0044 / S-0-0044	0,0000
MPM:	S-0-0044 / S-0-0044	0,0000

## 5.8.14 P-0-1135, Velocity threshold for switching off cogging torque comp- ens.

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»		
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	Servo(compensation), synchronisation (ELS)				
	Device parameter:	axis-specific				
Function	In this parameter, enter the velocity threshold above which the cogging torque/force compensation values stored in P-0-1130 or P-0-1132 are no longer used for motor control. At velocities below this velocity threshold and above the threshold of P-0-1134, the compensation values take effect proportionately, depending on the velocity! (100% with P-0-1134, 0% with P-0-1135)  See also Functional Description of firmware "Compensation Functions / Corrections"					
P-0-1135 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	S-0-0044 / S-0-0044		0,0000		
	MPC:	S-0-0044 / S-0-0044		0,0000		
	MPE:	S-0-0044 / S-0-0044		0,0000		
	MPM:	S-0-0044 / S-0-0044		0,0000		

## 5.8.15 P-0-1136, Lead time cogging torque compensation

Allocation	Contained in 16VRS:		«MPB»	«-»	«MPM»	
	Contained in 17VRS:		«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		Servo(compensation), synchronisation (ELS)			
	Device parameter:		axis-specific			
Function	With active cogging torque compensation, the dead time and dynamic response of the current loop, given high cogging torque frequency, can have a negative effect on the compensation result. By means of this parameter, the dead time and dynamic response of the current loop can be compensated.  See also Functional Description of firmware "Compensation Functions / Corrections"					
P-0-1136 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			0 / 65535	125	
	MPC:			0 / 65535	125	
MPE:			0 / 65535	125		
MPM:			0 / 65535	125		

## Product-Specific Parameters

## 5.8.16 P-0-1138, C4800 Command Determine cogging torque compensation table

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		Servo(compensation), synchronisation (ELS)			
Device parameter:		axis-specific			

**Function** Via this parameter, the command C4800 can be started. By means of this command, cogging torque compensation values are determined with regard to a motor position raster with 1024 positions and stored in table form in the list parameters P-0-1130 or P-0-1132. The command is signaled to have been completed, when 40 measured values per position raster range are available for the possible directions of motion of the axis.

See also Functional Description of firmware "Compensation Functions / Corrections"

P-0-1138 - Attributes	Function:	Cmd	Editable:	OM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		Input	min./max.		Default value	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.8.17 P-0-1139, Cogging torque compensation adaption factor

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
Funct. package(s):		Servo(compensation), synchronisation (ELS)			
Device parameter:		axis-specific			

**Function** This parameter has a multiplicative effect on all values of the cogging torque compensation tables. The effect of cogging torque compensation can thereby be intensified or attenuated:

- Permanently over a constant value unequal 100%
- Depending on the status variables of the machining process, by master-side writing of P-0-1139 with values unequal 100% (e.g. by including this parameter in the master data telegram [MDT]).

$$T\_Cog\_Corr = P-0-1139 * T\_Cog\_Tab$$

T\_Cog\_Tab Table value of cogging torque corr. table, position-dependent  
 T\_Cog\_Corr Effective cogging torque compensation value, position-dependent  
 Fig. 5-172: P-0-1139: Cogging torque compensation adaption factor



For each direction of motion, there is a cogging torque compensation table with 1024 values. The compensation values are position-dependent with regard to one motor revolution (rotary motor) or one pole pair (linear motor).

See also Functional Description of firmware "Compensation Functions / Corrections"

Product-Specific Parameters

P-0-1139 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	%	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,0 / 500,0	100,0
MPC:	0,0 / 500,0	100,0
MPE:	0,0 / 500,0	100,0
MPM:	0,0 / 500,0	100,0

## 5.8.18 P-0-1140, Velocity control loop filter: Numerator natural frequency

Allocation

Contained in 16VRS:	«-»	«-»	«-»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

Function

The parameter serves to parameterize the numerator natural frequency of the four 2nd order filters ("firmware variant MPE" features only two filters) which can be selectively activated via P-0-1120 [n] = 3. The input value is scaled in Hz, i.e., the actual frequency ( $f = 1/T$ ) is entered.

Use

The content of "P-0-1140" consists of 4 elements:

- P-0-1140[0] → Numerator natural frequency for 2nd order filter 1
- P-0-1140[1] → Numerator natural frequency for 2nd order filter 2
- P-0-1140[2] → Numerator natural frequency for 2nd order filter 3
- P-0-1140[3] → Numerator natural frequency for 2nd order filter 4



However, a list element in "P-0-1140" is only relevant if the corresponding list element has been set to "3" (filter type = 2nd order filter) in "P-0-1120".

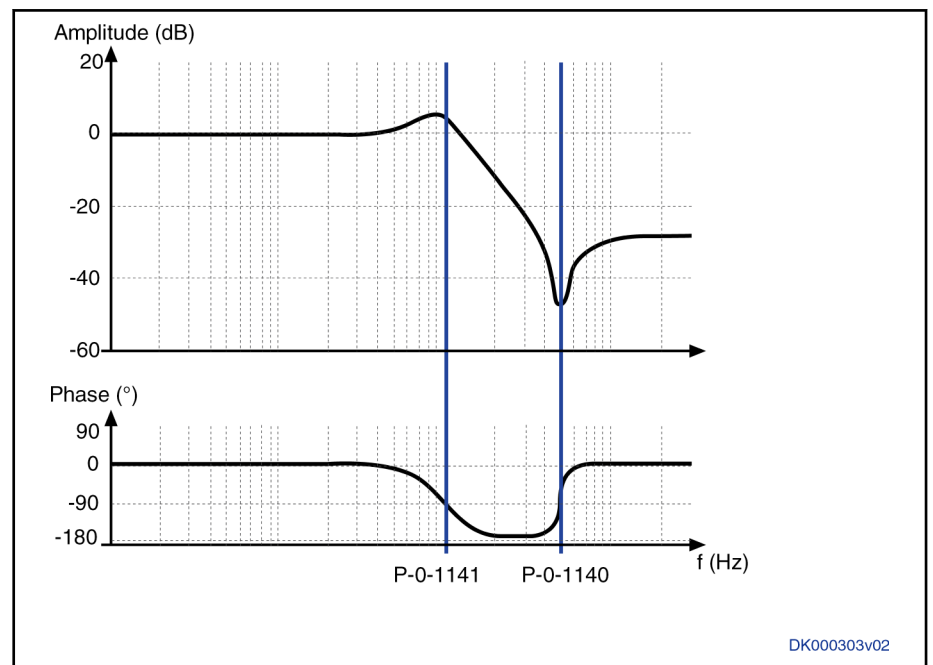


Fig. 5-173: Frequency Response of 2nd Order Filter

P-0-1140 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Hz	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	0,0 / 4000,0	s. Text
MPC:	0,0 / 4000,0	s. Text
MPE:	0,0 / 4000,0	s. Text
MPM:	0,0 / 4000,0	s. Text

## 5.8.19 P-0-1141, Velocity control loop filter: Denominator natural frequency

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** The parameter serves to parameterize the denominator natural frequency of the four 2nd order filters ("firmware variant MPE" features only two filters) which can be selectively activated via P-0-1120 [n] = 3. The input value is scaled in Hz, i.e., the actual frequency ( $f = 1/T$ ) is entered.

**Use** The content of "P-0-1141" consists of 4 elements:

- **P-0-1141[0]** → Denominator natural frequency for 2nd order filter 1
- **P-0-1141[1]** → Denominator natural frequency for 2nd order filter 2
- **P-0-1141[2]** → Denominator natural frequency for 2nd order filter 3
- **P-0-1141[3]** → Denominator natural frequency for 2nd order filter 4



However, a list element in "P-0-1141" is only relevant if the corresponding list element has been set to "3" (filter type = 2nd order filter) in "P-0-1120".

## P-0-1141 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	Hz	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 2

Input	min./max.	Default value
MPB:	0,0 / 4000,0	s. Text
MPC:	0,0 / 4000,0	s. Text
MPE:	0,0 / 4000,0	s. Text
MPM:	0,0 / 4000,0	s. Text

## 5.8.20 P-0-1142, Velocity control loop filter: Numerator damping

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** The parameter serves to parameterize the numerator damping of the four 2nd order filters ("firmware variant MPE" features only two filters) which can be selectively activated via P-0-1120 [n] = 3. The input value is not scaled.

**Use** The content of "P-0-1142" consists of 4 elements:

- **P-0-1142[0]** → Numerator damping for 2nd order filter 1
- **P-0-1142[1]** → Numerator damping for 2nd order filter 2
- **P-0-1142[2]** → Numerator damping for 2nd order filter 3
- **P-0-1142[3]** → Numerator damping for 2nd order filter 4



However, a list element in "P-0-1142" is only relevant if the corresponding list element has been set to "3" (filter type = 2nd order filter) in "P-0-1120".

Product-Specific Parameters

<b>P-0-1142 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	0,0000 / 10,0000			s. Text	
	<b>MPC:</b>	0,0000 / 10,0000			s. Text	
	<b>MPE:</b>	0,0000 / 10,0000			s. Text	
	<b>MPM:</b>	0,0000 / 10,0000			s. Text	

## 5.8.21 P-0-1143, Velocity control loop filter: Denominator damping

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The parameter serves to parameterize the denominator damping of the four 2nd order filters ("firmware variant MPE" features only two filters) which can be selectively activated via P-0-1120 [n] = 3. The input value is not scaled.

**Use** The content of "P-0-1143" consists of 4 elements:

- **P-0-1143[0]** → Denominator damping for 2nd order filter 1
- **P-0-1143[1]** → Denominator damping for 2nd order filter 2
- **P-0-1143[2]** → Denominator damping for 2nd order filter 3
- **P-0-1143[3]** → Denominator damping for 2nd order filter 4



However, a list element in "P-0-1143" is only relevant if the corresponding list element has been set to "3" (filter type = 2nd order filter) in "P-0-1120".

<b>P-0-1143 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 2
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	0,0000 / 10,0000			s. Text	
	<b>MPC:</b>	0,0000 / 10,0000			s. Text	
	<b>MPE:</b>	0,0000 / 10,0000			s. Text	
	<b>MPM:</b>	0,0000 / 10,0000			s. Text	

## 5.8.22 P-0-1145, Cogging torque compensation: Lower position limit

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	Servo(compensation), synchronisation (ELS)			
	<b>Device parameter:</b>	axis-specific			

**Function** Defines the lower position limit during cogging torque compensation, if an absolute travel range was defined via bit 1 of parameter "P-0-1131, Control word of cogging torque compensation".

See also Functional Description "Cogging Torque Compensation"

**Use** The lower and upper position limits (P-0-1145 and P-0-1146) define the travel range for recording the cogging torque compensation table. The position range for which the cogging torque compensation values are filed, is reduced by the acceleration and deceleration range. Due to the distance required for acceleration and deceleration to reach the target velocity, the cogging torque compensation table cannot be recorded over the entire travel range.

## Product-Specific Parameters

<b>P-0-1145 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000	

## 5.8.23 P-0-1146, Cogging torque compensation: Upper position limit

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** Defines the upper position limit during cogging torque compensation, if an absolute travel range is defined via bit 1 of parameter "P-0-1131, Control word of cogging torque compensation".

See also Functional Description "Cogging Torque Compensation"

**Use** The lower and upper position limits (P-0-1145 and P-0-1146) define the travel range for recording the cogging torque compensation table. The position range for which the cogging torque compensation values are filed, is reduced by the acceleration and deceleration range. Due to the distance required for acceleration and deceleration to reach the target velocity, the cogging torque compensation table cannot be recorded over the entire travel range.

<b>P-0-1146 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPC:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPE:</b>	S-0-0076 / S-0-0076		0,0000	
		<b>MPM:</b>	S-0-0076 / S-0-0076		0,0000	

## 5.8.24 P-0-1147, Cogging torque compensation: Offset positive

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS)			
	Device parameter:	axis-specific			

**Function** Defines the direct component for the cogging torque compensation table in positive direction, if an absolute travel range is defined via bit 1 of parameter "P-0-1131, Control word of cogging torque compensation".

See also Functional Description "Cogging Torque Compensation"

**Use** If the cogging torque compensation table is recorded over an absolute travel range, it is not possible to automatically determine the direct component because the travel range can be unequal to a mechanical revolution or pole pair width. In order to compensate any possible direct components (continuous torques or forces), corrective measures can be taken by entering a value.

<b>P-0-1147 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV

Product-Specific Parameters

Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0086 / S-0-0086		0,0		
MPC:	S-0-0086 / S-0-0086		0,0		
MPE:	S-0-0086 / S-0-0086		0,0		
MPM:	S-0-0086 / S-0-0086		0,0		

## 5.8.25 P-0-1148, Cogging torque compensation: Offset negative

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	Servo(compensation), synchronisation (ELS)				
	Device parameter:	axis-specific				
Function	Defines the direct component for the cogging torque compensation table in negative direction, if an absolute travel range is defined via bit 1 of parameter "P-0-1131, Control word of cogging torque compensation".  See also Functional Description "Cogging Torque Compensation"					
Use	If the cogging torque compensation table is recorded over an absolute travel range, it is not possible to automatically determine the direct component because the travel range can be unequal to a mechanical revolution or pole pair width. In order to compensate any possible direct components (continuous torques or forces), corrective measures can be taken by entering a value.					
P-0-1148 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	+	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	S-0-0086 / S-0-0086		0,0		
	MPC:	S-0-0086 / S-0-0086		0,0		
	MPE:	S-0-0086 / S-0-0086		0,0		
	MPM:	S-0-0086 / S-0-0086		0,0		

## 5.8.26 P-0-1150, Command value generator output

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter shows the basic value of the command value generator. The basic value is displayed in the format of the assigned parameter.					
P-0-1150 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.8.27 P-0-1151, Command value generator, list of possible target parameters

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Product-Specific Parameters

	Contained in 18VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
<b>Function</b>	Hardware			
	Funct. package(s):			
	Device parameter:			
	axis-specific			
<b>P-0-1151 - Attributes</b>	This list parameter contains the IDNs of the parameters which can be entered in "P-0-1152, Command value generator, target parameter assignment". The command value generator can act on the following parameters:			
	<ul style="list-style-type: none"> <li>S-0-0037, Additive velocity command value</li> <li>S-0-0081, Additive torque/force command value</li> <li>P-0-0039, Flux-generating current, command value</li> <li>P-0-0059, Additive position command value, controller</li> </ul>			
	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:			
	Comb. check:			
	Set-depend.:			
	--			
	---			
	Input			
	min./max.			
	Default value			
	MPB:			
	---			
	MPC:			
	---			
	MPE:			
	---			
	MPM:			
	---			
	---			

## 5.8.28 P-0-1152, Command value generator, target parameter assignment

<b>Allocation</b>	Contained in 16VRS:			
	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
<b>Function</b>	Hardware			
	Funct. package(s):			
	Device parameter:			
	axis-specific			
<b>Use</b>	In this parameter, enter the IDN of the parameter to which the result of the command value generator is to be written.			
	By selecting the target parameter, the display (unit and scaling) of these parameters are set to the target parameter.			
	<ul style="list-style-type: none"> <li>P-0-1150, Command value generator output</li> <li>P-0-1154, Command value generator, offset</li> <li>P-0-1155, Command value generator, amplitude</li> </ul>			
<b>P-0-1152 - Attributes</b>	Function:	Par	Editable:	++
	Memory:	PARAM_SP	Validity ch.:	PM->OM
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Set-depend.:			
	--			
	---			
	Input			
	min./max.			
	Default value			
	MPB:			
	---			
	0			
	MPC:			
	---			
	0			
	MPE:			
	---			
	0			
	MPM:			
	---			
	0			

## 5.8.29 P-0-1153, Command value generator, control word

<b>Allocation</b>	Contained in 16VRS:			
	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:			
	«MPB»	«MPE»	«MPM»	«MPC»
<b>Function</b>	Hardware			
	Funct. package(s):			
	Device parameter:			
	axis-specific			
<b>Function</b>	This parameter is used to configure the integrated command value generator.			
	See also Functional Description "Drive-Integrated Command Value Generator"			

Product-Specific Parameters

Structure

Bit	Designation/function	Comment
<b>3-0</b>	<b>Signal selection</b> (selection of signal shape of command value generator) <b>0001:</b> Noise signal <b>0010:</b> Sine signal <b>0011:</b> Square-wave signal <b>0100:</b> Modified sine signal <b>0101:</b> Reserved <b>0110:</b> Sine sweep	
<b>4</b>	<b>Enable</b> <b>0:</b> Disabled: The command value generator is stopped and zero is output as command value. <b>1:</b> Enabled: The command value generator is enabled and the command value is output to the target parameter.	
<b>5</b>	<b>Periodic signal</b> <b>0:</b> One-time sequence <b>1:</b> Periodic signal generation <b>Note:</b> The setting of the noise signal periodic time is fixed to 4095 cycles.	
<b>6</b>	<b>Switch-off delay</b> In order to generate signals without mean value, switch-off of signal generation can be delayed until a complete signal period is output. <b>0:</b> Enable signal switched off immediately <b>1:</b> Switch-off delayed until period complete	
<b>7</b>	<b>Noise generator amplitude</b> The noise signal can be generated with constant amplitude (square-wave pulses with varying periodic time) or with continuous amplitude. <b>0:</b> Amplitude as square-wave signal <b>1:</b> Amplitude as factor	

## Product-Specific Parameters

Bit	Designation/function	Comment
8	<b>Enable reset</b> Enabling of the command value generator can be automatically reset after a drive error. <b>0:</b> Enabling is maintained, i.e., after drive error has been cleared and drive enabled, the command value becomes effective. <b>1:</b> Repeated enabling of the command value generator is required after a drive error has been cleared.	
9	<b>Sine / cosine signal switching</b> If "Sine signal" is selected from signal selection and the output of the command value generator is not assigned to any target parameter (P-0-1152 = S-0-0000), the signal shape can be switched over. <b>0:</b> Sine signal <b>1:</b> Cosine signal	As of MPX17V08

Tab.5-174: P-0-1153, Command value generator, control word



Bit 4 is the only one that can be configured in the signal control word in "P-0-1153".

## P-0-1153 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		0x0		
<b>MPC:</b>	--- / ---		0x0		
<b>MPE:</b>	--- / ---		0x0		
<b>MPM:</b>	--- / ---		0x0		

## 5.8.30 P-0-1154, Command value generator, offset

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used for setting the direct component (offset) for the selected signal (sine, square-wave, noise). The display, i.e. unit and scaling of the parameter, are set according to the assigned parameter.

## P-0-1154 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	-214748,3648 / 214748,36470,0000				
<b>MPC:</b>	-214748,3648 / 214748,36470,0000				
<b>MPE:</b>	-214748,3648 / 214748,36470,0000				
<b>MPM:</b>	-214748,3648 / 214748,36470,0000				

## 5.8.31 P-0-1155, Command value generator, amplitude

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"		
	<b>Device parameter:</b>		axis-specific		
<b>Function</b>	This parameter is used for setting the amplitude (double crest value, peak-to-peak value). The range of values of the selected signal shape (sine, square-wave, noise) is between half the plus/minus amplitude. The display, i.e. unit and scaling of the parameter, are set according to the assigned parameter.				
<b>P-0-1155 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b> 4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b> DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b> 4
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b> --
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
	<b>MPB:</b>	0,0001 / 214748,3647		10,0000	
	<b>MPC:</b>	0,0001 / 214748,3647		10,0000	
	<b>MPE:</b>	0,0001 / 214748,3647		10,0000	
	<b>MPM:</b>	0,0001 / 214748,3647		10,0000	

### 5.8.32 P-0-1156, Command value generator, duration 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	<p>This parameter is used for setting the square-wave signal. For the duration "P-0-1156, Command value generator, duration 1" the command value generator output "P-0-1150, Command value generator, command value" is set to half the positive amplitude "P-0-1155, Command value generator, amplitude" plus offset "P-0-1154, Command value generator, offset".</p> <p>When the duration 1 is over, the output of the command value generator is set to half the negative amplitude "P-0-1155, Command value generator, amplitude" plus offset "P-0-1154, Command value generator, offset". Duration 2 starts as of this point of time.</p>					
P-0-1156 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,000 / 4294967,295			0,000	
	MPC:	0,000 / 4294967,295			0,000	
	MPE:	0,000 / 4294967,295			0,000	
	MPM:	0,000 / 4294967,295			0,000	

### 5.8.33 P-0-1157, Command value generator, duration 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	<p>This parameter is used for setting the square-wave signal for command value generator.</p> <p>When duration 1 is over, duration 2 starts. For this duration "P-0-1157, Command value generator, duration 2" the command value generator output "P-0-1150, Command value generator, command value" is set to half the negative amplitude "P-0-1155, Command value generator, amplitude" plus offset "P-0-1154, Command value generator, offset". When duration 2 is over, the output signal is set to the offset "P-0-1154, Command value generator, offset" until the periodic time has been reached.</p>				

## Product-Specific Parameters

<b>P-0-1157 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	0,000 / 4294967,295		0,000		
	<b>MPC:</b>	0,000 / 4294967,295		0,000		
	<b>MPE:</b>	0,000 / 4294967,295		0,000		
	<b>MPM:</b>	0,000 / 4294967,295		0,000		

## 5.8.34 P-0-1158, Command value generator, periodic time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to set the square-wave signal and the sine signal for the command value generator. After the periodic time has elapsed, signal output is repeated.

When the command value generator is in sine sweep mode, this parameter is used to set the duration of the sweep. The time is entered in seconds and refers to the complete sweep, i.e., the up and down sweep.

<b>P-0-1158 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	0,001 / 4294967,295		10,000		
	<b>MPC:</b>	0,001 / 4294967,295		10,000		
	<b>MPE:</b>	0,001 / 4294967,295		10,000		
	<b>MPM:</b>	0,001 / 4294967,295		10,000		

## 5.8.35 P-0-1159, Command value generator, sine sweep start frequency

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter specifies the frequency at which the sine sweep generator starts to wobble.



The firmware does not take a change in this parameter into account before the enable bit is set in "P-0-1153, Command value generator, control word".

See also Functional Description "Drive-Integrated Command Value Generator"

<b>P-0-1159 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Hz	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	0,1 / 2000,0		---		
	<b>MPC:</b>	0,1 / 2000,0		---		
	<b>MPE:</b>	0,1 / 2000,0		---		
	<b>MPM:</b>	0,1 / 2000,0		---		

## 5.8.36 P-0-1160, Command value generator, sine sweep end frequency

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter specifies the frequency up to which wobbling can be effected using the sine sweep generator.



The firmware does not take a change in this parameter into account before the enable bit is set in "P-0-1153, Command value generator, control word".

See also Functional Description "Drive-Integrated Command Value Generator"

P-0-1160 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Hz	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,1 / 2000,0	---
MPC:	0,1 / 2000,0	---
MPE:	0,1 / 2000,0	---
MPM:	0,1 / 2000,0	---

## 5.8.37 P-0-1200, Control word 1 velocity control

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In velocity control mode, parameter "P-0-1200" is used to control or configure the following functions:

- Channel for velocity command value input (memory of fixed values or S-0-0036)
- Behavior of ramp-function generator (run-up stop)
- Command value generator (motor potentiometer)

See also Functional Description "Notes on Commissioning"

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
4-0	<b>Activation of command value P-0-1206</b> 00000: Command value "S-0-0036" active xxxxx: Fixed command value P-0-1206[i] and/or ramps and filters P-0-1223[i], P-0-1224[i], P-0-1225[i] active	P-0-1214, bit 8 0: Direct selection 1: Binary coded selection
7-5	<b>Run-up stop</b> 000: Deactivated xx1: Unconditionally active 010: If command value limitation active 100: If torque limitation active 110: If command value limitation or torque limitation active	
9/8	<b>Ramp inputs for motor potentiometer</b> 00: Command value is maintained 01: Command value is increased 10: Command value is reduced 11: Command value is maintained	
10	<b>Inversion of velocity command value</b> 0: Not active 1: Active	

Tab.5-175: P-0-1200, Control word 1 velocity control

**Use** Take the following aspects into account for parameter setting:

- **Bit 4-0: Activation of command value P-0-1206:**

If one of bits 0...4 has been set in "P-0-1200", it is not the velocity command value "S-0-0036" that is used, but a list element from the command value memory "P-0-1206". For this purpose, the selection method can be selected and the current command value, ramp and filter memories can be activated or deactivated in parameter "P-0-1214, Control word 2 velocity control".

**Selection method:**

- Direct selection (max. 5 command values)
- Binary coding (up to 31 command values)

- **Bits 7-5: Run-up stop:** The run-up stop function interrupts an acceleration process of the ramp-function generator, i.e., the output of the ramp-function generator is frozen. The ramp-function generator can continue carrying out deceleration processes, i.e., slowing down the drive is always possible.

The run-up stop function can be executed as follows:

- Externally selected by user (bit 5 = 1)
- Command value limitation active warnings (bit 6 = 1)
- Torque limitation active (bit 7 = 1)

- **Bits 9/8: Motor potentiometer:** These bits do not take effect until bit 0 is set in "P-0-1214, Control word 2 velocity control" and serve to readjust the ramp acceleration and ramp velocity when the motor potentiometer function is used.

Product-Specific Parameters

- **Bit 8: "Ramp"** - Ramp acceleration or ramp velocity is increased
- **Bit 9: "Ramp"** - Ramp acceleration or ramp velocity is reduced



If both bits are equal ("00" or "11"), the command value remains unchanged!

P-0-1200 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0x0 / 0xFFFF	---
MPC:	0x0 / 0xFFFF	---
MPE:	0x0 / 0xFFFF	---
MPM:	0x0 / 0xFFFF	---

## 5.8.38 P-0-1201, Ramp 1 pitch

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** The acceleration entered in P-0-1201 takes effect in the "velocity control" mode during acceleration.

See also Functional Description "Velocity Control"

**Use** With the acceleration entered in this parameter, the acceleration takes place from the last effective command value to the new preset command value, as long as the velocity at the ramp output is smaller than the value entered in "P-0-1202, Final speed ramp 1".

### Influence of P-0-1209

If the function "speed masking in command value channel" is used (P-0-1207, P-0-1208, P-0-1209), the content of P-0-1201 is multiplied with the content of P-0-1209 and this influences the effective acceleration.



The value of parameter "P-0-1201, Ramp 1 pitch" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise the warning "E2070 Acceleration limit active" is output. When the value "0" is input in the parameter and with values greater than S-0-0138, parameter S-0-0138 takes effect.

P-0-1201 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	Grp. 1

Input	min./max.	Default value
MPB:	S-0-0160 / S-0-0160	0,000
MPC:	S-0-0160 / S-0-0160	0,000
MPE:	S-0-0160 / S-0-0160	0,000
MPM:	S-0-0160 / S-0-0160	0,000

## 5.8.39 P-0-1202, Final speed ramp 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** The parameter "P-0-1202, Final speed ramp 1" takes effect in the "velocity control" mode during acceleration and deceleration.

When exceeding (acceleration) or falling below (deceleration) the velocity indicated in "P-0-1202, Final speed ramp 1", the pitch of the drive-internal speed command value ramp changes as follows:

- from the value indicated in "P-0-1201, Ramp 1 pitch" to the value indicated in "P-0-1203, Ramp 2 pitch" (acceleration)
- or from the value indicated in "P-0-1211, Deceleration ramp 1" to the value indicated in "P-0-1213, Deceleration ramp 2" (deceleration)

See also Functional Description "Velocity Command Value Reset With Filter and Ramp"

**P-0-1202 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0044 / S-0-0044		0,0000		
<b>MPC:</b>	S-0-0044 / S-0-0044		0,0000		
<b>MPE:</b>	S-0-0044 / S-0-0044		0,0000		
<b>MPM:</b>	S-0-0044 / S-0-0044		0,0000		

## 5.8.40 P-0-1203, Ramp 2 pitch

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The acceleration entered in P-0-1203 takes effect in the "velocity control" mode during acceleration.

With the acceleration entered in this parameter, the acceleration takes place from the last effective command value to the new preset command value, as soon as the velocity at the ramp output is greater than the value entered in "P-0-1202, Final speed ramp 1".

See also Functional Description "Velocity Control"

**Use Influence of P-0-1209**

If the function "speed masking in command value channel" is used (P-0-1207, P-0-1208, P-0-1209), the content of P-0-1201 is multiplied with the content of P-0-1209 and this influences the effective acceleration.



The value of parameter "P-0-1203, Ramp 2 pitch" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise the warning "E2070 Acceleration limit active" is output. When the value "0" is input in the parameter and with values greater than S-0-0138, parameter S-0-0138 takes effect.

**P-0-1203 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1

Product-Specific Parameters

Input	min./max.	Default value
MPB:	S-0-0160 / S-0-0160	0,000
MPC:	S-0-0160 / S-0-0160	0,000
MPE:	S-0-0160 / S-0-0160	0,000
MPM:	S-0-0160 / S-0-0160	0,000

## 5.8.41 P-0-1206, Memory of velocity command values

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This list parameter is used as a memory of fixed command values for velocity command values. The individual values can be selected via the control word P-0-1200.



Selection via P-0-1200 takes place in binarily coded form!

See also Functional Description "Velocity Control"

See also Parameter Description "P-0-1200, Control word 1 velocity control"

**Structure** The parameter has a list structure; the following assignments apply to it.

P-0-1206	Significance	Comment
Element 1-31	Fixed cmd value 1 – 31	

**Use** Observe the following aspects for using the fixed command values:

- The function for selecting the fixed command values P-0-1206 only takes effect in the "velocity control" mode.
- In contrast to S-0-0036, the parameter P-0-1206 cannot be cyclically changed.
- The range of values and unit of the parameter elements in P-0-1206 correspond to those of the velocity command value S-0-0036.
- When P-0-1200 = 0 is selected, no fixed command value takes effect, but S-0-0036 or possibly the command value of the motor potentiometer function.

P-0-1206 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 /
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	S-0-0046
						--

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	s. Text
MPC:	S-0-0044 / S-0-0044	s. Text
MPE:	S-0-0044 / S-0-0044	s. Text
MPM:	S-0-0044 / S-0-0044	s. Text

## 5.8.42 P-0-1207, Lower limit of velocity masking window

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In conjunction with the parameter P-0-1208 (upper limit of velocity masking window), the list parameter P-0-1207 defines four velocity ranges (velocity windows).

## Product-Specific Parameters

The ranges apply to positive and negative velocities, the definitions of the ranges are mirrored with regard to speed zero.



- The function "velocity masking window" is only effective in the "velocity control" mode.
- The parameter "P-0-1210, Status word of velocity control mode" contains information on the status of the current command value with regard to a velocity masking window.

See also Functional Description "Velocity Loop"

## P-0-1207 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0044 / S-0-0044		s. Text		
<b>MPC:</b>	S-0-0044 / S-0-0044		s. Text		
<b>MPE:</b>	S-0-0044 / S-0-0044		s. Text		
<b>MPM:</b>	S-0-0044 / S-0-0044		s. Text		

## 5.8.43 P-0-1208, Upper limit of velocity masking window

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** The list parameter "P-0-1208", in conjunction with the parameter "P-0-1207" (lower limit of velocity masking window), defines four velocity ranges (velocity windows).

The ranges apply to positive and negative velocities, the definitions of the ranges are mirrored with regard to speed zero.



- The function "velocity masking window" is only effective in the "velocity control" mode.
- The parameter "P-0-1210, Status word of velocity control mode" contains information on the status of the current command value with regard to a velocity masking window.

See also Functional Description "Velocity Loop"

## P-0-1208 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0044 / S-0-0044		s. Text		
<b>MPC:</b>	S-0-0044 / S-0-0044		s. Text		
<b>MPE:</b>	S-0-0044 / S-0-0044		s. Text		
<b>MPM:</b>	S-0-0044 / S-0-0044		s. Text		

## 5.8.44 P-0-1209, Acceleration factors for velocity masking window

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		

## Product-Specific Parameters

<b>Funct. package(s):</b>	"open loop", "closed loop"
<b>Device parameter:</b>	axis-specific

**Function** The list parameter P-0-1209 contains the acceleration factors that take effect in the velocity ranges defined with P-0-1207 and P-0-1208.

The ramp generator passes the range of the velocity window (P-0-1207 and P-0-1208). But the acceleration factors indicated in P-0-1209 have a multiplying effect on the acceleration and deceleration values or, in the case of alternative scaling of the acceleration, on the ramp times of the ramp generator (P-0-1201, P-0-1203, P-0-1211 and P-0-1213).

See also Functional Description "Velocity Loop"

**Use** The effect of P-0-1209 is as follows:

- With **P-0-1209 = 1.000** the ramp generator behaves in a neutral way.
- With **P-0-1209 > 1.000** the acceleration increases accordingly within the velocity window.



The units of P-0-1201, P-0-1203, P-0-1211 and P-0-1213 depend on the scaling (cf. S-0-0160).



- The acceleration factors (P-0-1209) only take effect in the "velocity control" mode. They are neither active during the command "Drive Halt".
- The status word of the "velocity control" mode P-0-1210 contains information on the current status of the command value or the ramp output with regard to a velocity masking window.

### P-0-1209 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	1,00 / 100,00	s. Text
<b>MPC:</b>	1,00 / 100,00	s. Text
<b>MPE:</b>	1,00 / 100,00	s. Text
<b>MPM:</b>	1,00 / 100,00	s. Text

## 5.8.45 P-0-1210, Status word of velocity control mode

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Parameter "P-0-1210" provides information about the current state of the ramp generator and the current command value for velocity control mode.



Parameter "P-0-1210" can be configured in the cyclic actual value channel (e.g., AT with SERCOS) in "S-0-0144, Signal status word" and assigned to the digital outputs.

See also Functional Description "Velocity Loop"

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
0	<b>Command value reached</b> The output of the ramp generator and the jerk filter corresponds exactly to the applied velocity command value.	
1	<b>Run-up stop active</b> The run-up stop function has been activated either directly or via cmd value limitation or torque limitation. The ramp generator keeps the output frozen as long as there is no cmd value applied that is higher than the current ramp output. The jerk filter is not affected.	
2	<b>Deceleration active</b> The ramp generator is in the deceleration state.	
3	<b>Acceleration active</b> The ramp generator is in the acceleration state.	
4	<b>Command value within mask window</b> Command value specification hits a velocity mask window. Therefore the active command value is affected.	
5	<b>V-ramp within mask window</b> The ramp generator is in acceleration or deceleration state. An acceleration factor from "P-0-1209" is active because the current value is within a velocity mask window.	

Tab.5-176: P-0-1210, Status Word of Velocity Control Mode



All status displays of "P-0-1210" are only active in "velocity control" mode.

## P-0-1210 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.8.46 P-0-1211, Deceleration ramp 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The deceleration entered in "P-0-1211, Deceleration ramp 1" only takes effect in the "velocity control" mode.

With the deceleration entered in this parameter, the deceleration takes place from the last effective velocity command value to the new velocity command value as soon as the velocity at the ramp output is smaller than the value in "P-0-1202, Final speed ramp 1".

Product-Specific Parameters

See also Functional Description "Velocity Command Value Reset With Filter and Ramp ("Quick Stop")"

**Use Influence of P-0-1209**

If the function "speed masking in command value channel" takes effect (P-0-1207, P-0-1208, P-0-1209), the content of P-0-1211 is multiplied with the content of P-0-1209 and this influences the effective deceleration.



The value of parameter "P-0-1211, Deceleration ramp 1" should always be smaller than the value of parameter "S-0-0138, Bipolar acceleration limit value", because otherwise the warning "E2070 Acceleration limit active" is output. When the value "0" is input in the parameter and with values greater than S-0-0138, parameter S-0-0138 takes effect.

**P-0-1211 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0160 / S-0-0160		0,000		
<b>MPC:</b>	S-0-0160 / S-0-0160		0,000		
<b>MPE:</b>	S-0-0160 / S-0-0160		0,000		
<b>MPM:</b>	S-0-0160 / S-0-0160		0,000		

## 5.8.47 P-0-1213, Deceleration ramp 2

**Allocation**

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

**Function**

The deceleration entered in "P-0-1213, Deceleration ramp 2" takes effect in the "velocity control" mode during the braking process.

With the deceleration entered in this parameter, the deceleration takes place from the last effective velocity command value to the new velocity command value, as long as the velocity at the ramp output is greater than the value in parameter "P-0-1202, Final speed ramp 1".

See also Functional Description "Velocity Control"

**Use Influence of P-0-1209**

If the function "speed masking in command value channel" is used (P-0-1207, P-0-1208, P-0-1209), the content of P-0-1213 is multiplied with the content of P-0-1209 and this influences the effective deceleration.

**P-0-1213 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	S-0-0160 / S-0-0160		0,000		
<b>MPC:</b>	S-0-0160 / S-0-0160		0,000		
<b>MPE:</b>	S-0-0160 / S-0-0160		0,000		
<b>MPM:</b>	S-0-0160 / S-0-0160		0,000		

## 5.8.48 P-0-1214, Control word 2 velocity control

**Allocation**

<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»

## Product-Specific Parameters

Hardware --  
 Funct. package(s): "open loop", "closed loop"  
 Device parameter: axis-specific

**Function** Via this parameter it is possible to control the execution of a velocity control mode in the operating mode.

See also Functional Description "Velocity Control"

**Structure** You can make the following settings in this parameter:

Bit	Designation/function	Comment
0	<b>Motor potentiometer, enabling</b> 0: Locked, i.e. S-0-0036 or P-0-1206[i] active 1: Motor potentiometer is active	
2/1	<b>Motor potentiometer, initial value after drive enable</b> 00: Start with command value 0 01: Drive moves to old command value again 10: Actual velocity value S-0-0040 is maintained 11: Not allowed!	
3	<b>Motor potentiometer, acceleration for ramp command value</b> 0: <b>Constant:</b> Velocity increased or reduced in linear form with activation time of ramp inputs (ramp+, ramp-) 1: <b>Linear change:</b> Velocity increased or reduced in square form with activation time of ramp inputs (ramp+, ramp-)	
4	<b>Motor potentiometer, evaluation mode of ramp inputs</b> 0: Continuously: Acceleration as long as a ramp input (ramp+, ramp-) is activated 1: Edge-controlled: Velocity increased by step size in the case of 0->1 edge at a ramp input (ramp+, ramp-)	
5	Enabling of motor potentiometer for easy startup mode 0: Locked, i.e. P-0-1460 or P-0-1206[i] active 1: Motor potentiometer is active	
8	<b>Selection mode of active command value, ramp and filter memories</b> 0: Direct selection by P-0-1200, bit 0-4 1: Binarily coded selection by P-0-1200, bit 0-4	
10,9	<b>Selection of active command value, ramp and filter memories</b> 00: Only memory of fixed command values (P-0-1206) 01: No selection 10: Fixed command values (P-0-1206) and ramps (P-0-1223, P-0-1224) and filter time constants (P-0-1225) 11: Only ramps (P-0-1223, P-0-1224) and filter time constants (P-0-1225), no fixed command values	

Tab.5-177: P-0-1214, Control word 2 velocity control

## Product-Specific Parameters



In contrast to P-0-1200, parameter P-0-1214 is stored in the drive in non-volatile form!

**Use** Observe the following aspects for parameterization:

- **Bit 8: Selection of memory of fixed command values**, of filter time constant memory and of ramp pitch lists
  - **0: Direct selection:** Each bit in P-0-1200 selects exactly one element of the command value memory. If more than one bit of the group of bits 0...4 has been set, the least significant bit determines the command value selection. Bit 0 has the highest priority.
  - **1: Binary coding:** The binary numeric value of P-0-1200, bit 4...0, selects an element of the command value memory.

### P-0-1214 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0x0
<b>MPC:</b>	--- / ---	0x0
<b>MPE:</b>	--- / ---	0x0
<b>MPM:</b>	--- / ---	0x0

## 5.8.49 P-0-1215, Motor potentiometer, acceleration

### Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

### Function

In conjunction with the motor potentiometer available in the "velocity control" mode, this parameter is used for the following purposes:

- **For linear velocity change:** Definition of the velocity change by which the ramp velocity changes when setting P-0-1214, bit8 ("ramp+") →  $\Delta P-0-1218 = \text{activation time} * [P-0-1215]$
- **For square velocity change:** Definition of the acceleration change by which the ramp velocity changes within 2 s when setting P-0-1214, bit8 ("ramp+") →  $\Delta \text{acceleration} = \text{activation time} * ([P-0-1215] / 2 \text{ s})$



With the input activated the velocity is increased in linear or square form (see "P-0-1214, Motor potentiometer, control parameter") until the effective positive velocity limit value, i.e. minimum value (S-0-0091, S-0-0038), has been reached.

See also Functional Description "Velocity Control"

### P-0-1215 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	S-0-0160 / S-0-0160	100,000
<b>MPC:</b>	S-0-0160 / S-0-0160	100,000
<b>MPE:</b>	S-0-0160 / S-0-0160	100,000
<b>MPM:</b>	S-0-0160 / S-0-0160	100,000

## Product-Specific Parameters

## 5.8.50 P-0-1216, Motor potentiometer, deceleration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used in conjunction with the motor potentiometer available in the velocity control mode as follows:

- **With a linear change in velocity:**

Definition of the change in ramp velocity taking effect on setting of P-0-1214, bit 9 ("ramp").

$$\rightarrow \Delta P-0-1218 = \text{activation time} * [P-0-1216]$$

- **With a square change in velocity:**

Definition of the change in ramp acceleration taking effect within 2 sec on setting of P-0-1214, bit 9 ("ramp").

$$\rightarrow \Delta \text{deceleration} = \text{activation time} * ([P-0-1216] / 2 \text{ sec})$$



With activated input, the velocity is reduced in linear or square form (see motor potentiometer, control parameter) until the effective negative velocity limit value, i.e. the minimum value (S-0-0091, S-0-0039) is reached.

See also Functional Description "Velocity Control"

## P-0-1216 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	min./max.			<b>Default value</b>	
<b>MPC:</b>	S-0-0160 / S-0-0160			100,000	
<b>MPE:</b>	S-0-0160 / S-0-0160			100,000	
<b>MPM:</b>	S-0-0160 / S-0-0160			100,000	

## 5.8.51 P-0-1217, Motor potentiometer, step size

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter takes effect when bit 4 "change by constant velocity step" is one in "P-0-1214, Motor potentiometer, control parameter".

"P-0-1218, Motor potentiometer, command value", i.e. the velocity command value, is increased by the velocity value with every positive edge at the ramp input ramp+ until the positive velocity limit value S-0-0038 has been reached. With every negative edge at the ramp input ramp- it is reduced by the velocity value until the negative velocity limit value S-0-0039 has been reached.

See also Functional Description "Velocity Control"

## P-0-1217 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	50,0000
MPC:	S-0-0044 / S-0-0044	50,0000
MPE:	S-0-0044 / S-0-0044	50,0000
MPM:	S-0-0044 / S-0-0044	50,0000

## 5.8.52 P-0-1218, Motor potentiometer, command value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter "P-0-1218, Motor potentiometer, command value" is used to display the velocity command value generated by the motor potentiometer. After it was processed in the ramp-function generator, this value is also displayed in "P-0-0048, Effective velocity command value".



The value of parameter P-0-1218 is stored in case the control voltage fails so that it is possible to reuse the value.

See also Functional Description "Velocity Control"

### P-0-1218 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.53 P-0-1222, Velocity command filter

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameters serves to smooth acceleration jumps in the velocity command value characteristic in order to achieve gentle starting and stopping of the drive in velocity control mode.

See also Functional Description "Velocity Command Value Reset With Ramp and Filter"

**Use** In "velocity control" mode, the time constant entered in parameter "P-0-1222" is used to filter (PT1 filter) the velocity command value (cf. S-0-0036) deformed via the ramp function (cf. P-0-1201, P-0-1202, P-0-1203, P-0-1211, P-0-01213).

The effective velocity command value (cf. P-0-0048) at the controller input results from the sum of

- the ramped and filtered value in "S-0-0036, Velocity command value" and
- the direct value in "S-0-0037, Additive velocity command value".

### P-0-1222 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 1

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	0 / 10000	0
MPC:	0 / 10000	0
MPE:	0 / 10000	0
MPM:	0 / 10000	0

## 5.8.54 P-0-1223, List of acceleration ramps

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This list parameter is used as memory for the pitch values of the acceleration ramps. The individual values can be selected via the control word "P-0-1200".

See also Functional Description "Velocity Control"

**Structure**

P-0-1223	Significance
Elements 1 to 31	Acceleration ramp pitch 1 to 31

Tab.5-178: Acceleration Ramps

**Use** Observe the following aspects for using the fixed command values:

- The function for selecting the acceleration and deceleration ramp pitches P-0-1223 and P-0-1224 only takes effect in the "velocity control" mode.
- The unit of P-0-1223 and P-0-1224 corresponds to the setting made in S-0-0160 (acceleration data scaling type).
- When setting P-0-1200, bit 0-4 = 0, the ramp pitches set in P-0-1201, P-0-1202, P-0-1203, P-0-1211, P-0-1213 become active.
- Parameter "P-0-1214, Control word 2 velocity control", bit 10, 9 determines whether the control bits 0...4 in P-0-1200 only select fixed command values, only ramp pitches and filter time constants or both.

See also Parameter Description "P-0-1200, Control word 1 velocity control"

See also Parameter Description "P-0-1206, Memory of velocity command values"

See also Parameter Description "P-0-1214, Control word 2 velocity control"

See also Parameter Description "P-0-1225, List of smoothing time constants"

**P-0-1223 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	S-0-0160 / S-0-0160	s. Text
MPC:	S-0-0160 / S-0-0160	s. Text
MPE:	S-0-0160 / S-0-0160	s. Text
MPM:	S-0-0160 / S-0-0160	s. Text

## 5.8.55 P-0-1224, List of deceleration ramps

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This list parameter is used as memory for the pitch values of the deceleration ramps. The individual values can be selected via the control word "P-0-1200".

Product-Specific Parameters

See also Functional Description "Velocity Control"

Structure

P-0-1224	Significance
Elements 1 to 31	Acceleration ramp pitch 1 to 31

Tab.5-179: Deceleration Ramps

Use

Observe the following aspects for using the fixed command values:

- The function for selecting the acceleration and deceleration ramp pitches P-0-1223 and P-0-1224 only takes effect in the "velocity control" mode.
- The unit of P-0-1223 and P-0-1224 corresponds to the setting made in S-0-0160 (acceleration data scaling type).
- When setting P-0-1200, bit 0-4 = 0, the ramp pitches set in P-0-1201, P-0-1202, P-0-1203, P-0-1211, P-0-1213 become active.
- Parameter "P-0-1214, Control word 2 velocity control", bit 10, 9 determines whether the control bits 0...4 in P-0-1200 only select fixed command values, only ramp pitches and filter time constants or both.

See also Parameter Description "P-0-1200, Control word 1 velocity control"

See also Parameter Description "P-0-1206, Memory of velocity command values"

See also Parameter Description "P-0-1214, Control word 2 velocity control"

See also Parameter Description "P-0-1225, List of smoothing time constants"

P-0-1224 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	S-0-0160 / S-0-0160		s. Text		
MPC:	S-0-0160 / S-0-0160		s. Text		
MPE:	S-0-0160 / S-0-0160		s. Text		
MPM:	S-0-0160 / S-0-0160		s. Text		

## 5.8.56 P-0-1225, List of smoothing time constants

Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

Function

This list parameter is used as memory for velocity command value filter time constants for jerk limitation in the "velocity control" mode. The individual values can be selected via the control word P-0-1200.

See also Functional Description "Velocity Control"

Structure

P-0-1225	Significance
element 1 to 31	velocity command value filter time constant 1 to 31

Tab.5-180: Filter time constants

Use

The following has to be observed for using the fixed command values:

- The function for selecting the velocity command value filter time constants P-0-1225 only takes effect in the "velocity control" mode.
- With the setting P-0-1200, bit 0-4 = 0, the velocity command value filter time constant defined by P-0-1222 becomes active.

## Product-Specific Parameters

- Parameter "P-0-1214, Control word 2 velocity control", bit 10, 9 determines whether the control bits 0...4 in P-0-1200 only select fixed command values, only ramp pitches and filter time constants or both.

See also Parameter Description "P-0-1200, Control word 1 velocity control"

See also Parameter Description "P-0-1206, Memory of velocity command values"

See also Parameter Description "P-0-1214, Control word 2 velocity control"

See also Parameter Description "P-0-1223, List of acceleration ramps"

## P-0-1225 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0 / 10000	s. Text
<b>MPC:</b>	0 / 10000	s. Text
<b>MPE:</b>	0 / 10000	s. Text
<b>MPM:</b>	0 / 10000	s. Text

## 5.8.57 P-0-1270, PLC Global Register A0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** Access via "parameters for general purpose" (global registers) can be used for data exchange between the MLD and a neighboring drive or a higher-level control unit or an external operator terminal (e.g., BTV).



Global registers (G0... G32 and A0... A31) do not have any direct influence on the drive, but only take effect in conjunction with the MLD.

**Use** Observe the following aspects for using the parameter:

- The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register".
- The content of this parameter is lost in case the control voltage fails. Therefore, the parameter can be used for cyclic communication with external devices (similar to the process image (PII, POI)).
- In contrast to the PII/POI, global registers are not automatically accessed at the beginning or the end of the task, but by accessing specific parameters as required (e.g., by means of MX\_ReadParam).
- In addition to "P-0-1270", other available global registers are the following:
  - G0... G15:** P-0-1370 – P-0-1385
  - G16... G31:** P-0-1316 – P-0-1331
  - A1... A31:** P-0-1271 – P-0-1301

See also Application Manual "Rexroth IndraMotion"

## P-0-1270 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	---

Product-Specific Parameters

MPC:	---	---	---
MPE:	---	---	---
MPM:	---	---	---

## 5.8.58 P-0-1271, PLC Global Register A1

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1271 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.8.59 P-0-1272, PLC Global Register A2

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1272 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.8.60 P-0-1273, PLC Global Register A3

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1273 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.61 P-0-1274, PLC Global Register A4

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPC»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1274 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.8.62 P-0-1275, PLC Global Register A5

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«MPC»	
	Contained in 18VRS:		«MPB»	«-»	«MPC»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1275 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:				--- / ---	---
	MPC:				--- / ---	---
	MPE:				--- / ---	---
	MPM:				--- / ---	---

## 5.8.63 P-0-1276, PLC Global Register A6

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPC»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1276 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.64 P-0-1277, PLC Global Register A7

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1277 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## 5.8.65 P-0-1278, PLC Global Register A8

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1278 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.8.66 P-0-1279, PLC Global Register A9

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1279 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.67 P-0-1280, PLC Global Register A10

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»		
	Contained in 18VRS:	«MPB»	«-»	«-»		
	Hardware	--				
	Funct. package(s):	motion logic				
	Device parameter:	device-specific				
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1280 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.8.68 P-0-1281, PLC Global Register A11

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«MPC»	
	Contained in 18VRS:		«MPB»	«-»	«MPC»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1281 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.8.69 P-0-1282, PLC Global Register A12

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPC»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1282 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.70 P-0-1283, PLC Global Register A13

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1283 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.8.71 P-0-1284, PLC Global Register A14

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1284 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.8.72 P-0-1285, PLC Global Register A15

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1285 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.73 P-0-1286, PLC Global Register A16

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1286 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.8.74 P-0-1287, PLC Global Register A17

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1287 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.8.75 P-0-1288, PLC Global Register A18

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1288 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.76 P-0-1289, PLC Global Register A19

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
Hardware	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
Function	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
P-0-1289 - Attributes	Function:	Par	Editable:	++	Data length: 4Byte
	Memory:	--	Validity ch.:	--	Format: DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.: --
	Input	min./max.	Default value		
	MPB:	--- / ---	---		
	MPC:	--- / ---	---		
	MPE:	--- / ---	---		
	MPM:	--- / ---	---		

## 5.8.77 P-0-1290, PLC Global Register A20

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
Hardware	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
Function	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
P-0-1290 - Attributes	Function:	Par	Editable:	++	Data length: 4Byte
	Memory:	--	Validity ch.:	--	Format: DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.: --
	Input	min./max.	Default value		
	MPB:	--- / ---	---		
	MPC:	--- / ---	---		
	MPE:	--- / ---	---		
	MPM:	--- / ---	---		

## 5.8.78 P-0-1291, PLC Global Register A21

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
Hardware	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
Function	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
P-0-1291 - Attributes	Function:	Par	Editable:	++	Data length: 4Byte
	Memory:	--	Validity ch.:	--	Format: DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.: --

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.79 P-0-1292, PLC Global Register A22

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	motion logic				
	Device parameter:	device-specific				
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1292 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.8.80 P-0-1293, PLC Global Register A23

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«MPC»	
	Contained in 18VRS:		«MPB»	«-»	«MPC»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1293 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.8.81 P-0-1294, PLC Global Register A24

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1294 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.82 P-0-1295, PLC Global Register A25

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1295 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.8.83 P-0-1296, PLC Global Register A26

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1296 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.8.84 P-0-1297, PLC Global Register A27

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1297 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.85 P-0-1298, PLC Global Register A28

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1298 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.8.86 P-0-1299, PLC Global Register A29

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1299 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:				--- / ---	---
	MPC:				--- / ---	---
	MPE:				--- / ---	---
	MPM:				--- / ---	---

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9 P-0-1300 to P-0-1499 Drive-Integrated PLC

## 5.9.1 P-0-1300, PLC Global Register A30

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
Function	See also "P-0-1270, PLC Global Register A0"				
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"				
	See also Application Manual "Rexroth IndraMotion MLD"				

Product-Specific Parameters

<b>P-0-1300 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	


## 5.9.2 P-0-1301, PLC Global Register A31

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1270, PLC Global Register A0"					
	See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1301 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.9.3 P-0-1311, PLC Global Register GL1

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
Function	This parameter is a list register with 1024 elements (4 bytes each) and is used for data exchange of the integrated PLC with the drive or a higher-level external PLC or control unit.				
	The display format for this parameter can be individually adjusted with parameter "P-0-1386, PLC display format Global Register".				

---



The data length of P-0-1311 is fixed to 4 bytes and cannot be changed. The content of P-0-1311 is backed up in case control voltage fails.

---

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1311 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		s. Text	
	MPC:		--- / ---		s. Text	
	MPE:		--- / ---		s. Text	
	MPM:		--- / ---		s. Text	



The data length of P-0-1311 is fixed to 4 bytes and cannot be changed. The content of P-0-1311 is backed up in case control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## Product-Specific Parameters

## 5.9.4 P-0-1312, PLC Global Register GL2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This parameter is a list register with 1024 elements (4 bytes each) and is used for data exchange of the integrated PLC with the drive or a higher-level external PLC or control unit.

The display format for this parameter can be individually adjusted with parameter "P-0-1386, PLC display format Global Register".



The data length of P-0-1312 is fixed to 4 bytes and cannot be changed. The content of P-0-1312 is backed up in case control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1312 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		s. Text	
	MPC:		--- / ---		s. Text	
	MPE:		--- / ---		s. Text	
	MPM:		--- / ---		s. Text	

## 5.9.5 P-0-1316, PLC Global Register G16

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1316 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		0	
	MPC:		--- / ---		0	
	MPE:		--- / ---		0	
	MPM:		--- / ---		0	

## 5.9.6 P-0-1317, PLC Global Register G17

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

Product-Specific Parameters

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1317 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

## 5.9.7 P-0-1318, PLC Global Register G18

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1318 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

## 5.9.8 P-0-1319, PLC Global Register G19

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1319 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

## 5.9.9 P-0-1320, PLC Global Register G20

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

## Product-Specific Parameters

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1320 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.10 P-0-1321, PLC Global Register G21

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1321 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.11 P-0-1322, PLC Global Register G22

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1322 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.12 P-0-1323, PLC Global Register G23

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

Product-Specific Parameters

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1323 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

### 5.9.13 P-0-1324, PLC Global Register G24

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1324 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

### 5.9.14 P-0-1325, PLC Global Register G25

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1325 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

### 5.9.15 P-0-1326, PLC Global Register G26

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

## Product-Specific Parameters

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1326 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.16 P-0-1327, PLC Global Register G27

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1327 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.17 P-0-1328, PLC Global Register G28

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1328 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.18 P-0-1329, PLC Global Register G29

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

Product-Specific Parameters

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1329 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.19 P-0-1330, PLC Global Register G30

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1330 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.20 P-0-1331, PLC Global Register G31

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1331 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.21 P-0-1350, PLC control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** 16-bit control parameter for controlling the drive-integrated PLC (MLD).

## Product-Specific Parameters

With a positive edge the bits activate the corresponding process. By the on-line-write function short edges are taken into account, too. While one action is running, other start edges of this action aren't taken into account. When several edges have been activated, they are processed one after the other from MSB to LSB.

The end of the actions can be identified in "P-0-1351, PLC status word".

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## Structure

Bit	Designation/function	Comment
0	<b>RUN</b> The PLC is put into the status RUN. Only works if a project was loaded. The status goes to RUN.	
1	<b>STOP</b> The PLC is stopped and goes to the status STOP. After their current run the tasks aren't started any more. <b>Attention:</b> If necessary, running tasks are aborted by force after their cycle time. The PLC, however, immediately signals STOP.	
2	not used	
3	not used	
4	<b>RESET hot</b> The PLC is reset without initializing the retain variables. The status goes to STOP.	
5	<b>RESET cold</b> The PLC is reset and the retain variables are initialized. The status goes to STOP.	
6	<b>RESET hard</b> All data of the PLC are cleared. The boot project thereby is cleared, too.	
7	<b>reload boot project</b> The boot project is loaded. The PLC remains in STOP.	
15-8	not used	

Tab.5-181: PLC control word

## P-0-1350 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

Product-Specific Parameters

## 5.9.22 P-0-1351, PLC status word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This parameter can only be read.  
16-bit status parameter of the drive-integrated PLC (MLD)  
See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"  
See also Application Manual "Rexroth IndraMotion MLD"

Bit	Designation/function	Comment
0	<b>RUN</b> The PLC is in the status RUN.	
1	<b>breakpoint</b> The PLC is at a breakpoint (with !RUN).	
2	not used	
3	<b>runtime error</b> The PLC has a runtime error (e.g. watchdog, division by 0 etc.)	as of MPx03VRS
4	<b>project loaded</b> A project was loaded (in RAM).	
7	not used	
8	Indicates whether the PLC is presently having temporary control	
15-9	not used	

Tab.5-182: PLC status word

P-0-1351 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.9.23 P-0-1352, PLC user program administration data

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** Several system files of the PLC are stored in this parameter.  
The parameter is administrated by the system and mustn't be changed by the user.  
See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"  
See also Application Manual "Rexroth IndraMotion MLD"

## Product-Specific Parameters

<b>P-0-1352 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		s. Text	
		<b>MPC:</b>	--- / ---		s. Text	
		<b>MPE:</b>	--- / ---		s. Text	
		<b>MPM:</b>	--- / ---		s. Text	

## 5.9.24 P-0-1353, PLC user program area 0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
		<b>Device parameter:</b>	device-specific	

**Function** The PLC boot project is stored in the parameters P-0-1353 - P-0-1358.



These parameters are administrated by the system and cannot be changed by the user.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1353 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		s. Text	
		<b>MPC:</b>	--- / ---		s. Text	
		<b>MPE:</b>	--- / ---		s. Text	
		<b>MPM:</b>	--- / ---		s. Text	

## 5.9.25 P-0-1354, PLC user program area 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
		<b>Device parameter:</b>	device-specific	

**Function** The PLC boot project is stored in the parameters P-0-1353 to P-0-1358.



These parameters are administrated by the system and cannot be changed by the user.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1354 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		s. Text	
		<b>MPC:</b>	--- / ---		s. Text	
		<b>MPE:</b>	--- / ---		s. Text	
		<b>MPM:</b>	--- / ---		s. Text	

Product-Specific Parameters

## 5.9.26 P-0-1355, PLC user program area 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** The PLC boot project is stored in the parameters P-0-1353 to P-0-1358.



These parameters are administrated by the system and cannot be changed by the user.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

### P-0-1355 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.9.27 P-0-1356, PLC user program area 3

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** The PLC boot project is stored in the parameters P-0-1353 to P-0-1358.



These parameters are administrated by the system and cannot be changed by the user.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

### P-0-1356 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.9.28 P-0-1357, PLC user program area 4

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** The PLC boot project is stored in these parameters. The parameter is administrated by the system and mustn't be changed by the user.

See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

## Product-Specific Parameters

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1357 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.9.29 P-0-1358, PLC user program area 5

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** The PLC boot project is stored in these parameters. The parameter is administered by the system and mustn't be changed by the user.

See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1358 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.9.30 P-0-1359, PLC retain data

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** When a PLC program with retain data is used, the retain data can be saved by means of this list parameter and transmitted to other drives.

See also "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**Use** Observe the following aspects for usage:

- This parameter does not show the structure of the individual retain variables.
- Reading and writing data from/to P-0-1359 mustn't take place while the PLC is running, because these processes directly write data to the working memory of the PLC or read data from the working memory. This would cause inconsistent data.
- The retain data are always initialized, when the drive detects that a boot project was changed. When a new boot project is loaded together with P-0-1359, the drive must be switched off afterwards so that it does not detect the change of the boot project.
- The parameter is not contained in the list "S-0-0192, IDN-list of backup operation data", as otherwise loading a drive parameter backup would overwrite the PLC retain data.

Product-Specific Parameters

P-0-1359 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	RE-TAIN_KUNDE	Validity ch.:	PM->OM	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.9.31 P-0-1360, PLC program identifier

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			

Function List parameter with two elements

Element	Significance
#0	Date: Program compilation time (time_t)  If no program has been loaded, this value is 0. After a HARD reset, there will still be the old date.
#1	PID: Unique program identification  If no program has been loaded, this value is 0.

Tab.5-183: PLC Project Identification

P-0-1360 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.9.32 P-0-1361, PLC program name

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			

Function This parameter displays the filename of the current MLD project. The name is assigned to the MLD project during compilation from the project name in In-droLogic.

After a HARD reset, the name of the previously opened MLD project is still displayed.

P-0-1361 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## Product-Specific Parameters

## 5.9.33 P-0-1362, PLC boot project info

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This parameter is only used for diagnostic purposes and contains information regarding the PLC boot project; the information is automatically generated and entered by the drive when

- the drive is started or
- when the boot project is loaded with IndraLogic.

Reading the parameter allows clearly identifying the present PLC boot project.



Maximum and actual length of the list parameter always are 322 elements with 4 Bytes each!

## Use

Element	Significance
0	time stamp of PLC boot project in time_t format (seconds since 1970-01-01); 0 = no project existing
1	Project ID The project ID in the case of a new loaded boot project is only filled after switching on again or when the boot project is activated. Directly after loading, the project ID first contains "0". The length is always constant and the space for strings is completely filled with 0-characters (1).
2..17	project name (file name)
18..33	project designation
34..49	project version
50..65	author
66..321	Data writing (multiple-line) - max. 1024 characters incl. 0-character.

Tab.5-184: PLC boot project info



If no boot project is existing, all elements contain "0".

## P-0-1362 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.34 P-0-1363, PLC project info

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		

## Product-Specific Parameters

<b>Funct. package(s):</b>	motion logic
<b>Device parameter:</b>	device-specific

**Function** This parameter is only used for diagnostic purposes and contains information regarding the PLC project currently loaded in the memory; the information is automatically generated and entered by the drive when

- the drive is started or
- when the boot project is loaded with IndraLogic.

Reading the parameter allows clearly identifying the currently loaded PLC project.



Maximum and actual length of the list parameter always are 322 elements with 4 bytes each! The space for strings is completely filled with 0-characters.

**Use**

Element	Significance
0	time stamp of PLC project in time_t format (seconds since 1970-01-01); 0 = no project existing
1	Project ID The length is always constant and the space for strings is completely filled with 0-characters (1).
2..17	project name (file name)
18..33	project designation
34..49	project version
50..65	author
66..321	Data writing (multiple-line) - max. 1024 characters incl. 0-character.

Tab.5-185: PLC project info



If no PLC project is existing, all elements contain "0".

**P-0-1363 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.9.35 P-0-1364, PLC idle time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter displays the last available part of the PLC time slice.  
See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"  
See also Application Manual "Rexroth IndraMotion MLD"

**P-0-1364 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV

## Product-Specific Parameters

Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		---	---	---	---
MPC:		---	---	---	---
MPE:		---	---	---	---
MPM:		---	---	---	---

## 5.9.36 P-0-1365, PLC error message

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

## Function As of MPx-18VRS:

This parameter displays the current error state of the PLC runtime system for diagnostic purposes. If a runtime error occurs in the PLC, the error text is entered here. The error is cleared after a PLC reset.

Error text in the parameter	Cause	Remedy
*EXCEPTION* Watchdog application '<app>' task '<task>'	Runtime error in PLC program. Runtime monitor (watchdog) for a task has been activated. In this task, processing was not completed in the preset time.	Eliminate the error by modifying the program. (by correcting an endless loop, if any) ...
*EXCEPTION* ArrayBounds application '<app>' task '<task>'	1. Array limits exceeded 2. Upward/downward violation of a lower limit range	Ad 1.: Modify PLC program: Check and correct array access Ad 2.: Modify PLC program: Eliminate incorrect assignment
*EXCEPTION* FPU DivisionByZero application '<app>' task '<task>'	Division by "0"	Modify PLC program: Remove division by "0"
*EXCEPTION* FPU Error application '<app>' task '<task>'	Incorrect call of one of the following mathematical functions (tan, ln, log, sqrt, exp).	Modify PLC program: Check and correct transfer values
*EXCEPTION* AccessViolation application '<app>' task '<task>'	1. Invalid access with a pointer in PLC program. Access outside of PLC data ranges cause this error. 2. Error in system event	Ad 1.: Modify PLC program: Eliminate incorrect assignment. Ad 2.: Modify PLC program: Modify incorrect use or programming. See instructions in the task configuration
*EXCEPTION* Misalignment application '<app>' task '<task>'	Invalid access with a pointer in PLC program. Access outside of PLC data ranges cause this error	Modify PLC program: Eliminate incorrect assignment
*MLD-ERROR* Boot project could not be loaded - check device version	Wrong project version or project defective	More information in logger. Load project with correct version. Contact support if version is correct.
*MLD-ERROR* PLC retain data corrupt - reset by 'reset cold/hard' - please contact support	Corrupt retain data; maybe hardware defect	Save P-0-1359 again and reload project. If error occurs repeatedly, replace control section or drive controller.
*MLD-ERROR* Only one position loop event task is allowed task '{task}'	Only one position loop task is allowed.	Use only one PositionLoop task

Product-Specific Parameters

*MLD-ERROR* Only one motion-task is allowed task '{task}'	Only one motion task is allowed	Use only one motion task
*MLD-ERROR* The motion task cycle time does not match nc cycle time task {task}	The motion task cannot run with the current NC cycle time	Adjust the NC cycle time of the motion task
*MLD-ERROR* The motion task cycle time does not match ccd cycle time task {task}	The motion task cannot run with the current CCD cycle time	Adjust the CCD cycle time of the motion task
*MLD-ERROR* A ccd synchronized motion task is not allowed (MLD - M system mode) task '{task}'	A motion task in synchronism with CCD is not allowed (MLD-M system mode)	Select other task type
*MLD-ERROR* Internal: Resource is not available '{info}'	Internal error - resource not available (task, event, ...)	Modify PLC program: Eliminate incorrect access to resources mentioned

Tab.5-186: PLC Error Messages

Up to **MPx-17VRS**:

If a runtime error occurs in the PLC, the error code is entered in this parameter along with a time stamp and an error text. The error is cleared after a PLC reset.

**Example - (message window in IndraLogic):**

Dec. 2023: Division by zero - WORD Zero Division

Pou:238 Ofs:96

Task = DefaultTask (see also call stack menu) - RESET to continue

The message window in IndraLogic displays the error code in decimal form.

**Information in the parameter:**

Id: 000007E7 Hex; Time:000000C0 s; Par:00000005; Text: WORD zero division; Pou:238; Ofs:96; Task = DefaultTask;

Parameter "P-0-1365" contains the error code in hexadecimal form.

Dec.	Hex	Message in IndraLogic	Cause	Remedy
16	10	Watchdog expired %s - reset PLC to continue	Runtime error in PLC program. Runtime monitor (watchdog) for a task has been activated. In this task, processing was not completed in the preset time.	Eliminate the error by modifying the program (by correcting an endless loop, if any) ...
21	15	Error reading inputs (CstUpdateEnd)!\nTask = %s 'Error reading inputs (CstUpdateEnd)!\nTask = %s'	Unallowed addressing of an array in the I/O range	Apply 4-byte limit to array addresses.
23	17	Not enough code memory available on controller!	PLC project too big for memory.	Reduce the project size or use a control section with a higher-capacity code memory.
27	1B	Boot project not loaded and deleted	Boot project could not be loaded, as it is incompatible with firmware.	Recreate project with corresponding target

## Product-Specific Parameters

29	1D	Retain memory corrupt or cannot be mapped	Corrupt retain data were detected	Save "P-0-1359" again and re-load project. If error occurs repeatedly, replace control section or drive controller.
33	21	Target ID of boot project does not match current target.	Boot project has a wrong version or is corrupt.	Load boot project with correct version.
2019, 2039	7E3, 7F7	PLC can not be started with pending error - %s (see also call stack menu) - RESET to continue	Error message after attempt to start the PLC in error state without reset.	The first error is still contained in the text. Restart PLC and pay attention to first error.
2020- 2021	7E4-7E5	Array lower bounds violation - %s (see also call stack menu) - RESET to continue Call stack menu	Array limits exceeded	Modify PLC program: Check and correct array access
2022- 2025	7E6-7E9	Division by zero - %s (see also call stack menu) - RESET to continue	Division by "0"	Modify PLC program: Remove division by "0"
2026- 2029	7EA-7ED	Lower range bounds (*) violation - %s (see also call stack menu) - RESET to continue	A subrange type has been exceeded	Modify PLC program: Eliminate incorrect assignment
2031	7EF	Invalid pointer access (address), %s (see also call stack menu) - RESET to continue	Invalid access with a pointer in PLC program. Access outside of PLC data ranges cause this error.	Modify PLC program: Eliminate incorrect assignment
2032	7F0	Invalid pointer access (area), %s (see also call stack menu) - RESET to continue	Invalid access with a pointer in PLC program. Access outside of PLC data ranges cause this error.	Modify PLC program: Eliminate incorrect assignment
2033	7F1	Invalid pointer access (write access on input), %s (see also call stack menu) - RESET to continue	Invalid access with a pointer in PLC program. Access outside of PLC data ranges cause this error.	Modify PLC program: Eliminate incorrect assignment
2034	7F2	Invalid pointer access (alignment), %s (see also call stack menu) - RESET to continue	Invalid access with a pointer in PLC program. Access outside of PLC data ranges cause this error.	Modify PLC program: Eliminate incorrect assignment
4020	FB4	Error loading symbols - select / reduce symbols!	Memory not sufficient for defined symbols.	Reduce number of symbols or use a control section with a higher-capacity project memory
4021	FB5	Not enough memory for persistent variables - please reduce variables!	Memory not sufficient for persistent variables.	Reduce number of persistent variables or use a control section with a higher-capacity project memory.
4080	FF0	Callback function has false parameters or local variables	Error in system event	Modify PLC program: Modify incorrect use or programming See instructions in the task configuration.

Product-Specific Parameters

4081	FF1	Called unallowed POU from callback function	Error in system event	Modify PLC program: Modify incorrect use or programming See instructions in the task configuration
4082	FF2	System event not provided by this hardware	Error in system event	Modify PLC program: Modify incorrect use or programming See instructions in the task configuration
4083	FF3	System event needs function named "callback..."	Error in system event	Modify PLC program: Modify incorrect use or programming See instructions in the task configuration
4097	1001	PLC cannot be started during firmware download	PLC may not be started during firmware download.	Stop download
4098	1002	PLC cannot be started because drive does not allow it (e.g., C54 or C55 is running)	PLC may not be started in case of C54 or C55.	Complete commands first
4099	1003	PLC retain data is invalid (P-0-1359) – can be deleted by reset cold/origin – please contact Support	Corrupt retain data; maybe hardware defect	Save "P-0-1359" again and reload project. If error occurs repeatedly, replace control section or drive controller.

Tab.5-187: PLC Error Messages

P-0-1365 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.9.37 P-0-1367, PLC configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
Function	This parameter serves to configure the fundamental behavior of the integrated PLC (LDC).				
	See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"				
	See also Application Manual "Rexroth IndraMotion MLD"				

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
1,0	<b>PLC start behavior</b> <b>00:</b> Default start behavior: The PLC starts in boot 2.9 if it was in RUN state on switchoff. Else, it remains in STOP state. <b>01:</b> Start when booting: The PLC starts in boot 2.9, irrespective of the previous state (enters RUN state). <b>10:</b> Stop: The PLC remains in STOP state. <b>11:</b> Start in operating mode: The PLC starts automatically on transition to operating mode. <b>Attention:</b> The PLC does not start automatically on changeover to operation mode if, beforehand, a new program was loaded (in parameter mode) or a start/stop or reset was made.	
3,2	Reserved	
4	<b>Continuous control</b> <b>0:</b> PLC does not have control <b>1:</b> PLC has continuous control over drive (ON, HALT, operation mode selection). <b>Attention:</b> The primary operation mode and the secondary operation modes 1–6 are automatically configured. If a field bus is used, the profile FFFD must be set there, and the parameters of the operation modes of PLC motion blocks may not be configured cyclically.	
5	Reserved	
6	<b>AxisData activation</b> The global AxisData structure is supported. <b>Attention:</b> The structure is always there, but the data is only transmitted if this bit is set to 1.	
7	<b>Reaction to FB error</b> Behavior on call of motion function blocks resulting in an error (e.g. if MC_MoveAbsolute is called while MC_Stop is active). <b>0:</b> An axis error F2150 (or F2140 with MLD-M and FB error on slave) is generated. <b>1:</b> No axis error is generated.	
8	<b>Boot project filing location</b> In case of CSH1.2 and MMC, setting of this bit causes activation of the memory extension of the MLD. The memory location for the boot project is changed from "PLC program parameters" to "system file on MMC". This setting will not become active before the drive is switched on the next time. After activation, the boot project must be reloaded (boot projects are not automatically copied or deleted).	MPx-05V06 and above
31... 9	Reserved	

Tab.5-188: P-0-1367, PLC configuration

Product-Specific Parameters

<b>P-0-1367 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0x80	
		MPC:	--- / ---		0x80	
		MPE:	--- / ---		0x80	
		MPM:	--- / ---		0x80	

## 5.9.38 P-0-1368, PLC Global Register AL0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--	--	--
	<b>Funct. package(s):</b>	motion logic		
		<b>Device parameter:</b> device-specific		

**Function** This parameter is a list register with 8192 elements (4 bytes each) and is used for data exchange of the integrated PLC with the drive or a higher-level external PLC or control unit.

**Use** The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register".



The data length of P-0-1368 is 4 bytes and cannot be changed. The content of P-0-1368 is not backed up in case control voltage fails. For non-volatile data use P-0-1389!

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1368 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.9.39 P-0-1370, PLC Global Register G0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--	--	--
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b> device-specific		

**Function** Access via "parameters for general purpose" (global registers) can be used for data exchange between the MLD and a neighboring drive or a higher-level control unit or an external operator terminal (e.g., BTV).

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**Use** Single parameter / register with 4 bytes (32 bits)

Observe the following aspects for using the parameter:

- The global registers (G0... G32; A0... A31 and AT0, AT1) do not have any direct influence on the drive, but only take effect in conjunction with the MLD.

## Product-Specific Parameters

- The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register".
- The content of this parameter is buffered in the event of a control voltage failure. For this reason, non-cyclic settings should be made using the global registers. Cyclic data to external devices is usually executed with the process image (PII, POI).
- In contrast to the PII/POI, global registers are not automatically accessed at the beginning or the end of the task, but by accessing specific parameters as required (e.g., by means of MX\_ReadParam).
- In addition to "P-0-1370", other available global registers are the following:
  - **G1... G15:** P-0-1371 – P-0-1385
  - **G16... G31:** P-0-1316 – P-0-1331
  - **A0... A31:** P-0-1270 – P-0-1301

P-0-1370 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		0		
MPC:		--- / ---		0		
MPE:		--- / ---		0		
MPM:		--- / ---		0		

## 5.9.40 P-0-1371, PLC Global Register G1

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		device-specific		

**Function** This parameter is a register with individual values for data exchange of the PLC with the drive or a higher-level PLC or control unit. The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". The content of this parameter is buffered in case the control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1371 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		0		
MPC:		--- / ---		0		
MPE:		--- / ---		0		
MPM:		--- / ---		0		

## 5.9.41 P-0-1372, PLC Global Register G2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		device-specific		

**Function** This parameter is a register with individual values for data exchange of the PLC with the drive or a higher-level PLC or control unit. The display format

## Product-Specific Parameters

for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". The content of this parameter is buffered in case the control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1372 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0	
		MPC:	--- / ---		0	
		MPE:	--- / ---		0	
		MPM:	--- / ---		0	

### 5.9.42 P-0-1373, PLC Global Register G3

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter is a register with individual values for data exchange of the PLC with the drive or a higher-level PLC or control unit. The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". The content of this parameter is buffered in case the control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1373 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0	
		MPC:	--- / ---		0	
		MPE:	--- / ---		0	
		MPM:	--- / ---		0	

### 5.9.43 P-0-1374, PLC Global Register G4

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter is a register with individual values for data exchange of the PLC with the drive or a higher-level PLC or control unit.

The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register". The content of this parameter is buffered in case the control voltage fails.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1374 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.44 P-0-1375, PLC Global Register G5

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	«MPC»	«-»	«MPC»
	Funct. package(s):	--		
	Device parameter:	"open loop", "closed loop"		
		device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1375 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.45 P-0-1376, PLC Global Register G6

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	«MPC»	«-»	«MPC»
	Funct. package(s):	--		
	Device parameter:	"open loop", "closed loop"		
		device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1376 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.9.46 P-0-1377, PLC Global Register G7

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	«MPC»	«-»	«MPC»
	Funct. package(s):	--		
	Device parameter:	"open loop", "closed loop"		
		device-specific		

Function See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

Product-Specific Parameters

<b>P-0-1377 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	MPB:	--- / ---			0	
	MPC:	--- / ---			0	
	MPE:	--- / ---			0	
	MPM:	--- / ---			0	

## 5.9.47 P-0-1378, PLC Global Register G8

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1378 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	MPB:	--- / ---			0	
	MPC:	--- / ---			0	
	MPE:	--- / ---			0	
	MPM:	--- / ---			0	

## 5.9.48 P-0-1379, PLC Global Register G9

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1379 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	MPB:	--- / ---			0	
	MPC:	--- / ---			0	
	MPE:	--- / ---			0	
	MPM:	--- / ---			0	

## 5.9.49 P-0-1380, PLC Global Register G10

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1370, PLC Global Register G0"

## Product-Specific Parameters

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1380 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		0		
<b>MPC:</b>		--- / ---		0		
<b>MPE:</b>		--- / ---		0		
<b>MPM:</b>		--- / ---		0		

## 5.9.50 P-0-1381, PLC Global Register G11

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
<b>Funct. package(s):</b>		"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1381 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		0		
<b>MPC:</b>		--- / ---		0		
<b>MPE:</b>		--- / ---		0		
<b>MPM:</b>		--- / ---		0		

## 5.9.51 P-0-1382, PLC Global Register G12

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
<b>Funct. package(s):</b>		"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** See also "P-0-1370, PLC Global Register G0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1382 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		0		
<b>MPC:</b>		--- / ---		0		
<b>MPE:</b>		--- / ---		0		
<b>MPM:</b>		--- / ---		0		

## 5.9.52 P-0-1383, PLC Global Register G13

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»

Product-Specific Parameters

	<b>Hardware</b>			
	<b>Funct. package(s):</b> --			
	<b>Device parameter:</b> "open loop", "closed loop"			
<b>Function</b>	See also "P-0-1370, PLC Global Register G0"			
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"			
	See also Application Manual "Rexroth IndraMotion MLD"			
<b>P-0-1383 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	4Byte
				<b>Format:</b> DEC_MV
				<b>Decim. pl.:</b> 0
				<b>Set-depend.:</b> --
				<b>Input</b>
				<b>min./max.</b>
				<b>Default value</b>
				MPB: --- / --- 0
				MPC: --- / --- 0
				MPE: --- / --- 0
				MPM: --- / --- 0

### 5.9.53 P-0-1384, PLC Global Register G14

<b>Allocation</b>	<b>Contained in 16VRS:</b> «-» «-» «-»			
	<b>Contained in 17VRS:</b> «MPB» «-» «-» «MPC»			
	<b>Contained in 18VRS:</b> «MPB» «-» «-» «MPC»			
	<b>Hardware</b>			
	<b>Funct. package(s):</b> --			
	<b>Device parameter:</b> motion logic			
<b>Function</b>	See also "P-0-1370, PLC Global Register G0"			
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"			
	See also Application Manual "Rexroth IndraMotion MLD"			
<b>P-0-1384 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	4Byte
				<b>Format:</b> DEC_MV
				<b>Decim. pl.:</b> 0
				<b>Set-depend.:</b> --
				<b>Input</b>
				<b>min./max.</b>
				<b>Default value</b>
				MPB: --- / --- 0
				MPC: --- / --- 0
				MPE: --- / --- 0
				MPM: --- / --- 0

### 5.9.54 P-0-1385, PLC Global Register G15

<b>Allocation</b>	<b>Contained in 16VRS:</b> «-» «-» «-»			
	<b>Contained in 17VRS:</b> «MPB» «-» «-» «MPC»			
	<b>Contained in 18VRS:</b> «MPB» «-» «-» «MPC»			
	<b>Hardware</b>			
	<b>Funct. package(s):</b> --			
	<b>Device parameter:</b> "open loop", "closed loop"			
<b>Function</b>	See also "P-0-1370, PLC Global Register G0"			
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"			
	See also Application Manual "Rexroth IndraMotion MLD"			
<b>P-0-1385 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	4Byte
				<b>Format:</b> DEC_MV
				<b>Decim. pl.:</b> 0
				<b>Set-depend.:</b> --
				<b>Input</b>
				<b>min./max.</b>
				<b>Default value</b>
				MPB: --- / --- 0
				MPC: --- / --- 0
				MPE: --- / --- 0
				MPM: --- / --- 0

## Product-Specific Parameters

## 5.9.55 P-0-1386, PLC display format Global Register

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This list parameter serves to adjust the display format for the "PLC Global Registers".

**Structure** Each element in the list has the following structure:

Bit	Designation/function	Comment
3-0	Reserved	
7-4	Display format 0: BIN 1: DEC w sign 2: DEC w/o sign 3: HEX 4: FLOAT	
11-8	Number of decimal places 0 to 7 decimal places	

Tab.5-189: P-0-1386, PLC display format Global Register

To ensure that the change in format also becomes effective in AxisData (if the appropriate parameter is configured in AxisData), the mode must be switched from PM to OM.

The elements have the following relation to the register parameters:

Element No.	Affected parameter
0... 15	P-0-1370... P-0-1385, PLC Global Register G0... G15
16	P-0-1389, PLC Global Register GL0
17	P-0-1368, PLC Global Register AL0
18... 33	P-0-1316... P-0-1331, PLC Global Register G16... G31
34... 65	P-0-1270... P-0-1301, PLC Global Register A0... A31
66... 67	P-0-1311... P-0-1312, PLC Global Register GL1... GL2

Tab.5-190: P-0-1386, PLC display format Global Register

P-0-1386 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		s. Text		
MPC:		--- / ---		s. Text		
MPE:		--- / ---		s. Text		
MPM:		--- / ---		s. Text		

## 5.9.56 P-0-1387, PLC Global Register AT0

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

Product-Specific Parameters

**Function** Freely usable text parameter with a maximum of 255 characters plus terminating zero character. It is used for data exchange between the integrated PLC and the drive or a higher-level PLC or control unit.

The following applies (as of MPx-06):

- The UTF-8 character set can be written to this parameter.
- Size in number of bytes: 256
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.



The content of this parameter is not buffered in the event of a control voltage failure.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**P-0-1387 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.9.57 P-0-1388, PLC Global Register AT1

**Allocation**

<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
<b>Hardware</b>	---			
<b>Funct. package(s):</b>	motion logic			
<b>Device parameter:</b>	device-specific			

**Function**

Freely usable text parameter with a maximum of 255 characters plus terminating zero character. It is used for data exchange between the integrated PLC and the drive or a higher-level PLC or control unit.

The following applies (as of MPx-06):

- The UTF-8 character set can be written to this parameter.
- Size in number of bytes: 256
- A UTF-8 character can have a size of 1 to 3 bytes.
- The number of characters that can be entered may be less, depending on the UTF-8 characters used.



The content of this parameter is not buffered in the event of a control voltage failure.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**P-0-1388 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		

## Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.9.58 P-0-1389, PLC Global Register GL0

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This parameter is a list register with 1024 elements (4 bytes each) and is used for data exchange of the integrated PLC with the drive or a higher-level external PLC or control unit.

The display format for this parameter can be individually adjusted with "P-0-1386, PLC display format Global Register".



The data length of P-0-1389 is fixed to 4 bytes and cannot be changed. The content of this parameter is buffered in case the control voltage fails.

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1389 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	---	s. Text
MPC:	---	s. Text
MPE:	---	s. Text
MPM:	---	s. Text

## 5.9.59 P-0-1390, PLC input WORD0 AT %IB0

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This parameter belongs to the I/O channel (process image) which is the contact of the MLD to external devices, as it allows evaluating and addressing digital and analog inputs/outputs. In this context, this parameter is used for displaying and transporting the inputs to the process image of the inputs (PII) in MLD.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

Product-Specific Parameters

Use

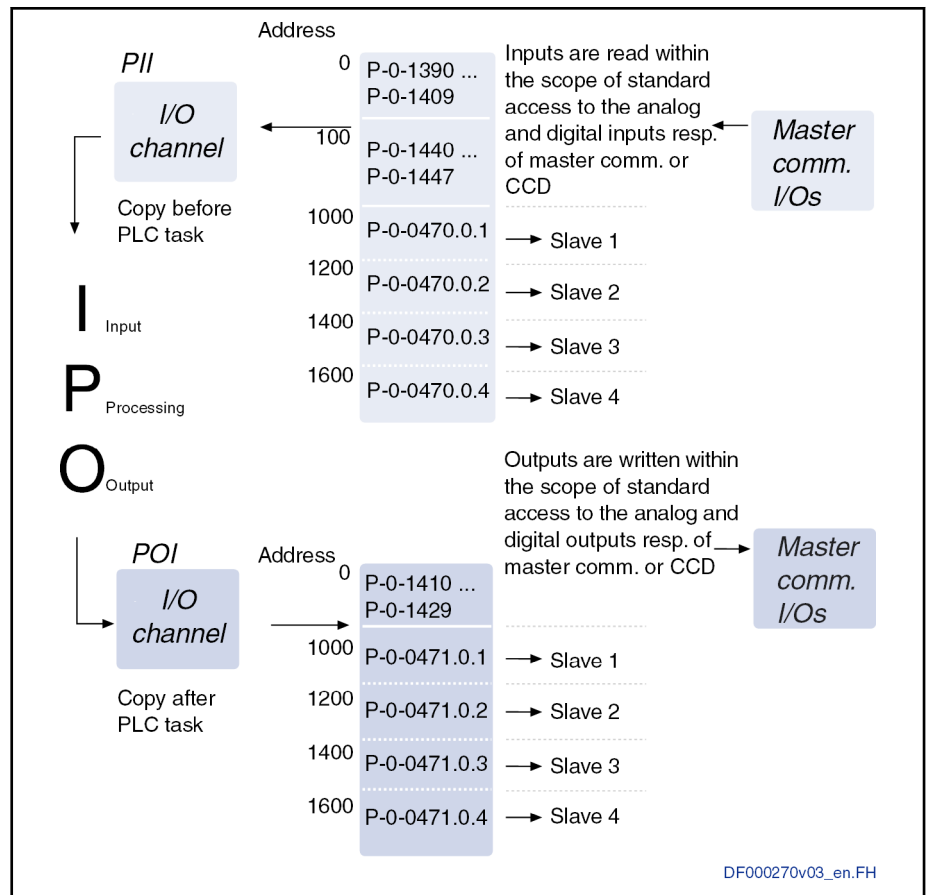


Fig.5-191: PII - PLC Inputs

The following aspects have to be observed for use:

- This parameter contains the process image of a PLC input (PII) and therefore is not buffered, which means that its content gets lost in case voltage fails.
- It contains 16 bits and is assigned to the hardware via the link logic (e.g., X31/32).
- At the beginning of the task, the PLC (IndraMotion MLD) reads the values of the hardware to the parameter (the PII).
- To connect the input, the corresponding assignment of the IDN (e.g., P-0-1390) to a digital input of "X31/32" is required.
- In addition to "P-0-1390", other available input registers are the following:
  - 32 bits: P-0-1440 – P-0-1447
  - 16 bits: P-0-1391 – P-0-1397, P-0-1398 – P-0-1409 (as of MPx-04VRS)

P-0-1390 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.9.60 P-0-1391, PLC input WORD1 AT %IB2

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1391 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.61 P-0-1392, PLC input WORD2 AT %IB4

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	motion logic				
	Device parameter:	device-specific				
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1392 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.62 P-0-1393, PLC input WORD3 AT %IB6

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1393 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.9.63 P-0-1394, PLC input WORD4 AT %IB8

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«MPC»	
	Contained in 18VRS:		«MPB»	«-»	«MPC»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1394 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.9.64 P-0-1395, PLC input WORD5 AT %IB10

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	motion logic				
	Device parameter:	device-specific				
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1395 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.9.65 P-0-1396, PLC input WORD6 AT %IB12

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
Function	See also "P-0-1390, PLC input WORD0 AT %IB0"				
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"				
	See also Application Manual "Rexroth IndraMotion MLD"				

## Product-Specific Parameters

<b>P-0-1396 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.9.66 P-0-1397, PLC input WORD7 AT %IB14

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		motion logic			
<b>Device parameter:</b>		device-specific			

**Function** See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1397 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.9.67 P-0-1398, PLC input WORD8 AT %IB16

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		motion logic			
<b>Device parameter:</b>		device-specific			

**Function** See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1398 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

## 5.9.68 P-0-1399, PLC input WORD9 AT %IB18

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		motion logic			
<b>Device parameter:</b>		device-specific			

**Function** See also "P-0-1390, PLC input WORD0 AT %IB0"

Product-Specific Parameters

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1399 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.69 P-0-1400, PLC input WORD10 AT %IB20

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1400 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.70 P-0-1401, PLC input WORD11 AT %IB22

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1401 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		

## Product-Specific Parameters

MPE:	---	---	---
MPM:	---	---	---

## 5.9.71 P-0-1402, PLC input WORD12 AT %IB24

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1402 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.72 P-0-1403, PLC input WORD13 AT %IB26

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1403 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.73 P-0-1404, PLC input WORD14 AT %IB28

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

Product-Specific Parameters

**Function** Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1404 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.74 P-0-1405, PLC input WORD15 AT %IB30

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1405 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.75 P-0-1406, PLC input WORD16 AT %IB32

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1406 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.9.76 P-0-1407, PLC input WORD17 AT %IB34

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** Parameter for the PLC input image. The parameter contains the process image of a PLC input (input process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the beginning of the task the PLC reads the values from this parameter to the input process image.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1407 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.77 P-0-1408, PLC input WORD18 AT %IB36

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** See also "P-0-1390, PLC input WORD0 AT %IB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1408 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.78 P-0-1409, PLC input WORD19 AT %IB38

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

Product-Specific Parameters

**Function** See also "P-0-1390, PLC input WORD0 AT %IB0"  
See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1409 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.79 P-0-1410, PLC output WORD0 AT %QB0

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	---		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs. In this context, this parameter is used for display and for transporting the data from the process image (POI) to the outputs.

See also Application Manual "Rexroth IndraMotion MLD"

**Use**

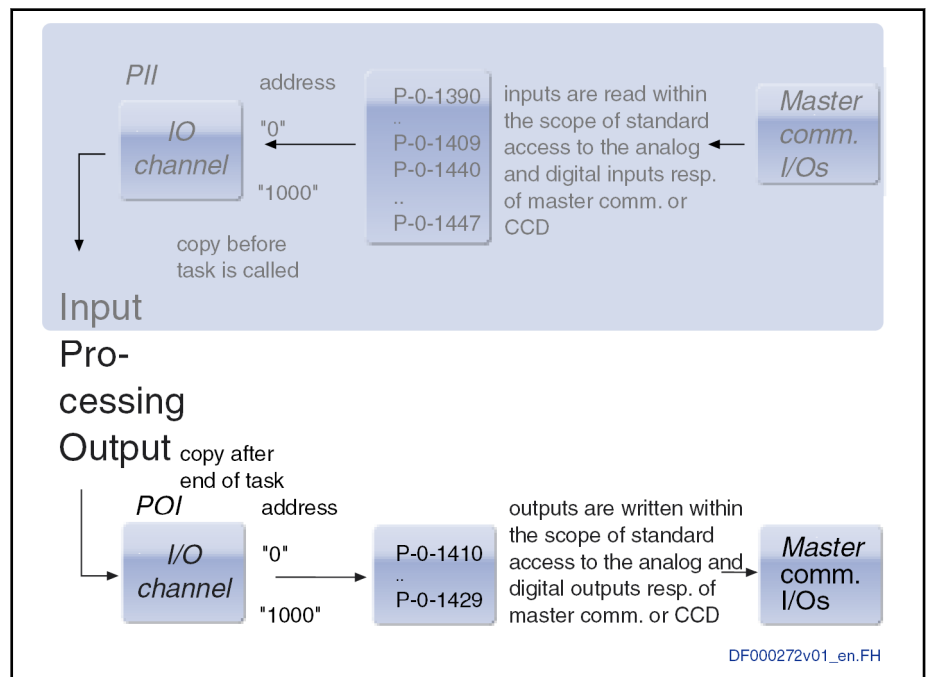


Fig.5-192: POI - PLC outputs

The following has to be observed for usage:

- This parameter contains the process image of a PLC output (POI) and therefore is not backed up, which means that its content gets lost in case voltage fails.
- It contains 16 bits and is assigned to the hardware in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks),

## Product-Specific Parameters

or directly read by the master communication (possibly via the serial interface).

- At the end of the task, the PLC (IndraMotion MLD) writes the values from the POI to the hardware.
- To connect the output, the corresponding assignment of the IDN (e.g. P-0-1410) to a digital output of "X31/32" is required.
- Apart from P-0-1410, there are the following input registers available:
  - 16 bits: P-0-1411 – P-0-1417

P-0-1418 – P-0-1429 (as of MP\*04VRS)

P-0-1410 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.9.80 P-0-1411, PLC output WORD1 AT %QB2

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
Funct. package(s):		motion logic			
Device parameter:		device-specific			

**Function** See also "P-0-1410, PLC output WORD0 AT %QB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1411 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.9.81 P-0-1412, PLC output WORD2 AT %QB4

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
Funct. package(s):		motion logic			
Device parameter:		device-specific			

**Function** See also "P-0-1410, PLC output WORD0 AT %QB0"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1412 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		

Product-Specific Parameters

MPC:	---	---	---
MPE:	---	---	---
MPM:	---	---	---

## 5.9.82 P-0-1413, PLC output WORD3 AT %QB6

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1410, PLC output WORD0 AT %QB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1413 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.9.83 P-0-1414, PLC output WORD4 AT %QB8

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1410, PLC output WORD0 AT %QB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1414 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.9.84 P-0-1415, PLC output WORD5 AT %QB10

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1410, PLC output WORD0 AT %QB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1415 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.9.85 P-0-1416, PLC output WORD6 AT %QB12

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	motion logic				
	Device parameter:	device-specific				
Function	See also "P-0-1410, PLC output WORD0 AT %QB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1416 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.9.86 P-0-1417, PLC output WORD7 AT %QB14

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1410, PLC output WORD0 AT %QB0"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1417 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.87 P-0-1418, PLC output WORD8 AT %QB16

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and

analog inputs/outputs. In this context, this parameter is used for display and for transporting the data from the process image (POI) to the outputs.

See also Application Manual "Rexroth IndraMotion MLD"

Use

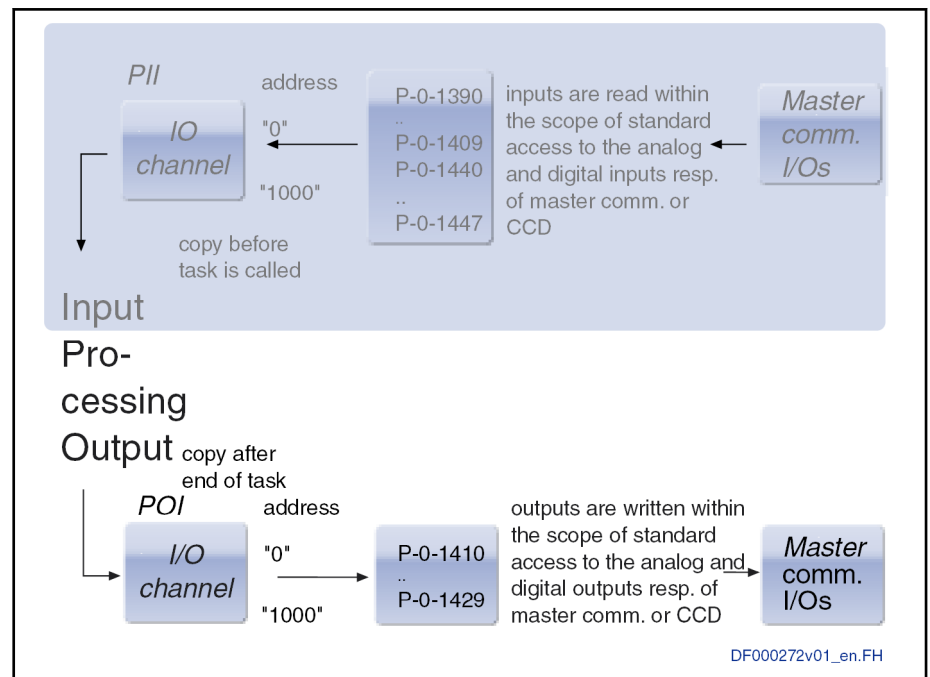


Fig. 5-193: POI - PLC outputs

The following has to be observed for usage:

- This parameter contains the process image of a PLC output (POI) and therefore is not backed up, which means that its content gets lost in case voltage fails.
- It contains 16 bits and is assigned to the hardware in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks), or directly read by the master communication (possibly via the serial interface).
- At the end of the task, the PLC (IndraMotion MLD) writes the values from the POI to the hardware.
- To connect the output, the corresponding assignment of the IDN (e.g. P-0-1410) to a digital output of "X31/32" is required.
- Apart from P-0-1410, there are the following input registers available:

– 16 bits: P-0-1411 – P-0-1417

P-0-1418 – P-0-1429 (as of MP\*04VRS)

P-0-1418 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.88 P-0-1419, PLC output WORD9 AT %QB18

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPC»

## Product-Specific Parameters

Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
Hardware	--			
Funct. package(s):	motion logic			
Device parameter:	device-specific			

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1419 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.89 P-0-1420, PLC output WORD10 AT %QB20

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

## P-0-1420 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.90 P-0-1421, PLC output WORD11 AT %QB22

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

Product-Specific Parameters

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1421 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.91 P-0-1422, PLC output WORD12 AT %QB24

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1422 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.92 P-0-1423, PLC output WORD13 AT %QB26

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1423 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## Product-Specific Parameters

## 5.9.93 P-0-1424, PLC output WORD14 AT %QB28

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1424 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.94 P-0-1425, PLC output WORD15 AT %QB30

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1425 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.95 P-0-1426, PLC output WORD16 AT %QB32

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the

Product-Specific Parameters

task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1426 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.9.96 P-0-1427, PLC output WORD17 AT %QB34

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	---			
		<b>Funct. package(s):</b>	motion logic		
		<b>Device parameter:</b>	device-specific		

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1427 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.9.97 P-0-1428, PLC output WORD18 AT %QB36

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	---			
		<b>Funct. package(s):</b>	motion logic		
		<b>Device parameter:</b>	device-specific		

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1428 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	

## Product-Specific Parameters

MPC:	---	---	---
MPE:	---	---	---
MPM:	---	---	---

## 5.9.98 P-0-1429, PLC output WORD19 AT %QB38

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** The parameter contains the process image of a PLC output (output process image). It contains 16 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks). At the end of the task the PLC writes the values from the output process image to this parameter.

See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

P-0-1429 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.99 P-0-1440, PLC input DWORD25 AT %IB100

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs. In this context, this parameter is used for display and for accessing the process image of the inputs (PII) in MLD.

See also Application Manual "Rexroth IndraMotion MLD"

## Product-Specific Parameters

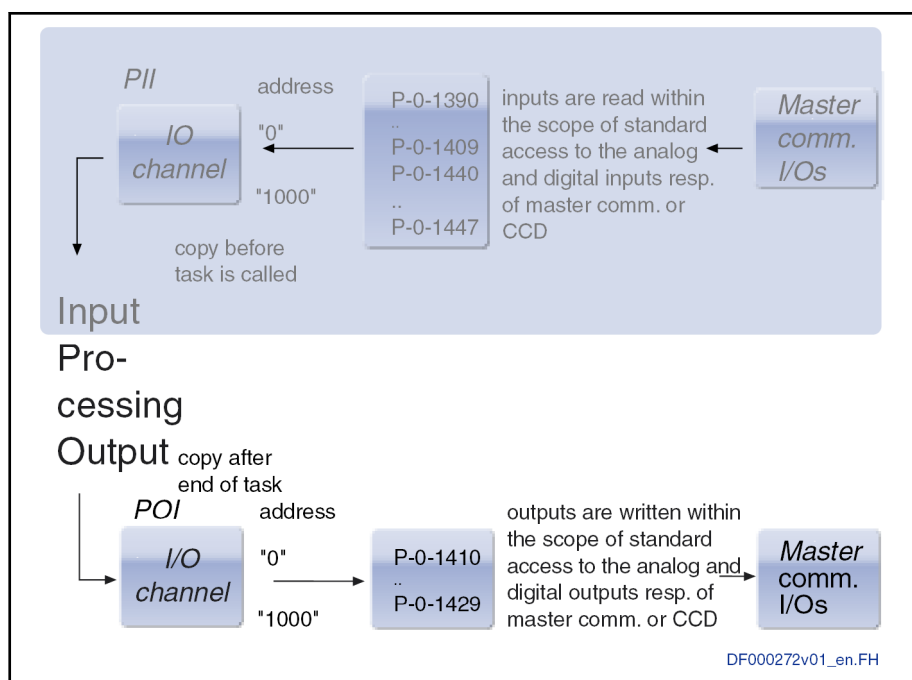


Fig.5-194: PII - PLC inputs

**Use** The following has to be observed for usage:

- This parameter contains the process image of a PLC input (PII) and therefore is not backed up, which means that its content gets lost in case voltage fails.
- It contains 32 bits and is assigned in the corresponding dialog (e.g. "X31/32") of the commissioning software (e.g. IndraWorks).
- At the beginning of the task, the PLC (IndraMotion MLD) reads the values to the PII.
- To write the input, the corresponding assignment of the IDN (e.g. P-0-1390 to a digital input of "X31/32") is required.
- Apart from P-0-1440, there are the following input registers available:
  - 32 bits: P-0-1441- P-0-1447
  - 16 bits: P-0-1390 - P-0-1397, P-0-1398 - P-0-1409 (as of MP\*04VRS)

### P-0-1440 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>		
<b>MPB:</b>			---		
<b>MPC:</b>			---		
<b>MPE:</b>			---		
<b>MPM:</b>			---		

## 5.9.100 P-0-1441, PLC input DWORD26 AT %IB104

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1440, PLC input DWORD25 AT %IB100"

## Product-Specific Parameters

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1441 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.9.101 P-0-1442, PLC input DWORD27 AT %IB108

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1440, PLC input DWORD25 AT %IB100"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1442 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.9.102 P-0-1443, PLC input DWORD28 AT %IB112

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1440, PLC input DWORD25 AT %IB100"

See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1443 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.9.103 P-0-1444, PLC input DWORD29 AT %IB116

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»

	<b>Hardware</b>	--				
	<b>Funct. package(s):</b>	motion logic				
	<b>Device parameter:</b>	device-specific				
<b>Function</b>	See also "P-0-1440, PLC input DWORD25 AT %IB100"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
<b>P-0-1444 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

### 5.9.104 P-0-1445, PLC input DWORD30 AT %IB120

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«MPC»	
	Contained in 18VRS:		«MPB»	«-»	«MPC»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1440, PLC input DWORD25 AT %IB100"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1445 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.9.105 P-0-1446, PLC input DWORD31 AT %IB124

Allocation	Contained in 16VRS:		«-»	«-»	«-»
	Contained in 17VRS:		«MPB»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«-»
	Hardware		--		
	Funct. package(s):		motion logic		
	Device parameter:		device-specific		
Function	See also "P-0-1440, PLC input DWORD25 AT %IB100"				
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"				
	See also Application Manual "Rexroth IndraMotion MLD"				
P-0-1446 - Attributes	Function:	Par	Editable:	++	Data length:
	Memory:	--	Validity ch.:	--	Format:
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:
					--
	Input	min./max.		Default value	
	MPB:	--- / ---		---	
	MPC:	--- / ---		---	
	MPE:	--- / ---		---	
	MPM:	--- / ---		---	

## Product-Specific Parameters

## 5.9.106 P-0-1447, PLC input DWORD32 AT %IB128

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1440, PLC input DWORD25 AT %IB100"					
	See also Functional Description "Rexroth IndraMotion MLD (Drive-Integrated PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1447 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.107 P-0-1449, C4900 PLC command

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	motion logic				
	Device parameter:	axis-specific				
Function	This parameter can be used to control a PLC program via the standardized command mechanisms.					
	See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1449 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.108 P-0-1450, PLC/setting-up mode Positioning command value

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to input a positioning command value for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.



To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".

See also Functional Description "Drive-Controlled Positioning"

Product-Specific Parameters

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

**Use** The function of "P-0-1450" complies with "S-0-0282, Positioning command value ", its effectiveness is explained in the Functional Description.

See Functional Description "Rexroth IndraMotion MLD"

<b>P-0-1450 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 5.9.109 P-0-1451, PLC/setting-up mode, positioning velocity

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to input a positioning velocity for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.



To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

**Use** The function of "P-0-1451" complies with "S-0-0259, Positioning velocity ", its effectiveness is explained in the Functional Description.

See Functional Description "Rexroth IndraMotion MLD"

<b>P-0-1451 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0,0000	
		MPC:	--- / ---		0,0000	
		MPE:	--- / ---		0,0000	
		MPM:	--- / ---		0,0000	

### 5.9.110 P-0-1452, PLC/setting-up mode, positioning acceleration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to input a positioning acceleration for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.

## Product-Specific Parameters



To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

**Use** The function of "P-0-1452" complies with "S-0-0260, Positioning acceleration", its effectiveness is explained in the Functional Description.

See Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1452 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		0,000		
<b>MPC:</b>		--- / ---		0,000		
<b>MPE:</b>		--- / ---		0,000		
<b>MPM:</b>		--- / ---		0,000		

## 5.9.111 P-0-1453, PLC/setting-up mode, positioning deceleration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		axis-specific			

**Function** This parameter is used to input a positioning deceleration for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.



To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".

See also Functional Description "Drive-Controlled Positioning"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

**Use** The function of "P--0--1453" complies with "S-0-0359, Positioning deceleration", its effectiveness is explained in the Functional Description.


See Application Manual "Rexroth IndraMotion MLD"

<b>P-0-1453 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		0,000		
<b>MPC:</b>		--- / ---		0,000		
<b>MPE:</b>		--- / ---		0,000		
<b>MPM:</b>		--- / ---		0,000		


## 5.9.112 P-0-1454, PLC/setting-up mode, positioning command value acceptance

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			

Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		axis-specific			
<b>Function</b>	This parameter is used to control the positioning process (e.g., start of positioning) for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.					
	<hr/>					
	 To use positioning with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy start-up".					
	<hr/>					
	See also Functional Description "Drive-Controlled Positioning"					
	See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"					
<b>Use</b>	The function of "P-0-1454" complies with "S-0-0346, Positioning control word", its effectiveness is explained in the Functional Description.					
	See Functional Description "Rexroth IndraMotion MLD"					
<b>P-0-1454 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

### 5.9.113 P-0-1455, PLC/setting-up mode, positioning command value acknowledge

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		axis-specific			
Function	This parameter is used for internal analysis of the positioning process for drive-controlled positioning via IndraMotion MLD with temporary control or via the setting-up mode.					
<hr/>						
		To use positioning with the setting-up mode, the operation mode must first be preselected with "P0-0120, Control word easy start-up".				
<hr/>						
	See also Functional Description "Drive-Controlled Positioning"					
	See also Functional Description "IndraMotion MLD (Drive-Integrated PLC)"					
Use	Regarding its function, parameter "P-0-1455" corresponds to parameter "S-0-0419, Positioning command acknowledge" the operating principle of which is explained in detail in the Functional Description.					
	See also Application Manual "Rexroth IndraMotion MLD"					
P-0-1455 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		---	/	---	---
	MPC:		---	/	---	---
	MPE:		---	/	---	---
	MPM:		---	/	---	---

## Product-Specific Parameters

## 5.9.114 P-0-1460, PLC/setting-up mode, velocity command value

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter is used to input a velocity command value in velocity control via IndraMotion MLD with temporary control or via the setting-up mode.					
	See also Functional Description "Velocity Control"					
	See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"					
Use	The function of "P-0-1460" complies with "S-0-0036, Velocity command value", its effectiveness is explained in the Functional Description.					
	See Application Manual "Rexroth IndraMotion MLD"					
P-0-1460 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.9.115 P-0-1461, PLC/setting-up mode Ramp pitch

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter is used to set a ramp in velocity control via IndraMotion MLD with temporary control or via the setting-up mode.					
	See also Functional Description "Velocity Control"					
	See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"					
Use	The function of "P-0-1461" complies with "P-0-1203, Ramp 2 pitch ", its effectiveness is explained in the Functional Description.					
	See Application Manual "Rexroth IndraMotion MLD"					
P-0-1461 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	--	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			0,000	
	MPC:	--- / ---			0,000	
	MPE:	--- / ---			0,000	
	MPM:	--- / ---			0,000	

## 5.9.116 P-0-1463, PLC/setting-up mode Deceleration ramp

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

Product-Specific Parameters

**Function** This parameter is used to set a deceleration in velocity control via IndraMotion MLD with temporary control or via the setting-up mode.

See also Functional Description "Velocity Control"

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

**Use** The function of "P-0-1463" complies with "P-0-1213, Deceleration ramp 2 ", its effectiveness is explained in the Functional Description.

See Functional Description "Rexroth IndraMotion MLD"

**P-0-1463 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0,000
MPC:	--- / ---	0,000
MPE:	--- / ---	0,000
MPM:	--- / ---	0,000

## 5.9.117 P-0-1465, PLC/setting-up mode Torque/force command value

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to input a torque/force command value in torque control via IndraMotion MLD-S with temporary control or via the setting-up mode.



To use torque/force control with the setting-up mode, the operation mode must first be preselected with "P-0-0120, Control word easy startup".

See also Functional Description "IndraMotion MLD (Drive-Integrated SPS)"

**Use** The function of "P-0-1465" complies with "S-0-0080, Torque/force command value ", its effectiveness is explained in the Functional Description.

See Functional Description "Rexroth IndraMotion MLD"

**P-0-1465 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.118 P-0-1466, PLC Torque/force ramp

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Using the torque/force ramp time (P-0-1467), the PLC torque/force ramp defines a pitch for the PLC torque/force command value (P-0-1465) in torque/force control PLC operation mode under temporary control or in set-up mode.

## Product-Specific Parameters

In its function, parameter P-0-1466 corresponds to parameter S-0-0822, Torque/force ramp, whose operating principle is explained in detail in the functional description.

See also Functional Description "Torque/Force Control"

**P-0-1466 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0,0
MPC:	--- / ---	0,0
MPE:	--- / ---	0,0
MPM:	--- / ---	0,0

**5.9.119 P-0-1467, PLC/setting-up mode, torque/force ramp time**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** Using the torque/force ramp (P-0-1466), the PLC torque/force ramp time defines a pitch for the PLC torque/force command value (P-0-1465) in torque/force control operation mode via the drive-internal PLC under temporary control or in set-up mode.

In its function, parameter P-0-1467 corresponds to parameter S-0-0823, Torque/force ramp time, whose operating principle is explained in detail in the functional description.

See also Functional Description "Torque/Force Control"

**P-0-1467 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0,0
MPC:	--- / ---	0,0
MPE:	--- / ---	0,0
MPM:	--- / ---	0,0

**5.9.120 P-0-1470.0.1, PLC inputs area AT %IB1000 - %IB1199**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs via SERCOS III. In this context, this parameter is used for displaying and transporting the inputs to the process image of the inputs (PII) in MLD.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

Product-Specific Parameters

Use

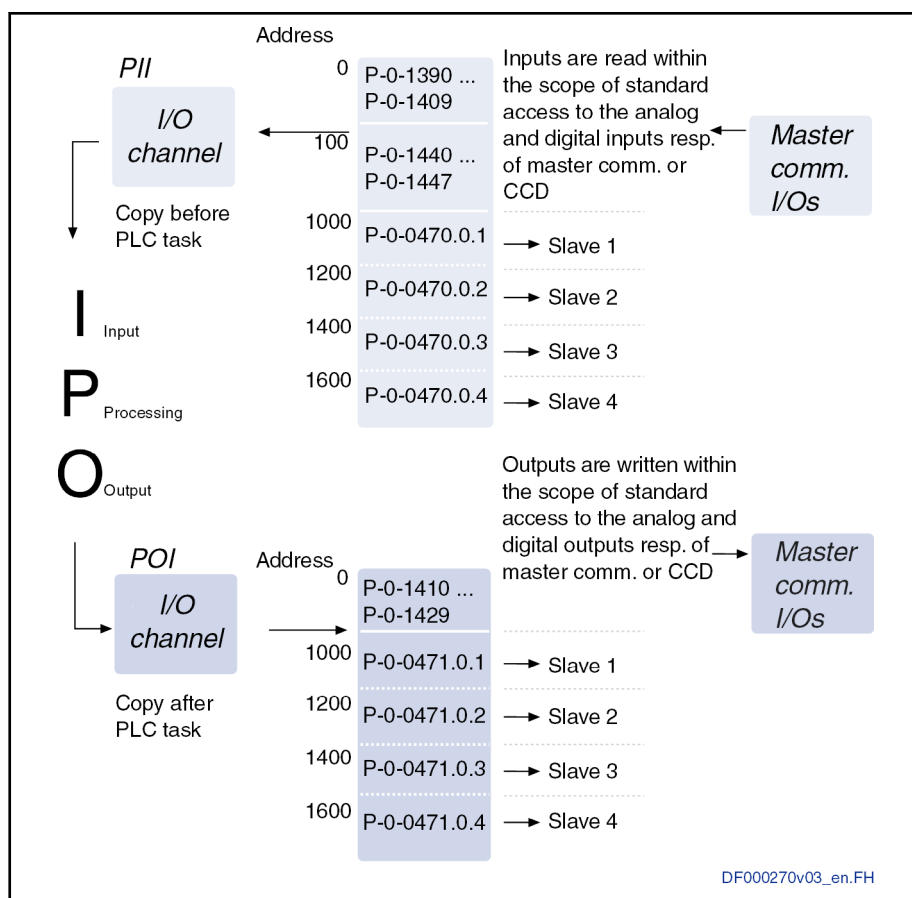


Fig.5-195: PII - PLC Inputs

The following aspects have to be observed for use:

- The parameter corresponds to the addresses ranging from %IB1000 to %IB1199 in the input image of the PLC. It has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1628, CCD: Configuration list act. master values I/Os".
- In addition to "P-0-1470.0.1", other available input registers are the following:
  - 32 bits: P-0-1440 to P-0-1447
  - (As of MPx-04VRS) 16 bits: P-0-1391 to P-0-1397; P-0-1398 to P-0-1409
  - (As of MPx-08VRS) P-0-1470.0.2, P-0-1470.0.3, P-0-1470.0.4

P-0-1470.0.1 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.				Default value
MPB:	--- / ---				---
MPC:	--- / ---				---
MPE:	--- / ---				---
MPM:	--- / ---				---

## 5.9.121 P-0-1470.0.2, PLC inputs area AT %IB1200 - %IB1399

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»

## Product-Specific Parameters

Hardware	--
Funct. package(s):	motion logic
Device parameter:	device-specific

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs via SERCOS III. In this context, this parameter is used for displaying and transporting the inputs to the process image of the inputs (PII) in MLD.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**Use** The following aspects have to be observed for use:

- The parameter corresponds to the addresses ranging from %IB1200 to %IB1399 in the input image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1628, CCD: Configuration list act. master values I/Os".
- In addition to "P-0-1470.0.2", other available input registers are the following:
  - 32 bits: P-0-1440 to P-0-1447
  - (As of MPx-04VRS) 16 bits: P-0-1391 to P-0-1397; P-0-1398 to P-0-1409
  - (As of MPx-08VRS) P-0-1470.0.1, P-0-1470.0.3, P-0-1470.0.4

## P-0-1470.0.2 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.122 P-0-1470.0.3, PLC inputs area AT %IB1400 - %IB1599

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-» «MPC»
	Contained in 18VRS:	«-»	«-»	«-» «-»
Hardware	--			
Funct. package(s):	motion logic			
Device parameter:	device-specific			

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs via SERCOS III. In this context, this parameter is used for displaying and transporting the inputs to the process image of the inputs (PII) in MLD.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**Use** The following aspects have to be observed for use:

- The parameter corresponds to the addresses ranging from %IB1400 to %IB1599 in the input image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1628, CCD: Configuration list act. master values I/Os".
- In addition to "P-0-1470.0.3", other available input registers are the following:

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- 32 bits: P-0-1440 to P-0-1447
- (As of MPx-04VRS) 16 bits: P-0-1391 to P-0-1397; P-0-1398 to P-0-1409
- (As of MPx-08VRS) P-0-1470.0.1, P-0-1470.0.2, P-0-1470.0.4

P-0-1470.0.3 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.9.123 P-0-1470.0.4, PLC inputs area AT %IB1600 - %IB1799

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	---		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs via SERCOS III. In this context, this parameter is used for displaying and transporting the inputs to the process image of the inputs (PII) in MLD.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**Use** The following aspects have to be observed for use:

- The parameter corresponds to the addresses ranging from %IB1000 to %IB1199 in the input image of the PLC. It has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1628, CCD: Configuration list act. master values I/Os".
- The parameter corresponds to the addresses ranging from %IB1600 to %IB1799 in the input image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1628, CCD: Configuration list act. master values I/Os".
- In addition to "P-0-1470.0.4", other available input registers are the following:
  - 32 bits: P-0-1440 to P-0-1447
  - (As of MPx-04VRS) 16 bits: P-0-1391 to P-0-1397; P-0-1398 to P-0-1409
  - (As of MPx-08VRS) P-0-1470.0.1, P-0-1470.0.2, P-0-1470.0.3

P-0-1470.0.4 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.9.124 P-0-1471.0.1, PLC outputs area AT %QB1000 - %QB1199

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs via SERCOS III. Here, the parameter is used for displaying and transporting the outputs from the process image of the output (PIO) of the MLD to the SERCOS III outputs.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

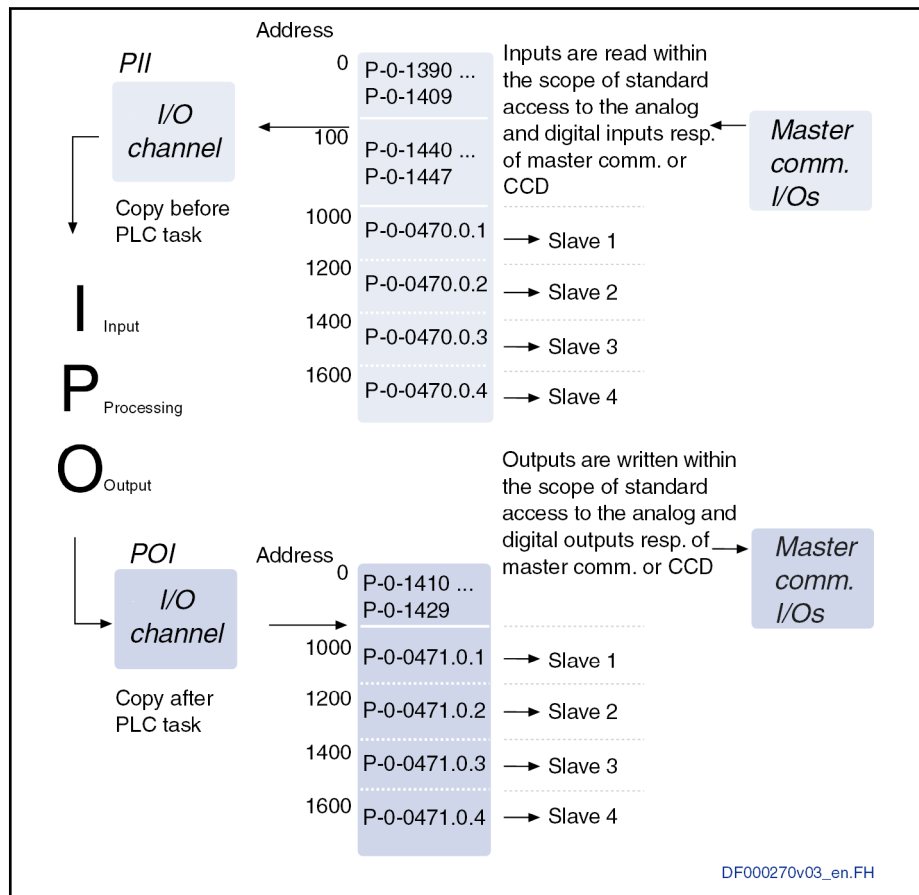
**Use**

Fig.5-196: PII - PLC Outputs

The following aspects have to be observed for use:

- The parameter corresponds to the addresses ranging from %QB1000 to %QB1199 in the output image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1627, CCD: Configuration list master cmd values I/Os".
- In addition to "P-0-1471.0.1", other available input registers are the following:  
16 bits: P-0-1411 to P-0-1417  
(As of MPx-04) P-0-1418 – P-0-1429

Product-Specific Parameters

(As of MPx-08) P-0-1471.0.2, P-0-1471.0.3, P-0-1471.0.4

<b>P-0-1471.0.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.9.125 P-0-1471.0.2, PLC outputs area AT %QB1200 - %QB1399

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs via SERCOS III. Here, the parameter is used for displaying and transporting the outputs from the process image of the output (PIO) of the MLD to the SERCOS III outputs.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**Use** The following aspects have to be observed for use:

- The parameter corresponds to the addresses ranging from %QB1200 to %QB1399 in the output image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1627, CCD: Configuration list master cmd values I/Os".
- In addition to "P-0-1471.0.2", other available input registers are the following:  
16 bits: P-0-1411 to P-0-1417  
(MPx-04 and above) P-0-1418 – P-0-1429  
(MPx-08 and above) P-0-1471.0.1, P-0-1471.0.3, P-0-1471.0.4

<b>P-0-1471.0.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.9.126 P-0-1471.0.3, PLC outputs area AT %QB1400 - %QB1599

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs via SERCOS III. Here, the parameter is used for dis-

## Product-Specific Parameters

playing and transporting the outputs from the process image of the output (PIO) of the MLD to the SERCOS III outputs.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**Use** The following aspects have to be observed for use:

- The parameter corresponds to the addresses ranging from %QB1000 to %QB1199 in the output image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1627, CCD: Configuration list master cmd values I/Os".
- The parameter corresponds to the addresses ranging from %QB1400 to %QB1599 in the output image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1627, CCD: Configuration list master cmd values I/Os".
- In addition to "P-0-1471.0.3", other available input registers are the following:  
16 bits: P-0-1411 to P-0-1417  
(MPx-04 and above) P-0-1418 – P-0-1429  
(MPx-08 and above) P-0-1471.0.1, P-0-1471.0.2, P-0-1471.0.4

**P-0-1471.0.3 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

**5.9.127 P-0-1471.0.4, PLC outputs area AT %QB1600 - %QB1799**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter belongs to the I/O channel (process image) which is MLD's contact to external devices, as it allows evaluating and addressing digital and analog inputs/outputs via SERCOS III. Here, the parameter is used for displaying and transporting the outputs from the process image of the output (PIO) of the MLD to the SERCOS III outputs.

See also Functional Description "Rexroth IndraMotion MLD (Drive PLC)"

See also Application Manual "Rexroth IndraMotion MLD"

**Use** The following aspects have to be observed for use:

- The parameter corresponds to the addresses ranging from %QB1000 to %QB1199 in the output image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III modular I/O. To achieve this, it is entered in "P-0-1627, CCD: Configuration list master cmd values I/Os".
- The parameter corresponds to the addresses ranging from %QB1600 to %QB1799 in the output image of the PLC. The parameter has a length of 200 bytes (100 words). This parameter can be linked to a SERCOS III

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modular I/O. To achieve this, it is entered in "P-0-1627, CCD: Configuration list master cmd values I/Os".

- In addition to "P-0-1471.0.4", other available input registers are the following:

16 bits: P-0-1411 to P-0-1417

(MPx-04 and above) P-0-1418 – P-0-1429

(MPx-08 and above) P-0-1471.0.1, P-0-1471.0.2, P-0-1471.0.3

P-0-1471.0.4 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10 P-0-1500 to P-0-1599 Device Parameters

### 5.10.1 P-0-1506, Circuit board code optional module 1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	device-specific				

**Function** This parameter contains identification data for the circuit board of the optional module 1 (control section). It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element no.	Function
0	circuit board designation (1)
1	circuit board designation (2)
2	component number
3	serial number
4	circuit board type and version
5	release/revision index
6	writing cycles

Tab.5-197: Elements of parameter P-0-1506

By means of circuit board code parameters the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section ("P-0-1520, Control section type") and the basic device ("S-0-0140, Controller type"). The type designation of the control section also implies firmware dependencies.

P-0-1506 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.2 P-0-1507, Circuit board code optional module 2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter contains identification data for the circuit board of the optional module 2 (control section). It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element no.	Function
0	circuit board designation (1)
1	circuit board designation (2)
2	component number
3	serial number
4	circuit board type and version
5	release/revision index
6	writing cycles

Tab.5-198: Elements of parameter P-0-1507

By means of circuit board code parameters the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section ("P-0-1520, Control section type") and the basic device ("S-0-0140, Controller type"). The type designation of the control section also implies firmware dependencies.

## P-0-1507 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	I2C_OPM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.3 P-0-1508, Circuit board code optional module 3

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter contains identification data for the circuit board of the optional module 3 (control section). It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

## Product-Specific Parameters

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element no.	Function
0	circuit board designation (1)
1	circuit board designation (2)
2	component number
3	serial number
4	circuit board type and version
5	release/revision index
6	writing cycles

Tab.5-199: Elements of parameter P-0-1508

By means of circuit board code parameters the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section ("P-0-1520, Control section type") and the basic device ("S-0-0140, Controller type"). The type designation of the control section also implies firmware dependencies.

### P-0-1508 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	I2C_OPM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.4 P-0-1510, Circuit board code power section

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter contains identification data for the power section circuit board (basic device). It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element no.	Function
0	circuit board designation (1)
1	circuit board designation (2)
2	component number
3	serial number
4	circuit board type and version

## Product-Specific Parameters

Element no.	Function
5	release/revision index
6	writing cycles

Tab.5-200: Elements of parameter P-0-1510

By means of circuit board code parameters the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section ("P-0-1520, Control section type") and the basic device ("S-0-0140, Controller type"). The type designation of the control section also implies firmware dependencies.

## P-0-1510 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	LT_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	---
<b>MPC:</b>	--- / ---	---
<b>MPE:</b>	--- / ---	---
<b>MPM:</b>	--- / ---	---

## 5.10.5 P-0-1511, Circuit board code control section

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter contains identification data for the basic circuit board of the control section. It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element no.	Function
0	circuit board designation (1)
1	circuit board designation (2)
2	component number
3	serial number
4	circuit board type and version
5	release/revision index
6	writing cycles

Tab.5-201: Elements of parameter P-0-1511

By means of circuit board code parameters the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section ("P-0-1520, Control section type") and the basic device ("S-0-0140, Controller type"). The type designation of the control section also implies firmware dependencies.

## P-0-1511 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	ON_BOARD_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.6 P-0-1512, Circuit board code of optional module 4

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter contains identification data for the circuit board of the optional module 4 (control section). It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element number	Function
0	circuit board designation (1)
1	circuit board designation (2)
2	component number
3	serial number
4	circuit board type and version
5	release/revision index
6	writing cycles

Tab.5-202: Elements of parameter P-0-1512

By means of circuit board code parameters the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section ("P-0-1520, Control section type") and the basic device ("S-0-0140, Controller type"). The type designation of the control section also implies firmware dependencies.

<b>P-0-1512 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	I2C_OPM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.7 P-0-1515, Circuit board code carrier board

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter contains the identification data for the circuit board "carrier board" of the controller. It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

## Product-Specific Parameters

**Structure** The parameter contains a list. The following data are included in the elements of the list:

Element no.	Function
0	Circuit board designation (1)
1	Circuit board designation (2)
2	Component number
3	Serial number
4	Circuit board type and version
5	Release/revision index
6	Writing cycles

Tab.5-203: Elements of Parameter P-0-1515

**Use** By means of circuit board code parameters, the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section "P-0-1520, Control section type" and basic device "S-0-0140, Controller type". The type designation of the control section also implies firmware dependencies.

<b>P-0-1515 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	I2C_OPM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.10.8 P-0-1516, Circuit board code optional module 5

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPM» «MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM» «MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter contains identification data about the circuit board of the optional module 5 (control section). It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element no.	Function
0	Circuit board designation (1)
1	Circuit board designation (2)
2	Component number
3	Serial number
4	Circuit board type and version

Product-Specific Parameters

Element no.	Function
5	Release/revision index
6	Writing cycles

Tab.5-204: Elements of Parameter P-0-1506

By means of circuit board code parameters, the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section "P-0-1520, Control section type" and basic device "S-0-0140, Controller type". The type designation of the control section also implies firmware dependencies.

P-0-1516 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.9 P-0-1517, Circuit board code optional module 6

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«MPM» «MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM» «MPC»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains identification data about the circuit board of the optional module 6 (control section). It is stored on a memory chip on the circuit board and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element no.	Function
0	Circuit board designation (1)
1	Circuit board designation (2)
2	Component number
3	Serial number
4	Circuit board type and version
5	Release/revision index
6	Writing cycles

Tab.5-205: Elements of Parameter P-0-1517

By means of circuit board code parameters, the controller firmware identifies all circuit boards incorporated in the control section and in the basic device and thus generates the type designation of the control section "P-0-1520, Control section type" and basic device "S-0-0140, Controller type". The type designation of the control section also implies firmware dependencies.

P-0-1517 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.10 P-0-1518, Module code of control section

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter contains identification data for the control section. It is stored on a memory chip on the control section and data are written to it once when the circuit board is assembled.

See also Functional Description: "Circuit Board Code"

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element number	Function
0	Module designation (1)
1	Module designation (2)
2	Module designation (3)
3	Part number
4	Serial number
5	Circuit board type and version
6	Release/revision index
7	Writing cycles

Tab.5-206: Elements of Parameter P-0-1518

The type designation of the control section also implies firmware dependencies.

P-0-1518 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	ON_BOARD_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.11 P-0-1519, Module code of power section

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter contains identification data for the power section. It is stored on a memory chip on the power section and data are written to it once when the circuit board is assembled.

See also Functional Description "Circuit Board Code"

Product-Specific Parameters

**Use** The parameter contains a list. The following data are included in the elements of the list:

Element number	Function
0	Module designation (1)
1	Module designation (2)
2	Module designation (3)
3	Part number
4	Serial number
5	Power section – firmware code
6	Release/revision index
7	Writing cycles

Tab.5-207: Elements of Parameter P-0-1519

The type designation of the control section also implies firmware dependencies.

<b>P-0-1519 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	LT_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.10.12 P-0-1520, Control section type

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter displays the type designation of the control section. By means of circuit board code parameters the controller firmware identifies all circuit boards incorporated in the control section and thus generates the type designation.

The type designation of the control section also implies firmware dependencies.

<b>P-0-1520 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.10.13 P-0-1521, Programming module identifier

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

## Product-Specific Parameters

**Function** This parameter contains identification data for the programming module. It is stored on a memory chip on the control panel and data is written to it once when the circuit board is assembled.

**Use** The parameter contains a list. The following data is included in the elements of the list:

Element number	Function
0	Basic module designation (1)
1	Basic module designation (2)
2	Basic module designation (3)
3	Part number
4	Serial number
5	Programming module – firmware code
6	Release/revision index
7	Factory identifier

Tab.5-208: Elements of Parameter P-0-1521

The type designation of the programming module also implies firmware dependencies.

## P-0-1521 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	I2C_OPM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.14 P-0-1522, Type data of module 3

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPC»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter contains identification data for assembly 3. It is stored on a memory chip on the assembly and data is written to it once when the device is manufactured.

**Use** The parameter contains a list. The following data is included in the elements of the list:

Element number	Function
0	Basic module designation (1)
1	Basic module designation (2)
2	Basic module designation (3)
3	Part number
4	Serial number
5	Assembly – firmware code

Product-Specific Parameters

Element number	Function
6	Release/revision index
7	Factory identifier

Tab.5-209: Elements of Parameter P-0-1522

The type designation of the control section also implies firmware dependencies.

P-0-1522 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	I2C_OPM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.15 P-0-1530, Engineering: MAC address

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameter "P-0-1530" contains the MAC address for the engineering interface which is required within the scope of Ethernet communication. The MAC address (Media Access Control) is used for unequivocal identification in the network.

**Structure** The MAC address is a list parameter with the following structure:

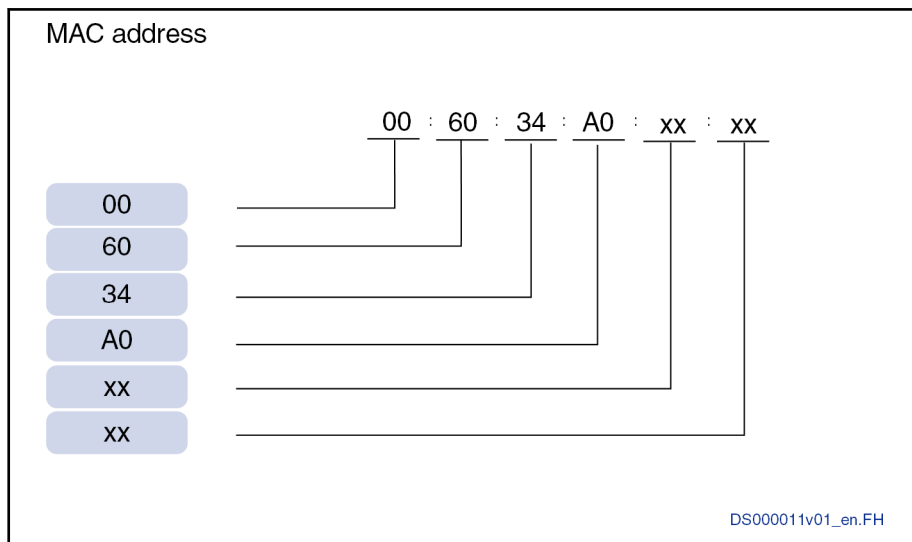


Fig.5-210: P-0-1530, Engineering: MAC address

Use



The MAC address has been permanently assigned to the hardware and cannot be modified!

See Parameter Description "S-0-1019, Master comm. engineering over IP: MAC address"

P-0-1530 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	ON_BOARD_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.10.16 P-0-1531, Engineering: IP address

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1531" contains the IP address for the engineering interface. This address is necessary, to reach the device within the network via IP communication.



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing the drive command "C6100 Command Activate IP settings"

**Structure** The IP address is a list parameter with the following structure:

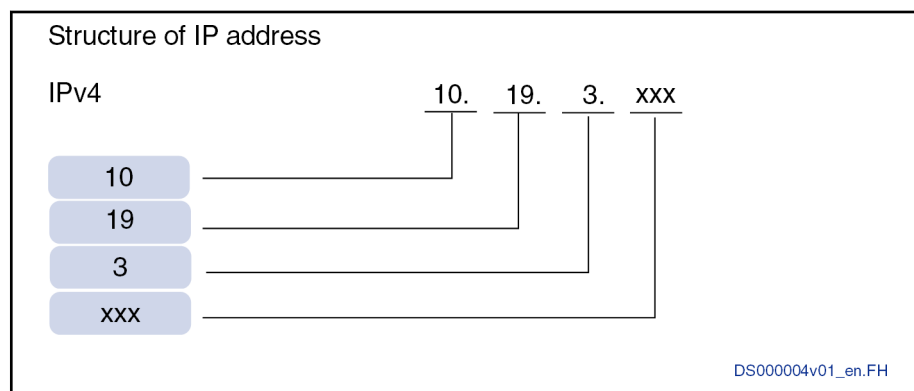


Fig.5-211: P-0-1531, Engineering: IP address

## Use



The IP-address must be set with regard to the specific application. This setting can be done via all communication interfaces or the control unit.

See also Parameter Description

"P-0-1532, Engineering: Network mask"

"P-0-1533, Engineering: Gateway address"

"S-0-1020, Master comm. engineering over IP: IP address"

## P-0-1531 - Attributes

Function:	Par	Editable:	++	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		s. Text		
MPC:	--- / ---		s. Text		
MPE:	--- / ---		s. Text		
MPM:	--- / ---		s. Text		

## 5.10.17 P-0-1532, Engineering: Network mask

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameter "P-01532" contains the network mask for the engineering interface which is required within the scope of IP communication. Each IP address (Internet Protocol) consists of a network and a device part. The network mask is used to distinguish between network and device part.



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing the drive command "C6100 Command Activate IP settings"

**Structure** The network mask is a list parameter with the following structure:

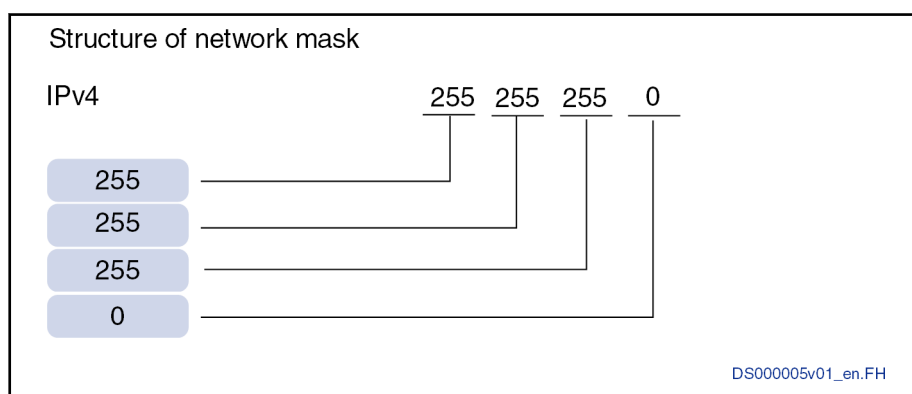


Fig. 5-212: P-0-1532, Engineering: Network mask

**Use**



The network mask must be set with regard to the specific application. This setting can be done via all communication interfaces or the control unit.

See also Parameter Description

"P-0-1531, Engineering: IP address"

"P-0-1533, Engineering: Gateway address"

"S-0-1021, Master comm. engineering over IP: Network mask"

P-0-1532 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		s. Text	
	MPC:		--- / ---		s. Text	
	MPE:		--- / ---		s. Text	
	MPM:		--- / ---		s. Text	

## 5.10.18 P-0-1533, Engineering: Gateway address

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** device-specific

**Function** Parameter "P-0-1533" contains the Gateway-address for the engineering interface which is required within the scope of IP communication.

If the communication node wants to transmit an IP package (Internet Protocol), the network parts of the source IP address and the target IP address are compared. If they do not match, the IP package is transmitted to the gateway IP address.



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing the drive command "C6100 Command Activate IP settings"

**Structure** The gateway address is a list parameter with the following structure:

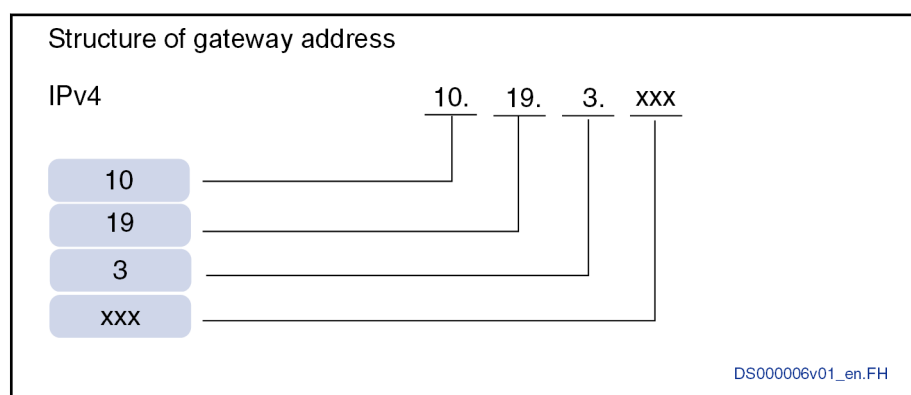


Fig.5-213: P-0-1533, Engineering: Gateway address

**Use**



The gateway address must be set with regard to the specific application. This setting can be done via all communication interfaces or the control unit.

See also Parameter Description

"P-0-1531, Engineering: IP address"

"P-0-1532, Engineering: Network mask"

"S-0-1022, Master comm. engineering over IP: Gateway address"

**P-0-1533 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	s. Text
<b>MPC:</b>	--- / ---	s. Text
<b>MPE:</b>	--- / ---	s. Text
<b>MPM:</b>	--- / ---	s. Text

## 5.10.19 P-0-1534, C6100 Command Activate IP settings

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

## Product-Specific Parameters

**Function** This command activates the IP settings (IP address, network mask and default gateway) made by the user for the devices available in the controller.



If the IP settings are changed, the settings made before the change keep being active until the command is started.

**Use** When the command is started, communication is aborted of all devices (hardware via which IP communication can take place, cf. network card in PC) for which the settings were changed. After the command was successfully completed, IP communication can be established with the new settings.

The command can be started via the control panel or via a commissioning tool (IndraWorks D" or "SynTop").

### P-0-1534 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.10.20 P-0-1544, Engineering: Status IP communication

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** By means of the parameter "P01544, Engineering: Status IP communication", you can read the status information on the current state of IP communication via the engineering interface of the device.

The parameter contains both general information on IP communication and device-dependent information.

**Structure** The general status information on IP communication is contained in parameter "P01544, Engineering: Status IP communication", preferably in the first 8 bits. The bits 8 to 31 contain the device-dependent information.

The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
1... 0	<b>State of internal memory TCP/IP stack</b> 00: No problem with internal memory 01: Internal memory space full 10: Internal memory space intermittently filled	
3... 2	Reserved	
6... 4	<b>Default gateway information</b> 000: Not set 001: From master comm. engineering over IP (S-0-1022) 010: From SERCOS III master (CCD) (P-0-1643) 100: From engineering (P-0-1533)	
7	Reserved	

## Product-Specific Parameters

Bit	Designation/function	Comment
9... 8	<b>Setting of device gateway information</b> 00: No gateway information set 01: Active gateway information manually set 10: Active gateway information automatically generated	
11... 10	<b>Status of device gateway information</b> 00: Gateway information not used 01: Gateway address which was read is active 10: Gateway address which was read has not been activated up to now	
12	<b>Status of device network mask</b> 0: Network mask which was read is active 1: Network mask which was read has not been activated up to now	
15... 13	Reserved	
17... 16	<b>Setting of device IP address</b> 00: No IP address set 01: Active IP address manually set 10: Active IP address automatically set	
20..18	<b>Status of IP address</b> 000: No IP address available for activation 001: IP address which was read is active 010: IP address which was read has not been activated up to now 100: "Duplicate IP Address", address not active	
21	Reserved	
22	<b>Validity of device IP settings</b> 0: IP settings valid 1: Invalid IP settings (address and gateway in different networks)	
23	<b>Status of IP communication</b> 0: IP communication possible 1: No IP communication possible (resources missing)	
25... 24	<b>Status of FPGA Rx Buffer</b> 00: FPGA Rx Buffer able to receive data 01: FPGA Rx Buffer temporarily busy 10: FPGA Rx Buffer permanently busy	
27... 26	Reserved	

Product-Specific Parameters

Bit	Designation/function	Comment
29... 28	<b>Status of FPGA Tx Buffer</b> 00: FPGA Tx Buffer able to receive data 01: FPGA Tx Buffer temporarily busy 10: FPGA Tx Buffer permanently busy	
31... 30	Reserved	

Tab.5-214: P-0-1544, Engineering: Status IP communication

P-0-1544 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

## 5.11 P-0-1600 to P-0-1999 Cross Communication Drives (CCD)

### 5.11.1 P-0-1600, CCD: Configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter serves to configure the CCD communication in the CCD master.

See also Functional Description "Cross-Communication (CCD)"

**Structure** The bits of the configuration word have the following significance and function:

Bit	Designation/function	Comment
0	<b>Activation of cross communication in the master</b> 0: CCD master not active 1: CCD master active	
1	Reserved	
2	Reserved	
4/3	<b>CCD operation mode</b> 00: CCD system mode 01: MLD-M system mode 10: CCD basic mode	
5	<b>Decoupling from CCD phase switchover:</b> 0: Coupling to OM/PM switchover of CCD master (behavior in the past) 1: No coupling to OM/PM switchover of CCD master (default setting)	MPC-17VRS

## Product-Specific Parameters

Bit	Designation/function	Comment
6	<b>Synchronization of system times</b> <b>0:</b> Function is switched off <b>1:</b> The system time (P-0-0197) of the CCD master is distributed to the CCD slaves on CCD phase startup	MPC-17VRS
8/7	<b>CCD error reaction</b> <b>00: No reaction:</b> There is no reaction to errors of the CCD node. Any desired reaction has to be programmed in the control unit. <b>01: Simple error reaction:</b> In case of errors in a CCD node, warning "E2140" is displayed in the master. <b>10: Master-controlled synchronous error reaction</b> If this error reaction is active, parameter "P-0-170x, CCD: Diagnostic message number slave x" is cyclically evaluated and accordingly reacts to the slaves in the master. Bit 10 can be used to select whether "P-0-1790x" and "S-0-0390" are configured automatically for all slaves. <b>11: Automatic complete error reaction:</b> As soon as an error occurs in an axis, all axes are decelerated as parameterized in "P-0-0119". Error F2140/E2140 is set in the master.	
9	<b>Only in effect if bit 8/7 = 10</b> Definition of the reaction of the CCD master to an F8xxx error in the CCD group <b>0:</b> Torque disable; master clears "Drive enable" in the master control word of the CCD slaves <b>1:</b> Best possible deceleration; master clears "Drive on" in the master control word of the CCD slaves	
10	<b>CCD group error reaction if bit 8/7 = 10</b> Definition of whether "S-0-0390" of the slaves is automatically configured in AT, i.e., whether all slaves participate in the error reaction. <b>0:</b> Group reaction active <b>1:</b> Selective error reaction of the slaves (manual configuration)	

Product-Specific Parameters

Bit	Designation/function	Comment
11	<b>Reaction in case of telegram failure</b> If the number of telegram failures in phase 4 exceeds the number parameterized in "P-0-1639", error F4140 is generated. <b>Bit 11 = 0:</b> The master attempts a phase return to phase 2 via phase 0. <b>Bit 11 = 1:</b> The master continues to preset phase 4.	
13	<b>Only in effect if bit 8/7 = 10</b> Is used to define the reaction of the CCD master to a non-fatal error and errors of class F6/F7xxx in the CCD group. <b>0:</b> No additional reaction <b>1:</b> Master clears "Drive on" in the master control word of the CCD slaves	

Tab.5-215: CCD Configuration

**Use** Observe the following aspects for parameter setting:



"P-0-1600" is only set in the CCD master because CCD slaves are mere SERCOS III drives.

**Bits 4/3: CCD operation mode** for the CCD group. Depending on the application, the appropriate mode must be selected:

- 00: CCD system mode:**  
 Commands for the CCD slaves are triggered by the higher-level control (remote and external with profile interpreter with profile 0xFFFFE and 0xFFFFD) or, where appropriate, by the local MLD in the CCD slaves with constant control and profile type FFFD.  
 Process data can be exchanged between CCD master and slaves, as well as between the external control and CCD slaves --> CCD slaves are known in the external control.
- 01: MLD-M system mode:**  
 Commands for the CCD slaves are triggered by the external control unit via MLD in the master drive or via P165x in the master. Process data are only exchanged between the CCD master and the slaves --> CCD slaves are not known in the external control unit.
- 10: CCD basic mode:**  
 Command triggering of CCD slaves can be by higher-level control unit (remote external, but without profile interpreter) via parameter P165x in the master, via MLD in the master drive or, where possible, via local MLD-S with permanent/local control. Process data are only exchanged between CCD master and slaves --> CCD slaves are not known in the external control.

**Bit 5: Decoupling from CCD phase switchover:**

This allows restoring the past behavior in versions below MPC-08:

- 1: No coupling to OM/PM switchover of CCD master:**  
 OM/PM switchover in the CCD master (C02 or C04) does not affect phase switchover of the CCD group. If the CCD group is in phase 4, a switchover to PM of the CCD master does not cause a phase return to CCD phase 2. In the CCD slaves, SERCOS phase startup is decoupled

## Product-Specific Parameters

from the device switchover, with the result that an error occurring during initialization of the axis does not lead to abortion of the CCD phase startup (default setting).

- **0: Coupling to PM<->OM switchover of CCD master:**

Permanent coupling of CCD phase switchover to OM/PM switchover in the CCD master. A switchover to PM in the CCD master always results in specification of CCD phase 2. An error occurring in switchover command C02 (OM) of a CCD node always leads to abortion of the CCD phase startup (past behavior in versions below MPC-08).

**Bits 8/7: Error reaction:**

- **00: No reaction**

In case of an error in a CCD axis, other CCD axes are not automatically decelerated. A group error reaction has to be explicitly programmed by the control unit.

- **01: Simple error reaction:** In case of errors in a CCD node, warning E2140 is displayed in the master.

- **10: Master-controlled synchronous error reaction**

If the error reaction is active, parameter "P-0-170x, Diagnostic message number slave x" is cyclically evaluated. For this purpose, "P-0-170x" must be configured for each slave in "P-0-1624". In "P-0-1626", parameter "S-0-0390" must have been entered at the corresponding place. The error reactions of both master and slaves are dependent on the error number detected.

- **11: Automatic complete error reaction:**

If the CCD master detects that an axis in the CCD group (master or slave) signals a class 1 diagnostics error, all axes are decelerated with best possible deceleration, as parameterized in "P-0-0119". The CCD master outputs error "F2140 CCD slave error". If the CCD master is not in control mode, only warning E2140 is displayed.

**Bit 10: CCD error reaction on the master side** (only in case of a master-controlled synchronous error reaction)

- If a slave in the CCD axis group is not to participate in the activated error reaction in the master, the automatic parameterization of the slave diagnosis for all slaves must be switched off with bit 10 of "P-0-1600". In this case, the entries for the diagnostic message numbers of the slaves to participate in the error reaction must be made manually in "P-0-1624" and "P-0-1626".

(P-0-1624[i] = P-0-170x and P-0-1626[i] = S-0-0390)

<b>P-0-1600 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			s. Text	
<b>MPC:</b>		--- / ---			s. Text	
<b>MPE:</b>		--- / ---			s. Text	
<b>MPM:</b>		--- / ---			s. Text	

## 5.11.2 P-0-1601, CCD: Addresses of projected drives

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		

## Product-Specific Parameters

<b>Funct. package(s):</b>	"open loop", "closed loop"
<b>Device parameter:</b>	device-specific

**Function** This parameter is used along with the drive cross communication (CCD) to list the addresses of the CCD slaves (drives) projected in the CCD group, thus establishing the assignment of the actual drive address and drive number (logical drive address) in the CCD group.

If all projected drives are detected (contained in P-0-1603), the addresses are entered in the same order as given in P-0-1601 and applied to P-0-4031. The order can be selected as desired and is applied after the address of the CCD master according to P-0-4031(P0->P1). On transition to P2, it is verified whether the addresses projected here are also of the drive type.

See also Functional Description "Cross Communication (CCD)"



If the address of a SERCOS III slave, which is not contained in the list of device addresses, is mentioned in "P-0-1601", command error E4013 is generated.

**Structure** The list parameter (2 bytes per element) has the following structure and content:

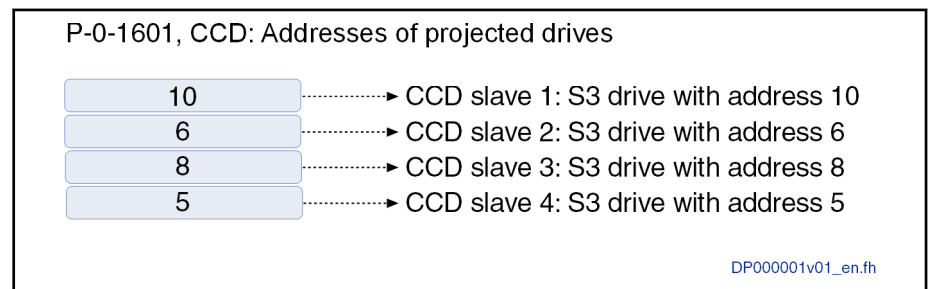


Fig.5-216: P-0-1601, CCD: Addresses of projected drives

**Use** Observe the following aspects for parameterizing P-0-1603:

- P-0-1601 is only present in the CCD master and must therefore be parameterized there.
- The drive having the address entered in list element 0 corresponds to CCD drive 1, etc.
- A projected slave can be deactivated via bit 15 = 1 in a list element. As a result, the order of parameterization in the CCD lists and the PLC programs can be identical for similar applications.



When all CCD slaves have been deactivated, X24 has to be connected to X25 with a SERCOS cable.

### P-0-1601 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>	---		---	s. Text	
<b>MPC:</b>	---		---	s. Text	
<b>MPE:</b>	---		---	s. Text	
<b>MPM:</b>	---		---	s. Text	

## 5.11.3 P-0-1602, CCD: Timing settings

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»

## Product-Specific Parameters

<b>Hardware</b>	optional drives card
<b>Funct. package(s):</b>	"open loop", "closed loop"
<b>Device parameter:</b>	device-specific

**Function** This parameter contains the cycle times and timing settings used for cross communication (CCD), which are automatically configured internally in the CCD master.



Parameter "P-0-1602" is for diagnostic purposes only. The CCD cycle time is set depending on the selected CCD mode, the shortest connection cycle time, and parameter "S-0-0001" or "P-0-1610".

**Structure**

See also Functional Description "Cross-Communication (CCD)"

Element 0	2000,000	Motion (CCD) cycle time
Element 1	2000,000	S-0-1002, SERCOS III: Communication Cycle time (tScyc)
Element 2	1954,480	S-0-1006, SERCOS III: AT0 transmission starting time (t1)
Element 3	1254,480	S-0-1007, SERCOS III: Feedback acquisition starting time (t4)
Element 4	31,500	S-0-1008, SERCOS III: Command value valid time (T3)
Element 5	0,000	MDT start time
Element 6	500,00	X-clock CCD master (P-0-0556)
Element 7	6,270	S-0-1015, SERCOS III: Ring delay
Element 8	485,880	S-0-1017, SERCOS III: NRT transmission time - start (t6)
Element 9	1485,880	S-0-1017, SERCOS III: NRT transmission time - end (t7)
Element 10	5,120	S-0-1023, SYNC jitter

Tab.5-217: P-0-1602, CCD: Timing Settings With Example Times

**P-0-1602 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.4 P-0-1603, CCD: Actual topology addresses

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is used in conjunction with the drive cross communication (CCD). It displays the addresses of the SERCOS III slaves (drives and I/Os) found in phase 0, in ascending order according to their topology (list element 0 corresponds to CCD slave directly at CCD master, etc.). Only the slaves contained in this list can be addressed in CCD phase 2 and higher phases. Up to phase 2, multiple addresses can exist.

If "P-0-1601" contains drives not contained in "P-0-1603", warning "E4013" or "C0265" is generated while command "C0200" is executed.

## Product-Specific Parameters

If the command topology in "P-0-1636" differs from the actual topology, warning "E4013" is generated in CCD phase 2. Switching on to CCD phase 3 or 4 is impossible.

The command and actual topologies must always be identical. Either the entries in "P-0-1636" must be adjusted to the actual topology or the addresses of the CCD slaves must be set to the command topology by means of command "P-0-1635, CCD: Command Adjust slave addresses" (C7000).

See also Functional Description "Cross-Communication (CCD)"

**Structure** The list parameter (2 bytes per element) has the following structure and content:

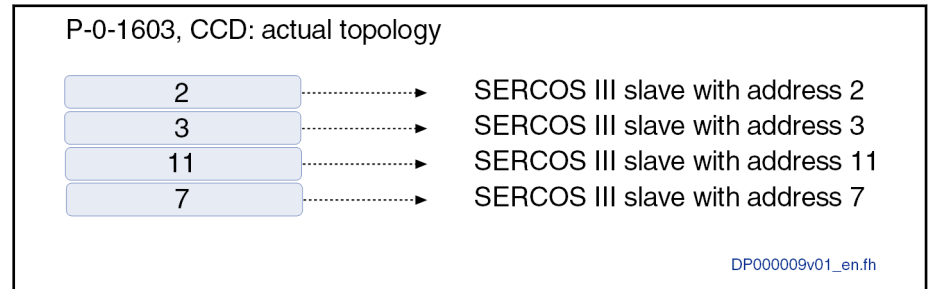


Fig. 5-218: P-0-1603, CCD: Actual topology

### P-0-1603 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>	--- / ---	---
<b>MPC:</b>	--- / ---	---
<b>MPE:</b>	--- / ---	---
<b>MPM:</b>	--- / ---	---

## 5.11.5 P-0-1604, CCD: Addresses of projected I/Os

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is used along with the drive cross communication (CCD) to list the addresses of the CCD slaves (I/Os) projected in the CCD group, thus establishing the assignment of the actual I/O address and I/O number (logical I/O address) in the CCD group.

If all configured I/Os are detected (contained in P-0-1603), the addresses are entered in the same order as given in "P-0-1604" and applied to "P-0-4031". The order can be selected as desired and is applied after the drive addresses according to "P-0-4031" (P0->P1). On transition to P2, it is verified whether the addresses configured here are indeed allowed I/Os.

See also Functional Description "Cross-Communication (CCD)"



If the address of a SERCOS III slave, which is not contained in "P-0-1603, CCD: Actual topology addresses", is mentioned in "P-0-1604", warning "E4013" is generated.

**Structure** The list parameter (2 bytes per element) has the following structure and content:

# Product-Specific Parameters

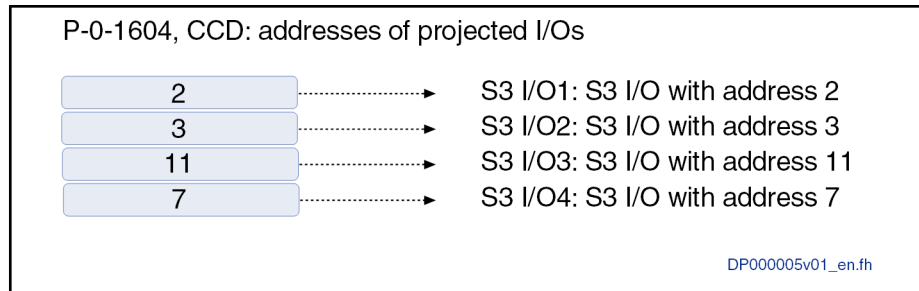


Fig. 5-219: P-0-1604, CCD: Addresses of projected I/Os

**Use** Observe the following aspects when parameterizing "P-0-1604":

- "P-0-1604" is only present in the CCD master and must therefore be parameterized there.
- The I/O module having the address entered in list element 0 corresponds to CCD I/O 1, etc.

If bit 15 = 1 in a list element, a configured slave can be deactivated. As a result, the order of parameterization in the CCD lists and the PLC programs can remain identical for similar applications.

## P-0-1604 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>	--- / ---	s. Text
<b>MPC:</b>	--- / ---	s. Text
<b>MPE:</b>	--- / ---	s. Text
<b>MPM:</b>	--- / ---	s. Text

## 5.11.6 P-0-1605, CCD: Command communication phase

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is used to specify the command phase for the CCD group.



P-0-1605 is only available in the CCD master.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects when writing to this parameter:

- Possible phase specification:
  - 0: P0
  - 1: P1
  - 2: P2
  - 3: P3
  - 4: P4
- Normally, the CCD phase is automatically specified in the CCD master by commands "P-0-1620.0.5" (up to MPx-07 "S-0-0420") and "P-0-1620.0.6" (up to MPx-07 "S-0-0422"), i.e., the CCD master internally writes to "P-0-1605".

## P-0-1605 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV

Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	0 / 4		---		
MPC:	0 / 4		---		
MPE:	0 / 4		---		
MPM:	0 / 4		---		

### 5.11.7 P-0-1606, CCD: Actual communication phase

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter displays the actual communication phase of the CCD group.



The user cannot change P-0-1606 and this parameter is available in the CCD master for diagnostic purposes only!

See also Functional Description "Cross Communication (CCD)"

P-0-1606 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

### 5.11.8 P-0-1607, CCD: Axis error

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains the class 1 diagnostics error bits of the CCD nodes.

Bit No.	Description
0	class 1 diagnostics bit of master
1	class 1 diagnostics bit of slave 1
2	class 1 diagnostics bit of slave 2
3	class 1 diagnostics bit of slave 3
4	class 1 diagnostics bit of slave 4
5	class 1 diagnostics bit of slave 5
6	class 1 diagnostics bit of slave 6
7	class 1 diagnostics bit of slave 7
8	class 1 diagnostics bit of slave 8
9	class 1 diagnostics bit of slave 9

Tab.5-220: Class 1 diagnostics error bits

P-0-1607 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.9 P-0-1608, CCD: Control word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter can be used to control the functions of the CCD master during ongoing operation. The parameter is not stored.

**Structure**

Bit	Designation/function	Comment
0	<b>Target phase</b> 0: Synch. osci. function in CCD master deactivated (default) 1: Synch. osci. function in CCD master activated	

Tab.5-221: CCD Control Word

## P-0-1608 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.10 P-0-1609, CCD: Status word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter provides information about the CCD status.

**Structure**

Bit	Designation/function	Comment
3-0	<b>Target phase</b> SERCOS phase which is to be entered	
7-4	<b>Actual phase</b> Currently active SERCOS phase	
8	<b>Phase switch active</b> There is an attempt to switch to the target phase	
9	<b>Phase switch aborted with error</b> An error has occurred during switching to the target phase.	
10	<b>Parameter channel not available</b> At present, the parameter channel is not available because the actual phase is < 2 or phase switch is active.	

Tab.5-222: CCD Status

Product-Specific Parameters

See also Functional Description "Cross-Communication (CCD)"

P-0-1609 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.11 P-0-1610, CCD: Cycle time

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter can be used to set a CCD cycle time shorter than the master communication cycle time "S-0-0001" (S-0-1050.x.10 in MPx-07 and above) of the CCD master (consumer connection).

See also Functional Description "Cross-Communication (CCD)"

**Use** The resulting NC cycle time which the CCD specifies to the CCD slaves in "S-0-0001" (S-0-1050.x.10 in MPx-07 and above) results from the lower value of "S-0-0001" (S-0-1050.x.10 in MPx-07 and above) of the CCD master (consumer connection) and "P-0-1610" of the master. This means that if the value in "P-0-1610, CCD: Cycle time" is unequal to 0 and shorter than the master communication cycle time of the master "S-0-0001" (S-0-1050.x.10 in MPx-07 and above), "P-0-1610" is specified as NC cycle time for the CCD slaves.

P-0-1610 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,000 / 4000,000	0,000
MPC:	0,000 / 4000,000	0,000
MPE:	0,000 / 4000,000	0,000
MPM:	0,000 / 4000,000	0,000

### 5.11.12 P-0-1610.0.3, CCD: Actual topology

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1610.0.3" displays the actual topology (status of the SERCOS ring) of the slave interfacing.

- 0 = no line at port and port 2
- 1 = line at port 1
- 2 = line at port 2
- 3 = line at port 1 and line at port 2
- 4 = dual ring

See also Functional Description "Cross-Communication (CCD)"

**Use** The actual topology is used to monitor the command topology (see P-0-1620.003).

## Product-Specific Parameters

<b>P-0-1610.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.11.13 P-0-1610.0.21, CCD: Slave addresses at end of line

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter P-0-1610.0.21 is a list parameter with two list element. In the topology is a line topology, this parameter is filled with the addresses of the CCD slaves at the end of the lines.. If there is a dual ring, both list elements contain the value 0.

List element 0 = address of the CCD slave at the end of the line at port 1

List element 1 = address of the CCD slave at the end of the line at port 2

If no slave is connected to anyone port of the CCD master, the associated list element displays the value 0. This parameter can be used for diagnosing a ring breakage.

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1610.0.21 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.11.14 P-0-1610.0.30, CCD: Diagnostic message text

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1610.0.30" displays the status of the CCD master, i.e., of the CCD communication.



The status is displayed in plaintext (ASCII characters).

See also Functional Description "Cross-Communication (CCD)"

**Use** In combination with the diagnostic message number (cf. S-0-0390), this extended diagnostic message text is helpful for analyzing the CCD axis system during commissioning, i.e., during configuration.

For example, the following text messages can be displayed:

The numbers following the slave, drive or I/O have the following significance:

- Drive 0 or slave 0, local axis or virtual slave
- Slave 1 to slave x, real SERCOS slaves

Product-Specific Parameters

- Drive 1 to drive x, removed SERCOS axes
- I/O 1 to I/O x, removed SERCOS I/Os
- "Run-up not yet started..."
- "Initialization started..."
- "Telegram configuration drive started ..."
- "Telegram configuration I/O started ..."
- "Offset calculation started..."
- "Timing calculation started..."
- "Initialization successfully completed!"
- **"Number of slaves configured > number of slaves found!"** The number of CCD slaves configured in "P-0-1601" and "P-0-1604" is higher than the number of CCD slaves connected to the CCD master or found during scanning.
- **"Configured slave was not recognized in P-0-1603!"** A slave configured in "P-0-1601" or "P-0-1604" was not found in parameter "P-0-1603, CCD: Actual topology addresses".
- **"Configured slave was not recognized in P-0-1636!"** A slave configured in "P-0-1601" or "P-0-1604" was not found in parameter "P-0-1636, CCD: Command topology addresses".
- **"Error during PLC initialization in MLDM-Mode!"** During switchover from phase 2 to phase 4, an error occurred while initialization of the PLC was in progress, e.g., write task to a remote axis failed. Maybe the flash or control section is defective. Contact the service team!
- **"Error: NC cycle time is not supported!"** The NC cycle time is not supported. See documentation for allowed combinations of CCD mode, performance and CCD cycle time.
- **"Error: Config. of signal status/control word (P-0-1611/12)"** Non-allowed IDNs are entered in the configuration for the signal control/status word of the virtual slave (element 0-15 P-0-1611/12).
- **"Error: Timing calculation"** An error occurred during calculation of SERCOS timing.
- **"Error: CC cycle time not supported"** A cycle time which is not supported by the CCD master is entered in the CCD slave (S-0-1050.2.10 or S-0-1050.3.10) with a connection that was configured externally. Or a cycle time which is not supported by the CCD master is entered for a CC connection of the master (P-0-1645.x.10).
- **"Error: Calculation of MS-MDT/ATConnection!"** Initialization of the parameterized connections in the CCD master and the CCD slaves failed.
- **"Error: Config. ext. Connection S-0-1050.2.x or S-0-1050.3.x"** The calculations for parameterized connections in the CCD master and the CCD slaves failed. No producer connection was found to one of the consumer connections (see SE-2 in S-0-1050.x.2 of the slaves or P-0-1645.x.2 of the master).
- **"Error: Number of active Slaves in P-0-1603/P-0-1636 not equal"** The number of active slaves whose address is contained in "P-0-1636" was not found by the master. In phase 0, the master waits for further slaves or addresses must be deleted from "P-0-1636".
- **"Error: Values in P-0-1603 and P-0-1636 not equal"** Not all of the addresses of active slaves entered in "P-0-1636" were found in the actual topology. There are duplicate addresses or other addresses were found.

## Product-Specific Parameters

Set the address on the slaves or assign remote addresses after having checked the address topology assignment of "P-0-1636".

- **"The CCD motion cycle time is not allowed for motion task"** (see Section "Task System" in Chapter "Basic Functions of Rexroth IndraMotion MLD").
- **"Error: Address of projected drive and I/O must be unique"** There may be no duplicate address for the configured drives and I/Os in "P-0-1601" and "P-0-1604".
- **"Number of CCD-Slaves not allowed at this mode or cycle time"** The number of slaves in this mode and this cycle time is not allowed.
- **"MLDM-Mode not allowed in advanced performance"** MLD-M not allowed with Advanced performance.
- **"Error when reading T4min-Time (S-0-1005)"** Error while the T4min time "S-0-1005" of a slave of the drive type is read.
- **"Error: IDN in Master CC Connection not allowed"** An IDN which is not cyclically allowed for this connection type (producer/consumer) is parameterized in parameter "P-0-1645.x.6".
- **"Error: Length/Typ of Master CC Connection not allowed"** The total length of all data of the CC connection or the type of an IDN of the CC connection in "P-0-1645.x.6" is not allowed.
- **"Error: Configuration real-time bits Master CC"** The parameterization of the real-time bits of a CC connection of the CCD master is faulty (IDN not suitable for real-time bits). See P-0-1645.x.20/21.
- **"Error: Writing I/O x configuration (S-0-1504.0.20)"** Error during configuration of the I/O x S-0-1504.0.20.
- **"Error when writing S/P-X-XXXX Slave x (Code 0x....)"** An error with SERCOS code 0xXXXX has occurred during writing parameter S/P-X-XXXX to slave x via the service channel.
- **"Error when reading S/P-X-XXXX Slave x (Code 0x....)"** An error with SERCOS code 0xXXXX has occurred during reading parameter S/P-X-XXXX from slave x via the service channel.
- **"Error at command execution of S/P-0-XXXX Slave x"** An error has occurred during execution of command S/P-0-XXXX on slave x. For more details, please refer to the slave diagnostics.
- **"Timeout for command acknowledgment of S/P-0-XXXX Slave x"** The command S/P-0-XXXX that has been started on slave x was not completed within 25 s with or without error.
- **"Switching to phase x successfully carried out"**
- **"Error when switching to phase x (Code 0x....)"** An error with code 0xXXXXXX was signaled during SERCOS phase transition (soft phase switch). It was not possible to switch to SERCOS phase X.
- **"Error: Type of SERCOS-I/O x unknown"** The type of the SERCOS I/O is not allowed. It is only allowed to operate SERCOS I/Os for which a defined length and SCP version 1.1 are entered in parameter S-0-1000 = 0x0101.
- **"Error: Length of SERCOS-I/O x not allowed"** Error: The length of the SERCOS I/O data exceeds the allowed length of 48 bytes.
- **"Error: Drive x in P-0-1601 is not an allowed drive type"** The drive configured in P-0-1601 is not supported by the CCD master; no IndraDrive with expected parameters.

## Product-Specific Parameters

- **"Error: I/O x in P-0-1604 is not an allowed I/O type"** The I/O configured in "P-0-1604" is not supported by the CCD master; no compact I/O with expected SCP version 1.1.
- **"Data length for I/O x Output exceeded, P-0-1627"** The maximum length of the output data of an I/O has been exceeded. Correction required in "P-0-1627".
- **"Data length for I/O x Input exceeded, P-0-1628"** The maximum length of the input data of an I/O has been exceeded. Correction required in "P-0-1628".
- **"Data length for MDT drive x exceeded, P-0-1621/25"** The maximum length of the MDT data of a drive has been exceeded. Correction required in "P-0-1621" or "P-0-1625".
- **"Data length for AT drive x exceeded, P-0-1622/26"** The maximum length of the AT data of a drive has been exceeded. Correction required in "P-0-1622" or "P-0-1626".
- **"Error: Configured IDN P/S-x-xxxx I/O x Output, P-0-1627"** The configured IDN for the output data of the I/O is not allowed. Correction required in "P-0-1627".
- **"Error: Configured IDN P/S-x-xxxx I/O x Input, P-0-1628"** The configured IDN for the input data of the I/O is not allowed. Correction required in "P-0-1628".
- **"Number of IDN for MDT exceeded drive x"** The number of configured IDNs for a drive is too high. Correction required in "P-0-1621" or P-0-1623/25.
- **"Number of IDN for AT exceeded drive x"** The number of configured IDNs for a drive is too high. Correction required in "P-0-1622" or P-0-1624/26.
- **"Error: Config. IDN P/S-x-xxxx for MDT drive x, P-0-1621/23/25"** The configured IDN for the MDT data of the drive is not allowed. Correction required in "P-0-1621" or P-0-1623/25.
- **"Error: Config. IDN P/S-x-xxxx for AT drive x, P-0-1622/24/26"** The configured IDN for the AT data of the drive is not allowed. Correction required in "P-0-1622" or P-0-1624/26.
- **"Different number of IDN for MDT drive x, P-0-1623/25"** The number of IDNs configured for the MDT data is different in "P-0-1623" and "P-0-1625".
- **"Different number of IDN for AT drive x, P-0-1624/26"** The number of IDNs configured for the AT data is different in "P-0-1623" and "P-0-1625".
- **"IDN mismatch P/S-x-xxxx for MDT drive x, P-0-1623/25"** The IDNs in a master->slave MDT connection do not match each other, e.g., S-0-0084 -> S-0-0036 (different length). Correction required in "P-0-1623" or "P-0-1625".
- **"IDN mismatch P/S-x-xxxx for AT drive x, P-0-1624/26"** The IDNs in a master-<-slave AT connection do not match each other, e.g., S-0-0036 -> S-0-0084 (different length). Correction required in P-0-1624 or P-0-1626.
- **"IDN P/S-x-xxxx is auto.config. for MDT drive x, P-0-1625"** The IDN configured for the MDT is used for internal purposes and cannot be assigned by the user any more. Correction required in P-0-1625.

See also Application Manual "IndraMotion MLD"

## Product-Specific Parameters

<b>P-0-1610.0.30 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.15 P-0-1610.0.31, CCD: Diagnosis code

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter displays a diagnosis code for error "F4140 CDD communications error" which does not allow a more detailed diagnosis of the error cause.

- 0x00000000 = no error
- 0x00000001 = unallowed phase return (P-0-1605 was set to a value unequal to 4 without taking the CCD master into account)
- 0x0001xxxx = Failure of Bus-Slave-Valid in S-Dev of Slave x; slave does not enter any data in AT (bit 0 = slave 1, bit 1 = slave 2, etc.)
- 0x00020020 = no link at port 1 and port 2
- 0x00020021 = double AT failure
- 0x00022001 = no valid topology detected (line P1, line P2 or dual ring)

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1610.0.31 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.16 P-0-1611, CCD: Configuration list signal status word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** List parameter for configuring the signals (cf. S-0-0026) of the signal status words in all CCD slaves.

See also Functional Description "Cross Communication (CCD)"

**Structure** The parameter has a list structure; and the following applies:

- The first 16 list elements are reserved for the virtual slave in the master.
  - The next 16 list elements are written to "S-0-0026" of slave 1.
  - The next 16 list elements are written to "S-0-0026" of slave 2.
- etc.

Product-Specific Parameters

<b>P-0-1611 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		s. Text		
	<b>MPC:</b>	--- / ---		s. Text		
	<b>MPE:</b>	--- / ---		s. Text		
	<b>MPM:</b>	--- / ---		s. Text		

### 5.11.17 P-0-1612, CCD: Configuration list signal control word

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
Function	List parameter for configuring the signals (cf. S-0-0027) of the signal status words in all CCD slaves. See also Functional Description "Cross Communication (CCD)"				
Structure	The parameter has a list structure; and the following applies: <ul style="list-style-type: none"><li>• The first 16 list elements are reserved for the virtual slave in the master.</li><li>• The next 16 list elements are written to "S-0-0027" of slave 1.</li><li>• The next 16 list elements are written to "S-0-0027" of slave 2.</li></ul> etc.				

<b>P-0-1612 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		s. Text		
	<b>MPC:</b>	--- / ---		s. Text		
	<b>MPE:</b>	--- / ---		s. Text		
	<b>MPM:</b>	--- / ---		s. Text		

### 5.11.18 P-0-1613, CCD: Assignment list signal status word

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
Function	List parameter to configure the bits (cf. S-0-0328) of the signal status words in all CCD slaves. See also Functional Description "Cross Communication (CCD)"				
Structure	The parameter has a list structure; the following points apply to it: <ul style="list-style-type: none"><li>the first 16 list elements are reserved for the virtual slave in the master</li><li>the next 16 list elements are written in S-0-0328 of slave 1</li><li>the next 16 list elements are written in S-0-0328 of slave 2 etc.</li></ul>				

<b>P-0-1613 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		s. Text		
	<b>MPC:</b>	--- / ---		s. Text		

## Product-Specific Parameters

MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.19 P-0-1614, CCD: Assignment list signal control word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		

**Function** List parameter to configure the bits (cf. S-0-0329) of the signal control words in all CCD slaves.

See also Functional Description "Cross Communication (CCD)"

**Structure** The parameter has a list structure; the following points apply to it:

- the first 16 list elements are reserved for the virtual slave in the master
- the next 16 list elements are written in S-0-0329 of slave 1
- the next 16 list elements are written in S-0-0329 of slave 2 etc.

P-0-1614 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

## 5.11.20 P-0-1615, CCD: Extrapolated cmd value IDN list signal selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The transmission delay between CCD master and slaves must be compensated for which reason the command value for the slaves is extrapolated. This is achieved by means of parameter "P-0-1615" which serves as a selection list for parameterizing "P-0-1616".

See also Functional Description "Cross-Communication (CCD)"

P-0-1615 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.21 P-0-1616, CCD: Extrapolated cmd value signal selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The transmission delay between CCD master and slaves must be compensated for which reason the command value for the slaves is extrapolated. To

## Product-Specific Parameters

achieve this, parameter "P-0-1616" is used for configuring the CCD master signal used for extrapolation.



The extrapolated value is then entered in parameter "P-0-1618, CCD: Extrapolated command value".

See also Functional Description "Cross Communication (CCD)"

### P-0-1616 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.22 P-0-1617, CCD: Number of extrapolation steps

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** The transmission delay between CCD master and slaves must be compensated for which reason the command value for the slaves is extrapolated. To achieve this, the number of extrapolation steps to be taken is specified in "P-0-1617".

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects when setting "P-0-1617":

- The extrapolation covers n SERCOS cycles.
- The range of input values is from 0 to 2.

### P-0-1617 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 3	2
MPC:	0 / 3	2
MPE:	0 / 3	2
MPM:	0 / 3	2

## 5.11.23 P-0-1618, CCD: Extrapolated command value

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** The transmission delay between CCD master and slaves must be compensated for which reason the command value for the slaves is extrapolated. To achieve this, the extrapolated command value is entered in "P-0-1616" and can then be assigned to the slaves (P-0-1623.x = P-0-1618).

See also Functional Description "Cross-Communication (CCD)"

### P-0-1618 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.24 P-0-1619, CCD: Slave information at topology location

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1619" provides different pieces of information on the recognized slaves at the topology location. The parameter is created in binary format (4-byte list).

The information in this parameter serves to diagnose the slaves via the topology location and can be adjusted and displayed via the commissioning software "IndraWorks Ds/D/MLD".

The following information is provided for each slave:

- Vendor Code
- Device Name
- Vendor Device ID
- Connected to sub-device
- Serial number
- FSP type

Addressing variant with:

0 = no information or slave not available.

1 = address can be set via switch/control panel; remote address assignment not possible.

2 = address can be set via switch/control panel or remote address assignment.

3 = address can only be set via remote address assignment.

**Function** The topology location is the physical position of the slave at the sercos master interface. Observe the following aspects for the different wiring topologies:

- Line at port 1:

SI 0 = 1st slave at port 1 of the master

SI 1 = 2nd slave at port 1 of the master, etc.

- Line at port 2:

SI 0 = 1st slave at port 2 of the master

SI 1 = 2nd slave at port 2 of the master, etc.

If the configured command topology is a ring, the addresses of the slaves are displayed in reverse order at port 2 so that, if the ring is interrupted, it is of no relevance whether the ring is interrupted directly at port 2 of the master or between two slaves.

- Ring: same as line at port 1

- 2 lines: same as ring without interruption

"0" means that the parameter in the slave is SI = 0 in each case. There may also be several SIs in a slave.

See also Functional Description "Cross-Communication (CCD)"

Product-Specific Parameters

<b>P-0-1619 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.25 P-0-1620.0.3, CCD: Command topology

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** Parameter "P-0-1620.0.3" serves to define the command topology of the slave interfacing.

- 0 = no monitoring
- 1 = line at port 1
- 2 = line at port 2
- 3 = line 1 at port 1 and line at port 2
- 4 = dual ring

Monitoring of the "actual topology" is active if a value unequal to 0 is parameterized in the parameter. If the "actual topology" from "P-0-1610.0.3" is different from the "command topology", the warning "E4016" is output.

See also Functional Description "Cross Communication (CCD)"

**Use** The command topology from "P-0-1620.0.3" is used to monitor the "actual topology" (see P-0-1610.0.3).

<b>P-0-1620.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		0 / 4		0	
	MPC:		0 / 4		0	
	MPE:		0 / 4		0	
	MPM:		0 / 4		0	

## 5.11.26 P-0-1620.0.4, CCD: Slave identification

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** Parameter "P-0-1620.0.4" can be used to control the diagnosis LED of a SERCOS III slave in phases 2 to 4 of the CCD group by entering a topology location via the CCD master. If value 0 is entered, the function is deactivated. It allows unique assignment of a CCD slave to an address from parameter "P-0-1636". This function is useful for remote address assignment.

Topology location 1 corresponds to 1 element from parameter "P-0-1603", etc.

<b>P-0-1620.0.4 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input			min./max.	Default value	
MPB:			0 / 32	---	
MPC:			0 / 32	---	
MPE:			0 / 32	---	
MPM:			0 / 32	---	

## 5.11.27 P-0-1620.0.5, C7400 CCD: Switching to phase 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This command can be used to switch the CCD communication over to SERCOS phase 2. Parameter "P-0-1605, CCD: Command communication phase" is set to phase 2. Thereafter, an attempt is made to reach "Phase 2" via "Phase 0" and "Phase 1". This should be done only if the CCD master is not in OM because otherwise error "F4140" is output.

See also Functional Description "Cross-Communication (CCD)"

P-0-1620.0.5 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input			min./max.	Default value	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.11.28 P-0-1620.0.6, C7500 CCD: Switching to phase 4

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This command can be used to switch the CCD communication over to SERCOS phase 4. Parameter "P-0-1605, CCD: Command communication phase" is set to phase 4. Subsequently, an attempt is made to switch over to phase 4 via the SERCOS phase startup. During this startup, switching commands "S-0-0127" and "S-0-0128" of the SERCOS slaves are started. If an error occurs during this process or during phase switchover, the command is exited with an error.

See also Parameter Description "P-0-1630, CCD: Diagnosis"

See also Functional Description "Cross-Communication (CCD)"

P-0-1620.0.6 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input			min./max.	Default value	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.11.29 P-0-1620.0.21, C7100 CCD: Command Close ring

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The CCD master provides the command "P-0-1620.0.21" (C7100) for ring healing purposes. This allows closing the line or the two lines to the dual ring in the "command topology" P-0-1620.0.3 = 4 (dual ring). If an error occurs during the command "C7100", the message "C7101 CCD: Impossible to close ring" is displayed.

Cause:

- CCD group not in phase 4
- Topology does not consist of a line or dual line
- No line available between the last nodes of the lines.
- New ring delay could not be transmitted to the slave.

See also Functional Description "Cross Communication (CCD)"

P-0-1620.0.21 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.30 P-0-1620.0.30, CCD: I/O selection for commando C72

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is used to select the modular I/O for which command "C7200 CCD: Command Apply I/O configuration" (1-4) is executed. A value of 0 applies the configuration for all modular I/Os.

See also Functional Description "Cross-Communication (CCD)"

P-0-1620.0.30 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0 / s. Text		---		
	MPC:	0 / s. Text		---		
	MPE:	0 / s. Text		---		
	MPM:	0 / s. Text		---		

## 5.11.31 P-0-1620.0.31, C7200 CCD: Commando Apply I/O configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This command is used to apply the content of parameter "S-0-1500.0.3" of each modular I/O connected to the CCD master to parameter P-0-1634.SI.1

Product-Specific Parameters

(SI = slave index). This ensures that, during the next CCD phase startup, the CCD master detects whether inline nodes have been exchanged for each other at the I/O bus coupler.

See also Functional Description "Cross-Communication (CCD)"

P-0-1620.0.31 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--


Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

5.11.32 P-0-1621, CCD: Configuration list master communication cmd values

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function
Parameter "P-0-1621" serves to configure the command values in "CCD system mode". In the group field bus connection, these command values are transmitted from the external field bus master via the CCD master to the CCD slaves in the MDT.

As a result, parameter "P-0-1621" corresponds to a list of command values which are provided via the master communication command value telegram (cf. P-0-4081) and which the master directly copies to the MDT CCD interface for the appropriate CCD slaves.



The content of "P-0-1621", along with the content of "P-0-1625", is also directly copied to the list of cyclic command values of the associated slave.

See also Functional Description "Cross-Communication (CCD)"

Structure
The configuration list has the following structure:

## Product-Specific Parameters

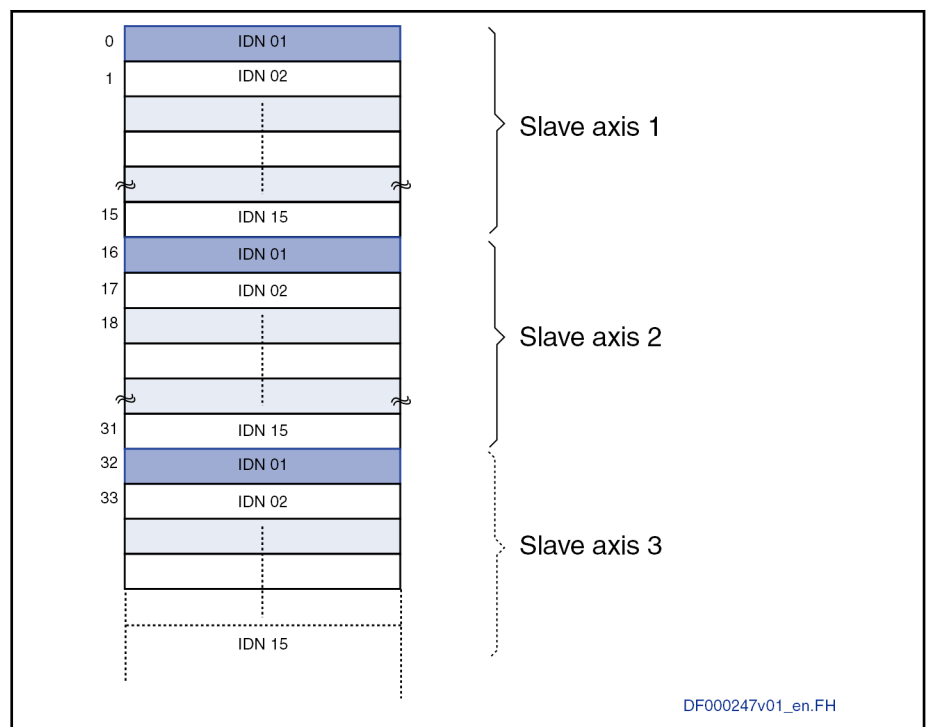


Fig.5-223: Structure of P-0-1621, CCD: Configuration List Master Communication Cmd Values

**Use** Observe the following aspects for parameter setting:

- Parameter "P-0-1621" allows only command values to be entered that can be configured cyclically (cf. S-0-0188).
- The cyclic master communication command values of the slaves are configured via "P-0-1621". The master communication command values of the CCD master are still entered in "P-0-4081".
- Due to the allowed maximum of 16 IDNs for each slave, the number of maximum possible entries is limited in "P-0-1621".

### P-0-1621 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>	--- / ---	s. Text
<b>MPC:</b>	--- / ---	s. Text
<b>MPE:</b>	--- / ---	s. Text
<b>MPM:</b>	--- / ---	s. Text

## 5.11.33 P-0-1621.x.1, CCD: Slave address in high level network

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Replacement parameter "P-0-232x" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter defines the SERCOS address of the CCD slaves in the master communication network of the CCD master (high level network). The address to be set is the address the master communication master can use to address the CCD slaves.

## Product-Specific Parameters

The reference to the CCD slave in the lower-level SERCOS III network is established via parameter "P-0-1601, CCD: Addresses of projected drives".

Parameter "P-0-1621.0.1" refers to the CCD slave with the SERCOS III address which is entered in element 0 of "P-0-1601".

Parameter "P-0-1621.1.1" refers to the CCD slave with the SERCOS III address which is entered in element 1 of "P-0-1601".

In CCD system mode for SERCOC, parameter "P-0-1621.x.1" has the additional function of the appropriate master communication parameter "S-0-1040" for the CCD slaves. Any write or read access to parameter "S-0-1040" by the SERCOS master is bypassed to parameter "P-0-1621.x.1" in the CCD master because parameter "S-0-1040" is used for SERCOS III communication in the CCD slave and can therefore not be used for SERCOS communication of the high level network.

See also Functional Description "Cross-Communication (CCD)"

## P-0-1621.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>			<b>Default value</b>	
	0 / 99			s. Text	
<b>MPC:</b>	0 / 99			s. Text	
<b>MPE:</b>	0 / 99			s. Text	
<b>MPM:</b>	0 / 99			s. Text	

## 5.11.34 P-0-1621.x.9, CCD: Master comm. C0100 Comm. phase 3 transition check

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** As of MPx-08VRS, the functionality has been integrated in parameter "P-0-1621.x.24".

In CCD system mode, parameter "P-0-1621.x.9" has the function of the appropriate master communication parameter "S-0-0127, C0100 Communication phase 3 transition check" for SERCOS II and EtherCAT. In the CCD master, initiation of the command is bypassed to parameter "P-0-1621.x.9" because parameter "S-0-0127" is reserved for SERCOS III communication in the CCD slave.

The appropriate action for the associated master communication slave is carried out in the CCD master.

See Functional Description "Cross-Communication (CCD)"

## P-0-1621.x.9 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	P23	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>			<b>Default value</b>	
	0x0 / 0x3			---	
<b>MPC:</b>	0x0 / 0x3			---	
<b>MPE:</b>	0x0 / 0x3			---	
<b>MPM:</b>	0x0 / 0x3			---	

### 5.11.35 P-0-1621.x.10, CCD: Master comm. C5200 Comm. phase 4 transition check

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** As of MPx-08VRS, the functionality has been integrated in parameter "P-0-1621.x.24".

In CCD system mode, parameter "P-0-1621.x.10" has the function of the appropriate master communication parameter "S-0-0128, C5200 Communication phase 4 transition check" for SERCOS and EtherCAT. In the CCD master, initiation of the command is bypassed to parameter "P-0-1621.x.10" because parameter "S-0-0128" is reserved for SERCOS III communication in the CCD slave.

The appropriate action for the associated master communication slave is carried out in the CCD master.

See Functional Description "Cross-Communication (CCD)"

#### P-0-1621.x.10 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	min./max.		Default value		
<b>MPC:</b>	0x0 / 0x3		---		
<b>MPE:</b>	0x0 / 0x3		---		
<b>MPM:</b>	0x0 / 0x3		---		

### 5.11.36 P-0-1621.x.24, CCD: Master communication gateway parameter pool 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is required for the SERCOS and EtherCAT gateways in CCD system mode. It serves to store all parameters of the master communication slaves for which there are no parameters in the CCD master. These master communication slave parameters are simulated for the interface.

The parameter is created in binary format (4 bytes variable) and can only interpreted and displayed with a commissioning program (IndraDrive). This program provides a dialog which displays the data of the parameter and its significance.

See also Functional Description "Cross-Communication (CCD)"

#### P-0-1621.x.24 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	min./max.		Default value		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

## Product-Specific Parameters

5.11.37 P-0-1621.x.25, CCD: Master communication gateway parameter pool  
2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is required for the SERCOS and EtherCAT gateways in CCD system mode. It serves to display all parameters of the master communication slaves which are not stored and for which there are no parameters in the CCD master. These master communication slave parameters are simulated for the interface.

The parameter is created in binary format (4 bytes variable) and can only interpreted and displayed with a commissioning program (IndraDrive). This program provides a dialog which displays the data of the parameter and its significance.

See also Functional Description "Cross-Communication (CCD)"

P-0-1621.x.25 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.38 P-0-1621.x.35, C5300 CCD: sercos SYNC delay measuring procedure command

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In CCD system mode, parameter "P-0-1621.x.35" has the function of the appropriate master communication parameter "S-0-1024" for SERCOS III. In the CCD master, initiation of the command is bypassed to parameter "P-0-1621.x.35" because parameter "S-0-1024" is reserved for the outer SERCOS III network in the CCD slave. The appropriate action for the associated SERCOS III slave is carried out in the CCD master.

P-0-1621.x.35 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.39 P-0-1622, CCD: Configuration list master communication actual values

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** device-specific

**Function** In "CCD system mode", parameter "P-0-1622" serves to configure the actual values which are transferred from the individual CCD slaves via the CCD master to the external field bus master in the group field bus connection.

As a result, "P-0-1622" corresponds to a list of actual values which are supplied by the particular CCD slave via CCD-AT and which the master directly copies to the master communication actual value telegram (cf. P-0-4080).



The content of "P-0-1622", along with the content of "P-0-1626", is also directly copied to the list of cyclic actual values of the associated slaves.

See also Functional Description "Cross-Communication (CCD)"

**Structure** The configuration list has the following structure:

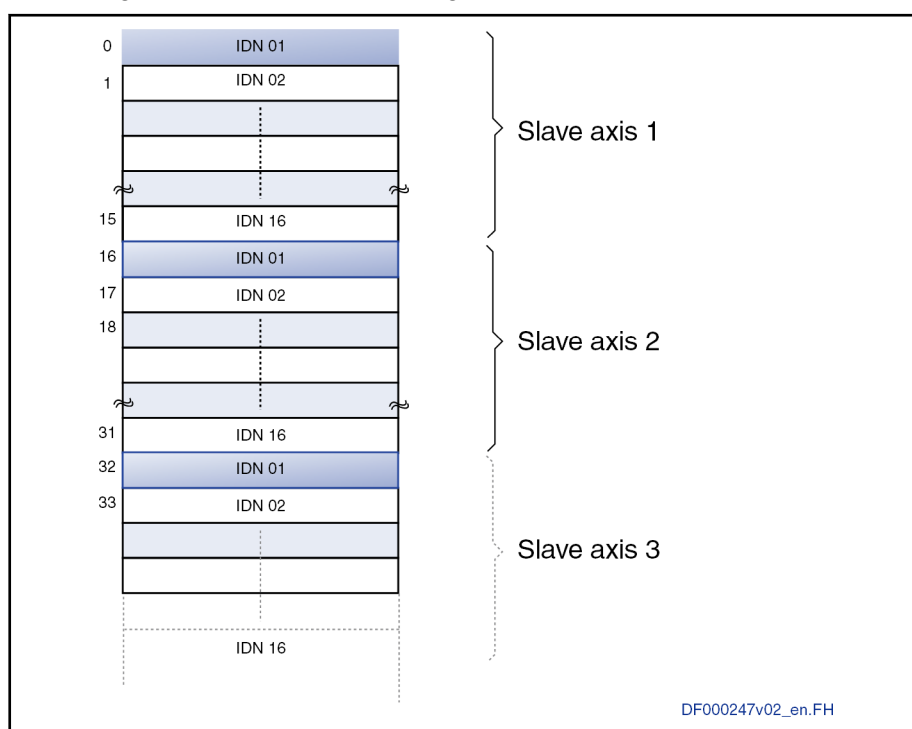


Fig.5-224: Structure of P-0-1622, CCD: Configuration List Master Communication Actual Values

**Use** Observe the following aspects for parameter setting:

- Parameter "P-0-1622" allows only actual values to be entered that can be configured cyclically (cf. S-0-0188).
- The cyclic master communication actual values of the slaves are configured via "P-0-1622". The master communication actual values of the CCD master are still entered in "P-0-4080".
- Due to the allowed maximum of 16 IDNs for each slave, the number of maximum possible entries is limited in "P-0-1621".

### P-0-1622 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>	--- / ---	s. Text


Product-Specific Parameters

MPC:	---	/	---	s. Text
MPE:	---	/	---	s. Text
MPM:	---	/	---	s. Text

5.11.40 P-0-1623, CCD: Configuration list master cmd values

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			

Function
Parameter "P-0-1623" serves to configure the command values. These are transmitted from the CCD master to the CCD slaves in the MDT. The list contains command values which the CCD master files in the MDT (SERCOS III).


Parameter "P-0-1625, CCD: Configuration list slave cmd values" describes how these values are interpreted by the CCD slave.

See also Functional Description "Cross-Communication (CCD)"

Structure
The configuration list has the following structure:

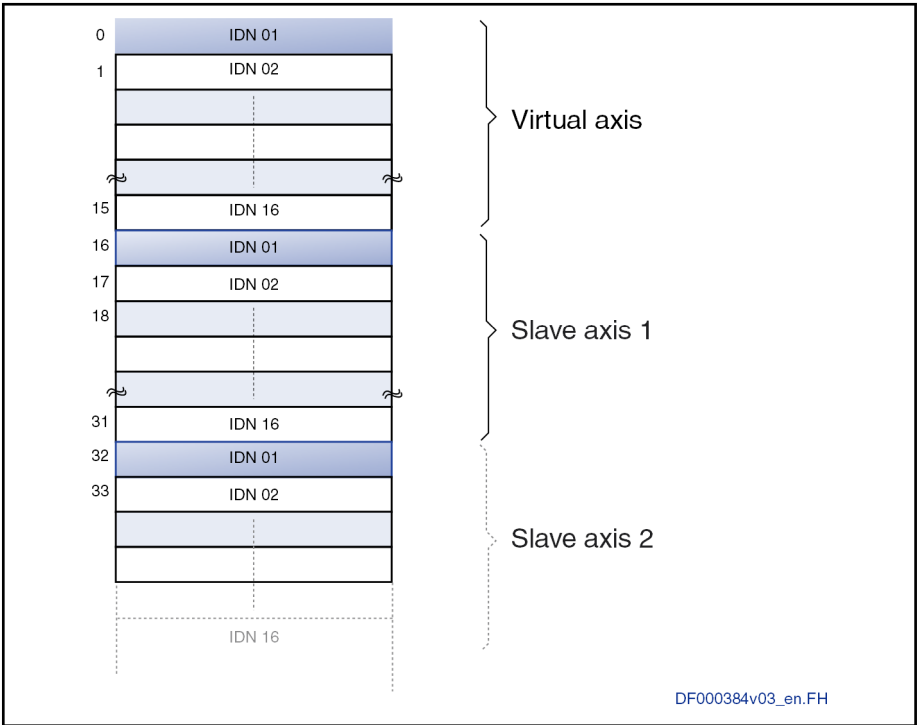



Fig.5-225: Structure of P-0-1623, CCD: Configuration list master cmd values


The first 16 list elements are reserved for configuring the data for the CCD master axis in MLD-M system mode with "virtual slave operation".

- Use
- Observe the following aspects when parameterizing "P-0-1623":
- Parameter "P-0-1623" allows actual values and command values to be entered that can be configured cyclically (cf. "S-0-0187", "S-0-0188").
  - Due to the allowed maximum of 16 IDNs, the number of maximum possible entries is limited and therefore depends on the number of entries in "P-0-1621".

## Product-Specific Parameters

<b>P-0-1623 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		s. Text	
		MPC:	--- / ---		s. Text	
		MPE:	--- / ---		s. Text	
		MPM:	--- / ---		s. Text	

### 5.11.41 P-0-1624, CCD: Configuration list actual master values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
		<b>Device parameter:</b> device-specific		

**Function** Parameter "P-0-1624" serves to configure the actual values. These are transmitted from the CCD slaves to the CCD master in the AT. The list contains the IDNs of the data which is put into the AT by the CCD slave and is determined for the CCD master. The CCD master internally copies this data to the parameters mentioned.



Parameter "P-0-1626, CCD: Configuration list actual slave values" describes which data is put into the AT by the slave to achieve this.

See also Functional Description "Cross-Communication (CCD)"

**Structure** The configuration list has the following structure:

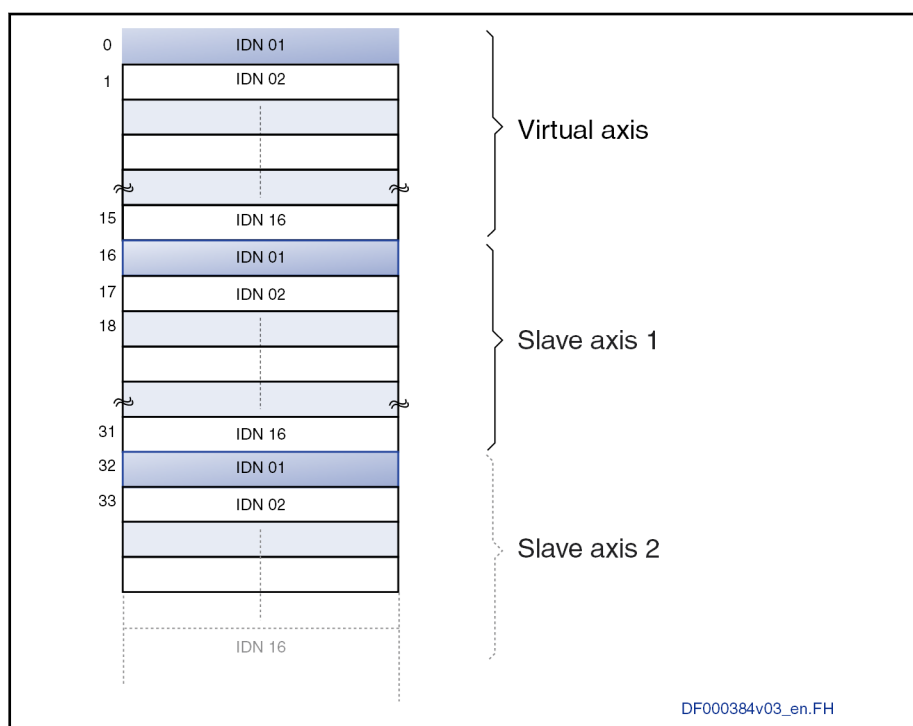


Fig. 5-226: Structure of P-0-1624, CCD: Configuration list actual master values



The first 16 list elements are reserved for configuring the data for the CCD master axis in MLD-M system mode with "virtual slave operation".

## Product-Specific Parameters

**Use** Observe the following aspects for parameter setting:

- If transmission of the global AxisData structure is active (P-0-1367, bit 6 = "1") and additional axis information is to be output (e.g., via AxisData[1].dwUserActualDataA\_i), such information must be parameterized in the first four IDNs of each axis (see "IDN01", "IDN02", ... in the diagram). For more parameterization instructions, please refer to the IndraMotion MLD Application Manual under index entry "AxisData".
- Parameter "P-0-1624" allows command values to be entered that can be configured cyclically (cf. S-0-0188).
- Due to the allowed maximum of 16 IDNs, the number of maximum possible entries is limited and therefore depends on the number of entries in "P-0-1622".

<b>P-0-1624 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			s. Text	
<b>MPC:</b>		--- / ---			s. Text	
<b>MPE:</b>		--- / ---			s. Text	
<b>MPM:</b>		--- / ---			s. Text	

## 5.11.42 P-0-1625, CCD: Configuration list slave cmd values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1625" serves to configure the command values. These are transmitted from the CCD master to the CCD slaves in the MDT.



The list contains IDNs which are also copied to "S-0-0024, Configuration list of MDT" of the associated slave. The command values are generated by the master. The reference list applicable for the CCD master is "P-0-1623" or "S-0-1050.1.6 in MPx07 and above" (e.g., "P-0-0434" -> "S-0-0047").

See also Functional Description "Cross-Communication (CCD)"

**Structure** The configuration list has the following structure:

## Product-Specific Parameters

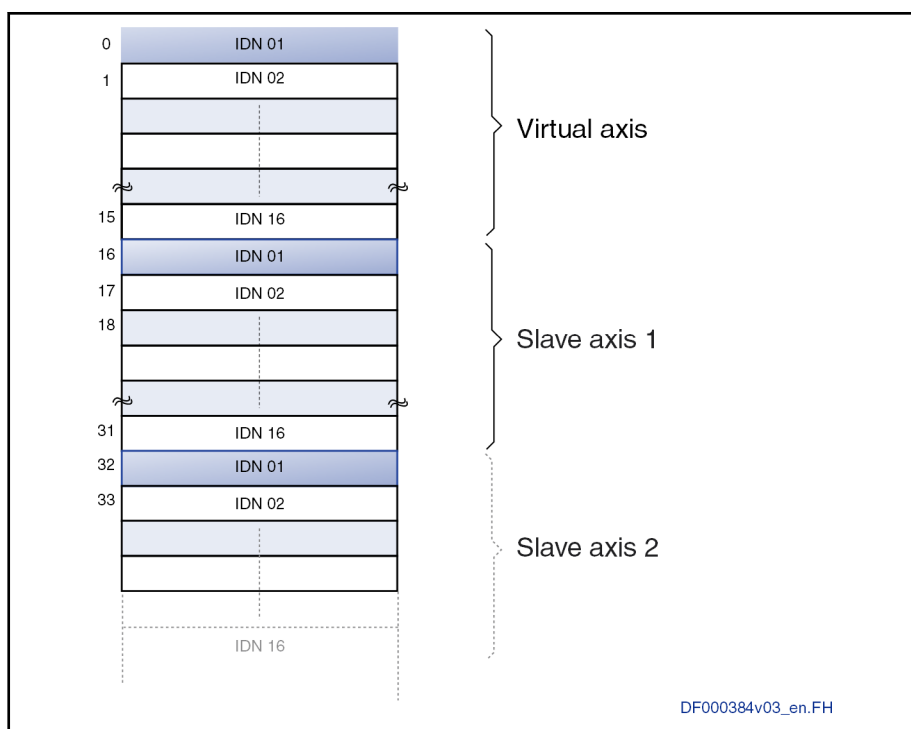


Fig.5-227: Structure of P-0-1625, CCD: Configuration list slave cmd values



The first 16 list elements are reserved for configuring the data for the CCD master axis in MLD-M system mode with "virtual slave operation".

**Use** Observe the following aspects for parameter setting:

- Parameter "P-0-1625" allows only command values to be entered that can be configured cyclically (cf. S-0-0188).
- Due to the allowed maximum of 16 IDNs, the number of maximum possible entries is limited and therefore depends on the number of entries in "P-0-1621".

### P-0-1625 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.43 P-0-1626, CCD: Configuration list actual slave values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1626" serves to configure the actual values. These are transmitted from the CCD slaves to the CCD master in the AT.

## Product-Specific Parameters



The list contains actual values for the CCD master (internal) which are put into the SERCOS III AT by the slave. The parameters of the list are directly copied to the list of cyclic actual values of the associated slave. Parameter "P-0-1624, CCD: Configuration list actual master values" describes how the CCD master interprets this data. The first 16 list elements belong to slave 1, the next ones to slave 2, etc.

See also Functional Description "Cross-Communication (CCD)"

**Structure** The configuration list has the following structure:

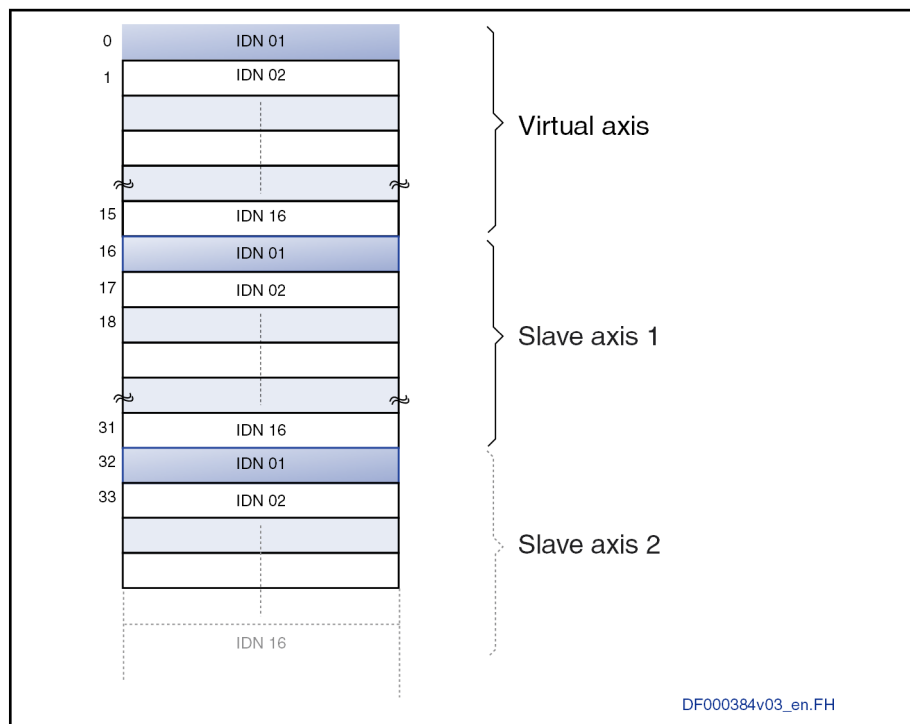


Fig. 5-228: Structure of P-0-1626, CCD: Configuration list actual slave values (CCD Master Configuration List AT Data)



The first 16 list elements are reserved for configuring the data for the CCD master axis in MLD-M system mode with "virtual slave operation".

**Use** Observe the following aspects for parameter setting:

- If transmission of the global AxisData structure is active (P-0-1367, bit 6 = "1") and additional axis information is to be output (e.g., via AxisData[1].dwUserActualDataA\_i), such information must be parameterized in the first four IDNs of each axis (see "IDN01", "IDN02", ... in the diagram). For more parameterization instructions, please refer to the IndraMotion MLD Application Manual under index entry "AxisData".
- Parameter "P-0-1626" allows actual values and command values to be entered that can be configured cyclically (cf. S-0-0187, S-0-0188).
- Due to the allowed maximum of 16 IDNs, the number of maximum possible entries is limited and therefore depends on the number of entries in "P-0-1622".

## P-0-1626 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN

Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			s. Text	
MPC:	--- / ---			s. Text	
MPE:	--- / ---			s. Text	
MPM:	--- / ---			s. Text	

#### 5.11.44 P-0-1627, CCD: Configuration list master cmd values I/Os

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	This parameter serves to configure the command values which are transmitted from the CCD master to the SERCOS III I/Os in the MDT. See also Functional Description "Cross-Communication (CCD)"			
Structure	The configuration list has the following structure:			

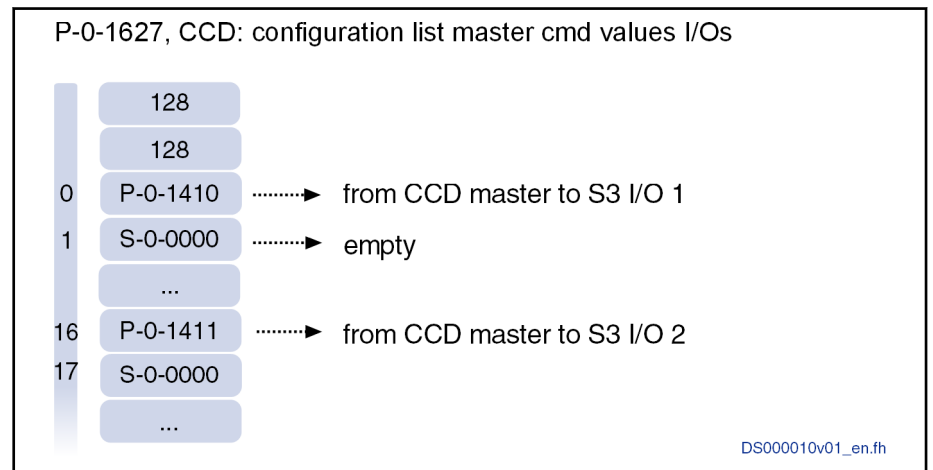


Fig.5-229: Structure of P-0-1627, CCD: Configuration List Master Cmd Values I/Os

**Use** The CCD master puts the data of the parameters contained in the list into the MDT, and the data is output by the SERCOS III I/O via the latter's outputs. The outputs of the SERCOS III I/O module can be operated by the MLD writing to the parameters configured here. A compact I/O has only one 16-bit output port so that the maximum size of the parameter assigned by the master is 16 bits. The parameter in element 0 corresponds to the outputs of the first I/O module, element 16 to those of the second one, element 32 to those of the third one, and element 48 to those of the fourth one.

P-0-1627 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

#### 5.11.45 P-0-1628, CCD: Configuration list act. master values I/Os

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»

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	<b>Hardware</b>	optional drives card
	<b>Funct. package(s):</b>	"open loop", "closed loop"
	<b>Device parameter:</b>	device-specific
<b>Function</b>	This parameter serves to configure the actual values which are transmitted from the SERCOS III I/Os to the CCD master in the AT. See also Functional Description "Cross-Communication (CCD)"	
<b>Structure</b>	The configuration list has the following structure:	

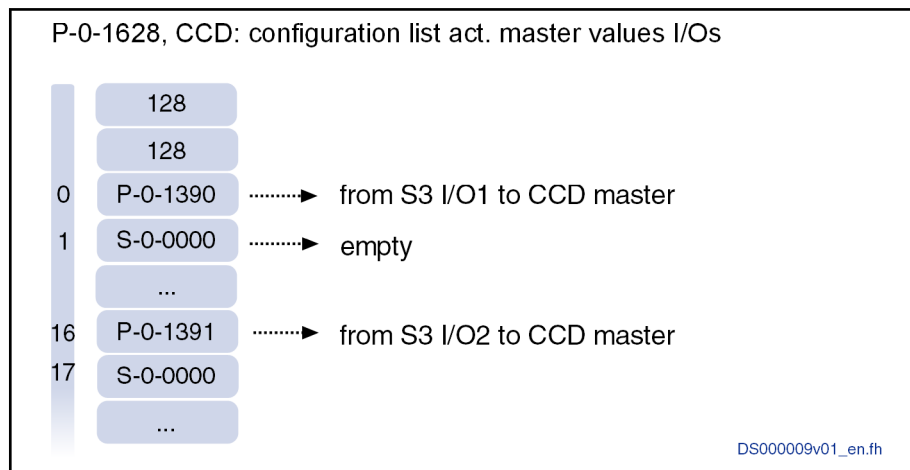


Fig.5-230: Structure of P-0-1628, CCD: Configuration List Act. Master Values I/Os

**Use** The master writes the AT data from the SERCOS III I/O to the parameters contained in the list. The inputs of the SERCOS III I/O module can be inquired by the MLD reading the parameters configured here. A compact I/O can have a 16-bit or 32-bit input port so that a corresponding parameter must be entered here. The parameter in element 0 corresponds to the inputs of the first I/O module, element 16 to those of the second one, element 32 to those of the third one, and element 48 to those of the forth one.

<b>P-0-1628 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		s. Text	
		MPC:	--- / ---		s. Text	
		MPE:	--- / ---		s. Text	
		MPM:	--- / ---		s. Text	

## 5.11.46 P-0-1629, CCD: Configuration compact I/Os

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter serves to configure the analog compact I/Os connected to the CCD master and has a direct effect on "S-0-1504.0.20", Parameter channel output (EIDN) in the S-III I/O module.

Parameter "P-0-1629" can be used to parameterize the behavior of the analog inputs and outputs. To achieve this, the CCD master writes the content of the associated 4 elements of "P-0-1629" to the "S-0-1504.0.20" in the appropriate S-III I/O module in phase 2.

The parameter has list structure, with 16 elements being assigned to one S-III I/O module each. The first 16 elements (0-15) belong to I/O 1, the next 16

## Product-Specific Parameters

elements (16-31) to I/O 2, etc. Only the first elements are used of each element group (see picture). Parameterization involves only those I/O numbers which have analog S-III I/O modules assigned to them. To digital I/Os, the entries of the elements assigned are of no relevance.

See also Functional Description "Cross Communication (CCD)"

**Structure** The configuration list has the following structure:

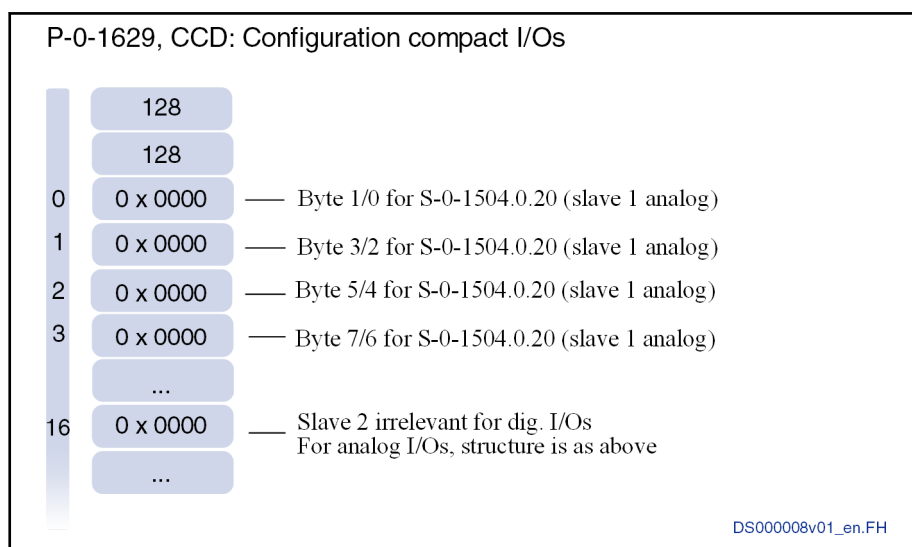


Fig.5-231: Structure of P-0-1629, CCD: Configuration compact I/Os

### P-0-1629 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.47 P-0-1630, CCD: Diagnosis

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** Parameter "P-0-1630" displays the status of the CCD master, i.e., of the CCD communication.



The status is displayed in plaintext (ASCII characters).

See also Functional Description "Cross-Communication (CCD)"

See also Functional Description "Diagnostic System"

**Use** In combination with the diagnostic message number (cf. S-0-0390), this extended diagnostic message text is primarily helpful for analyzing the CCD axis system during commissioning, i.e., during configuration.

The numbers following the slave, drive or I/O have the following significance:

- **Drive 0 or slave 0:** Local axis or virtual slave
- **Slave 1 to slave x:** Real SERCOS slaves

## Product-Specific Parameters

- **Drive 1 to drive x:** Remote SERCOS axes
- **I/O 1 to I/O x:** Remote SERCOS I/Os

The following messages can be displayed:

- Run-up not yet started...
- Initialization started...
- Telegram configuration drive started ...
- Telegram configuration I/O started ...
- Offset calculation started ...
- Timing calculation started ...
- Initialization successfully completed!
- Number of slaves configured > number of slaves found!  
The number of CCD slaves configured in "P-0-1601" and "P-0-1604" is higher than the number of CCD slaves connected to the CCD master or found during scanning.
- **Configured slave was not recognized in P-0-1603!**  
A slave configured in "P-0-1601" or "P-0-1604" was not found in parameter "P-0-1603, CCD, Actual topology".
- **Configured slave was not recognized in P-0-1636!**  
A slave configured in "P-0-1601" or "P-0-1604" was not found in parameter "P-0-1636, CCD, Command topology addresses".
- **Error during PLC initialization in MLDM-Mode!**  
During switchover from phase 2 to phase 4, an error occurred while initialization of the PLC was in progress, e.g., an internal write task to a remote axis via the service channel failed. Maybe the flash or control section is defective. Contact the service team!
- **Error: NC cycle time is not supported!**  
The NC cycle time is not supported. See documentation for allowed combinations of CCD mode, performance and CCD cycle time.
- **Error: Config. of signal status/control word (P-0-1611/12) slave(0)**  
Non-allowed IDNs are entered in the configuration for the signal control/status word of the virtual slave (elements 0-15, P-0-1611/12).
- **Error: Timing calculation**  
An error occurred during calculation of SERCOS timing.
- **Error: CC cycle time is not supported!**  
A check of the parameterized CC connections showed that the parameterized cycle time is not allowed. See "S-0-1050.x.10" in connection 2 or 3 of the CCD slaves or in "P01645.x.10" of the CCD master.
- **Error: Config. ext. Connection S-0-1050.2.x or S-0-1050.3.x!**  
An error occurred while the connection table was set up in the CCD master. The parameterization of the CC connections in the CCD slaves "S-0-1050.2.x" or "S-0-1050.3.x" must be checked for non-allowed values. These may be caused by an invalid connection type of an exceeded maximum length.
- **Error: Length/Type of Master CC Connection not allowed**  
A wrong type or unallowed length is entered in the parameterization of a CC connection with participation of the CCD master. See "P-0-1645.x.1" or "P-0-1645.x.6".

Product-Specific Parameters

- **Error: IDN in Master CC Connection not allowed**  
An unallowed parameter for transmission is entered in the parameterization of a CC connection with participation of the CCD master. See "P-0-1645.x.6".
- **Error: Configuration real-time bits Master CC**  
An unallowed parameter for the real-time bits is entered in the parameterization of a CC connection with participation of the CCD master. See "P-0-1645.x.20" or "P-0-1645.x.21".
- **Error: Length of P-0-1603 and P-0-1636 not equal**  
The lengths of the command and actual topologies specified in "P-0-1603" and "P-0-1636" must be equal.
- **Error: Values in P-0-1603 and P-0-1636 not equal**  
Command and actual topologies are different.
- **The CCD motion cycle time is not allowed for motion task**  
(See Section Task System in Chapter "Basic Functions of Rexroth IndraMotion MLD")
- **Error: Address of projected drive and I/O must be unique**  
Duplicate addresses are not allowed for the projected drives and I/Os in "P-0-1601" and "P-0-1604".
- **Number of CCD-Slaves not allowed at this mode or cycle time**  
The number of slaves is not allowed in this mode and in this cycle time. For allowed combinations, please refer to the documentation.
- **MLDM-Mode not allowed in advanced performance**  
MLD-M is not allowed with Advanced performance.
- **Error when reading T4min-Time (S-0-1005)**  
An error occurred during reading of the T4 min time S-0-1005 of a slave of drive type.
- **Error when writing S/P-X-XXXX Slave x (Code 0x....)**  
An error with SERCOS code 0xXXXX occurred during writing parameter S/P-X-XXXX to slave x via the service channel.
- **Error when reading S/P-X-XXXX Slave x (Code 0x....)** An error with SERCOS code 0xXXXX occurred during reading parameter S/P-X-XXXX from slave x via the service channel.
- **Error at command execution of S/P-0-XXXX Slave x**  
An error occurred during execution of command S/P-0-XXXX on slave x. More detailed information can be found in the slave diagnostics.
- **Timeout for command acknowledgment of S/P-0-XXXX Slave x**  
Command S/P-0-XXXX that was started on slave x was not completed with or without error within 25 s.
- **Switching to phase x successfully carried out**
- **Error when switching to phase x (Code 0x...)**  
An error with code 0xxxxxxx was signaled during SERCOS phase transition (soft phase switch). It was not possible to switch to SERCOS phase X.
- **Error: Type of SERCOS-I/O x unknown**

## Product-Specific Parameters

The type of SERCOS I/O is not allowed. It is only allowed to operate SERCOS I/Os for which a defined length and SCP version 1.1 are entered in parameter S01000 = 0x0101.

- **Error: Length of SERCOS-I/O x not allowed**

Error: The length of the SERCOS I/O data exceeds the allowed length of 48 bytes.

- **Error: Drive x in P-0-1601 is not an allowed drive type**

The drive projected in P-0-1601 is not supported by the CCD master (no IndraDrive with expected parameters).

- **Error: I/O[%d] in P-0-1604 is not an allowed I/O type**

The I/O configured in P-0-1604 is not supported by the CCD master; no compact I/O with expected SCP version 1.1.

- **Data length for I/O x Output exceeded, P-0-1627**

The maximum length of the output data of an I/O has been exceeded. Correction required in "P-0-1627".

- **Data length for I/O x Input exceeded, P-0-1628**

The maximum length of the input data of an I/O has been exceeded. Correction required in "P-0-1628".

- **Data length for MDT drive x exceeded, P-0-1621/25**

The maximum length of the MDT data of a drive has been exceeded. Correction required in "P-0-1621" or "P-0-1625".

- **Data length for AT drive x exceeded, P-0-1622/26**

The maximum length of the AT data of a drive has been exceeded. Correction required in "P-0-1622" or "P-0-1626".

- **Error: Configured IDN %s I/O[%d] Output, P-0-1627**

The configured IDN for the output data of the I/O is not allowed. Correction required in "P-0-1627".

- **Error: Configured IDN %s I/O[%d] Input, P-0-1628**

The configured IDN for the input data of the I/O is not allowed. Correction required in "P-0-1628".

- **Error when writing analog-I/O x configuration (S-0-1504.0.20)**

Error during configuration of the analog I/Os "S-0-1504.0.20".

- **Number of IDN for MDT exceeded drive x**

The number of IDNs configured for a drive is too high. Correction required in "P-0-1621" or "P-0-1623/25".

- **Number of IDN for AT exceeded drive x**

The number of IDNs configured for a drive is too high. Correction required in "P-0-1622" or "P-0-1624/26".

- **Error: Config. IDN %s for MDT drive x, P-0-1621/23/25**

The configured IDN for the MDT data of the drive is not allowed. Correction required in "P-0-1621" or "P-0-1623/25".

- **Error: Config. IDN %s for AT drive x, P-0-1622/24/26**

The configured IDN for the AT data of the drive is not allowed. Correction required in "P-0-1622" or "P-0-1624/26".

- **Different number of IDN for MDT drive x, P-0-1623/25**

The number of IDNs configured in "P-0-1623" for the MDT data is different from that configured in "P-0-1625".

Product-Specific Parameters

- **Different number of IDN for AT drive x, P-0-1624/26**  
The number of IDNs configured in "P-0-1623" for the AT data is different from that configured in "P-0-1625".
- **IDN mismatch %s for MDT drive[%d], P-0-1623/25**  
The IDNs in a master->slave MDT connection do not match each other, e.g., S-0-0084 -> S-0-0036 (different length). Correction required in "P-0-1623" or "P-0-1625".
- **IDN mismatch %s for AT drive[%d], P-0-1624/26**  
The IDNs in a master<-slave AT connection do not match each other, e.g., S-0-0036 <- S-0-0084 (different length). Correction required in "P-0-1624" or "P-0-1626".
- **IDN %s is auto.config. for MDT drive[%d], P-0-1625**  
The IDN configured for the MDT is used for internal purposes and cannot be assigned by the user. Correction required in "P-0-1625".

See also Application Manual "IndraMotion MLD"

P-0-1630 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	---	
<b>MPC:</b>			--- / ---	---	
<b>MPE:</b>			--- / ---	---	
<b>MPM:</b>			--- / ---	---	

## 5.11.48 P-0-1630.x.1, CCD: Slave IP address

Allocation

<b>Contained in 16VRS:</b>	«-»	«-»	«-»
<b>Contained in 17VRS:</b>	«-»	«-»	«-» «MPC»
<b>Contained in 18VRS:</b>	«-»	«-»	«-» «-»
<b>Hardware</b>	optional drives card		
<b>Funct. package(s):</b>	"open loop", "closed loop"		
<b>Device parameter:</b>	device-specific		

Function

The master displays the IP addresses of the SERCOS III master communication of the CCD slaves in parameter "P-0-1630.x.1". The SERCOS instance (x) corresponds to the slave index in the CCD group (0 = virtual slave, 1 = slave 1, etc.). The master reads the IP addresses of the CCD slaves immediately after phase 2 has been reached. These IP addresses are displayed in this parameter.

Description	Parameter in the CCD master	Parameter in the drive
Master IP address	P-0-1630.0.1	127.0.0.1 (P-0-1641 from CCD master is active)
Slave 1 IP address	P-0-1630.1.1	Content from S-0-1020 in slave 1
Slave 2 IP address	P-0-1630.2.1	Content from S-0-1020 in slave 2

Tab.5-232: P-0-1630.0.1, CCD: Slave IP Address

See also Functional Description "Cross-Communication (CCD)"

P-0-1630.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	---	
<b>MPC:</b>			--- / ---	---	

## Product-Specific Parameters

MPE: --- / --- ---  
MPM: --- / --- ---

## 5.11.49 P-0-1630.x.2, CCD: Device Status (S-Dev)

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameter "P-0-1630.x.2" displays the SERCOS III: Device Status (S-Dev) (S-0-1045) of the CCD slaves, which is transmitted from the CCD slaves to the CCD master in the AT. The SERCOS instance (x) corresponds to the slave index in the CCD group (0 = virtual slave, 1 = slave 1, etc.). This parameter is an image of the Device Status (S-Dev) of the CCD slaves. It is read-only and can be used for diagnostic purposes.

Description	Parameter in the CCD master	Parameter in the drive
CCD: Device status word	P-0-1630.0.2	Formed directly
CCD: Device status word	P-0-1630.1.2	Content S-0-1045 of CCD slave 1
CCD: Device status word	P-0-1630.2.2	Content S-0-1045 of CCD slave 2

Tab.5-233: P-0-1630.00.2, CCD: Device Status (S-Dev)

See also Parameter Description "S-0-1045, SERCOS III: Device Status (S-Dev)"

See also Functional Description "Cross-Communication (CCD)"

P-0-1630.x.2 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.50 P-0-1630.x.3, CCD: Connection-Control #0 (C-Con)

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameter P-0-1630.x.3 displays the connection control word (C-Con) of connection #0 of the CCD slaves, which is transmitted from the CCD slaves to the CCD master in the AT. The CCD master uses connection #0 (S-0-1050.0.x) of the CCD slaves for classic MS-AT data. The safety technology (SI) is used as slave index (0 = virt. slave, 1 = slave 1, etc.). The parameter is an image of C-Con of connection #0 in the CCD slave. It is read-only and can be used for diagnostic purposes.

See also Parameter Description "S-0-1050.0.8, SIII-Connection: Connection control (C-Con)"

See also Functional Description "Cross Communication (CCD)"

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	0	<b>ProducerReady</b> 0: Producer does not generate any valid command values yet 1: Producer generates valid command values, slave can process the command values with toggle of bit 1	
	1	<b>NewData bit</b> Edge indicates that there is new data in the connection	
	2	<b>CC DataFieldDelay</b> 1: CC producer data has a SERCOS cycle delay, because it was copied via the bus master. The consumer shall prefer taking the data of the port at which this bit has the value 0.	
	3	<b>ProducerSynchronized</b> 0: The PLL of the producer is not synchronized with the clock of the ring 1: The PLL of the producer is synchronized with the clock of the ring	
	6	<b>Real-time bit 1</b>	
	7	<b>Real-time bit 2</b>	

Tab.5-234: P-0-1630.x.3, CCD: Connection-Control #0 (C-Con)

P-0-1630.x.3 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.51 P-0-1630.x.20, CCD: Resource-Status (S-Res)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1630.x.20" displays the drive status word "S-0-0135" of the CCD slaves for drive slaves and the I/O status word "S-0-1500.0.2" for I/O slaves.

The master parameterizes the resource status word to connection #0 of the CCD slaves. The CCD slaves cyclically transmit the resource status word to the master. The safety technology (SI) is used as slave index (0 = virt. slave, 1 = slave 1, etc.). For slaves of drive type, this parameter is an image of the drive status word of the CCD slaves. The parameter is read-only and can be used for diagnostic purposes.

See also Parameter Description "S-0-0135, Drive Status Word"

See also Functional Description "Cross-Communication (CCD)"

**Structure** S-0-1500.0.2, I/O status

## Product-Specific Parameters

Bit	Designation/function	Comment
12	<b>I/O warning</b> Not supported by EasyIO	
13	<b>I/O error</b> The bit is set if a class 1 diagnostics error is present.	
14	<b>Inputs valid</b> 0: Inputs not valid 1: Inputs valid	
15	<b>Outputs ready for operation</b> 0: Outputs not active 1: Outputs active	

Tab.5-235: Structure of I/O Status SERCOS III (S-Res)

## P-0-1630.x.20 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.52 P-0-1631, CCD: AT error counter

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter displays an error counter for ATs. This parameter serves to monitor ATs in which the value entered in parameter "S-0-1012, SERCOS III: Length of ATs" of the CCD slaves is greater than 0. The error counters count all invalid drive telegrams (ATs) in phases 3 and 4 and has its upper limit at 65535.



If the transmission is subject to strong interferences, the value 65535 is reached after a while.

See also Functional Description "Cross communication"

**Use** Interpreting the parameter content

Observe the following points while interpreting the error counter:

- The error counter is incremented once per communication cycle.
- The counter is only incremented as well, if the corresponding AT fails both on Port 1 and on Port 2.
- The error counter is cleared on transition from phase 2 to phase 3.

## P-0-1631 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---

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MPE:	---	/	---	---
MPM:	---	/	---	---

### 5.11.53 P-0-1632, CCD: System data 2 bytes

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter is a dummy parameter which is required for internal configuration of the fixed MDT and AT data in the system mode.



The user cannot edit this parameter!

See also Functional Description "Cross Communication (CCD)"

P-0-1632 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.54 P-0-1633, CCD: System data 4 bytes

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter is a dummy parameter which is required for internal configuration of the fixed MDT and AT data in the system mode.



The user cannot edit this parameter!

See also Functional Description "Cross Communication (CCD)"

P-0-1633 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.55 P-0-1634.x.1, CCD: Module type codes of the modular I/Os

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** For the current composition of the modular I/O, please refer to parameter "S-0-1500.0.3" of the bus coupler.

The list contains all "module type codes" of the inline nodes which are connected to the bus coupler in their connecting order. Whenever the CCD

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phase is started up, the content of parameter "P-0-1634.x.1" is compared with the content of "S-0-1500.0.3" in the I/O slave to check the I/O for proper composition. "P-0-1634.x.1" can be defined via command "C7200 CCD: Command Apply I/O configuration". Values can also be written directly "P-0-1634.x.1" in order to apply a parameter backup.

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1634.x.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		s. Text		
<b>MPC:</b>		--- / ---		s. Text		
<b>MPE:</b>		--- / ---		s. Text		
<b>MPM:</b>		--- / ---		s. Text		

## 5.11.56 P-0-1635, C7000 CCD: Command adjust slave addresses

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				

**Function** This command is used to set the addresses of the CCD slaves. In this way, the addresses from "P-0-1636, CCD: command topology" are preset for the corresponding CCD slaves.

The command topology from P-0-1636 is thereby applied to the CCD slaves. "List element 0" corresponds to the command address for the first CCD slave connected to the CCD master. Only in this way is it possible to assign an unequivocal address to the compact I/Os.

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1635 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.11.57 P-0-1636, CCD: Command topology addresses

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter is used in conjunction with the drive cross communication (CCD). All addresses of the CCD slaves (drives and I/Os) connected to the CCD master must be specified in ascending order of their topology (list element 0 corresponds to the CCD slave directly next to the CCD master, etc.). Each address may be assigned only once.

The addresses of the SERCOS III slaves which are only connected to the CCD master but have not been configured must also be listed.

If drives are configured in "P-0-1601" or I/Os in "P-0-1604", which are not contained in "P-0-1636", this will result in warning "E4013 Incorrect CCD ad-

## Product-Specific Parameters

dressings" or in "C0265 Incorrect CCD address configuration" when command "C0200 Exit parameterization level procedure command" is executed.

If the command topology in "P-0-1636" differs from the actual topology, warning "E4013" is generated in CCD phase 2. Switching on to CCD phase 3 or 4 is impossible.

The command and actual topologies must always be identical. The monitoring order is not defined. All addresses must be available and "P-0-1603, CCD: Actual topology addresses" or in "P-0-1636" may not contain any further or other addresses.

Either the entries in "P-0-1636" must be adjusted to the actual topology or the addresses of the CCD slaves must be set to the command topology by means of command "C7000 CCD: Command Adjust slave addresses".

See also Functional Description "Cross-Communication (CCD)"

**Structure** The list parameter (2 bytes per element) has the following structure and content:

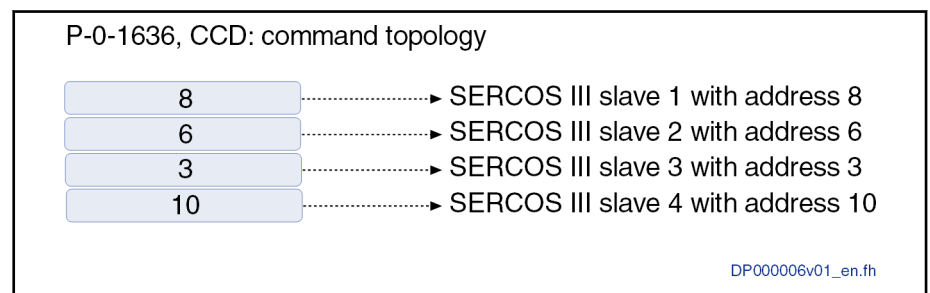


Fig. 5-236: P-0-1636, CCD: Command typology addresses

Element 0 corresponds to the CCD slave which is directly connected to the CCD master.

### P-0-1636 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.58 P-0-1637, CCD: Error counter Port-1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** These list parameters display the telegram errors of the SERCOS III FPGAs for the particular port according to SERCOS III:

Element	Error counter
0	Counter for received ethernet frames with FCS error
1	Counter for received ethernet frames with an alignment error
2	Counter for discarded receive ethernet frames based on missing rx buffer resources

## Product-Specific Parameters

Element	Error counter
3	Counter for discarded forwarding ethernet frames based on missing collision buffer resources
4	Counter for ethernet frames which violate the IP channel window

The counters are running through. Counter levels remain preserved in case of phase return.

See also Functional Description "Cross-Communication"

## P-0-1637 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.59 P-0-1638, CCD: Error counter Port-2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** These list parameters display the telegram errors of the SERCOS III FPGAs for the particular port according to SERCOS III:

Element	Error counter
0	Counter for received ethernet frames with FCS error
1	Counter for received ethernet frames with an alignment error
2	Counter for discarded receive ethernet frames based on missing rx buffer resources
3	Counter for discarded forwarding ethernet frames based on missing collision buffer resources
4	Counter for ethernet frames which violate the IP channel window

The counters are running through. Counter levels remain preserved in case of phase return.

See also Functional Description "Cross-Communication"

## P-0-1638 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.60 P-0-1639, CCD: Allowed telegram failures

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

## Product-Specific Parameters

**Function** This parameter allows parameterizing the telegram failures allowed before the error F4140 is triggered.

The parameter sets the number of allowed telegram failures (MDT or AT) which may occur directly one after the other in phase 4, before the drive triggers an F4 error. The parameter can be changed and is retained in the parameter memory (default value = 1).

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1639 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>			<b>min./max.</b>	<b>Default value</b>
		MPB:			0 / 65000	s. Text
		MPC:			0 / 65000	s. Text
		MPE:			0 / 65000	s. Text
		MPM:			0 / 65000	s. Text

### 5.11.61 P-0-1640, CCD: MAC address

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«MPM»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1640" contains the MAC address of the CCD master which is required within the scope of Ethernet communication. The MAC address (Media Access Control) is used for unique identification in the network.

**Structure** The MAC address is a list parameter with the following structure:

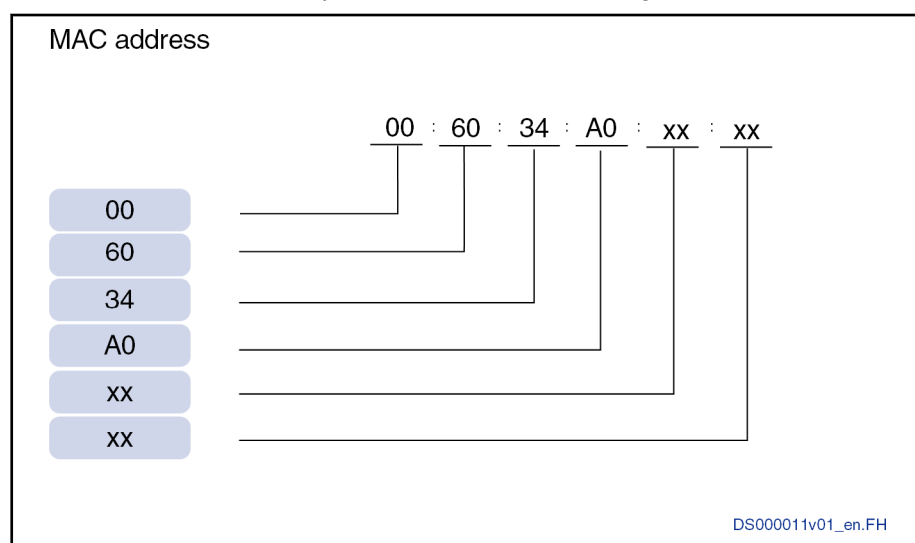


Fig.5-237: P-0-1640, CCD: MAC Address

**Use**



The MAC address has been permanently assigned to the hardware and cannot be modified!

See also Parameter Description "S-0-1019, Master comm. engineering over IP: MAC address"

<b>P-0-1640 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	ON_BOARD_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.62 P-0-1641, CCD: IP address

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	"P-0-1641" contains the IP address of the CCD master. This address is required to ensure that the device in the network can be reached via IP communication.				



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing drive command "C6100 Command Activate IP settings"

**Structure** The IP address is a list parameter with the following structure:

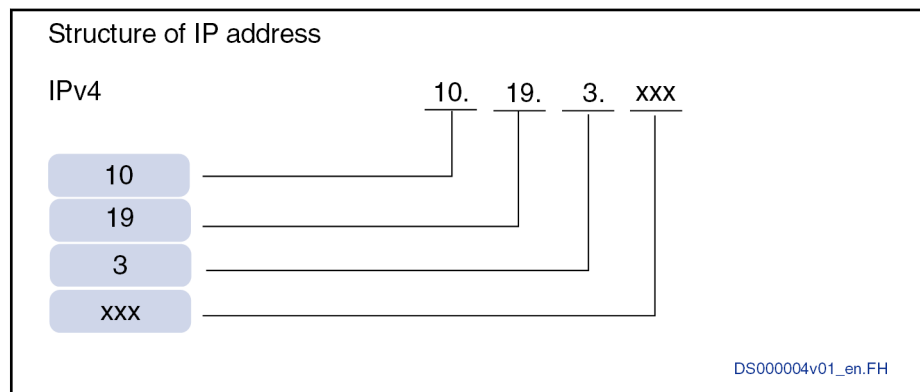


Fig.5-238: P-0-1641, CCD: IP Address

**Use**



The IP address must be set with regard to the specific application. It can be set via all communication interfaces or via the control panel.

See also Parameter Description:

P-0-1642, CCD: Network Mask

P-0-1643, CCD: Gateway Address

S-0-1020, Master comm. engineering over IP: IP Address

**P-0-1641 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

### 5.11.63 P-0-1642, CCD: Network mask

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1642" contains the network mask of the CCD master as IP node which is required within the scope of IP communication. Each IP address (Internet Protocol) consists of a network and a device part. The network mask is used to distinguish between the network and device parts.



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing drive command "C6100 Command Activate IP settings"

**Structure** The network mask is a list parameter with the following structure:

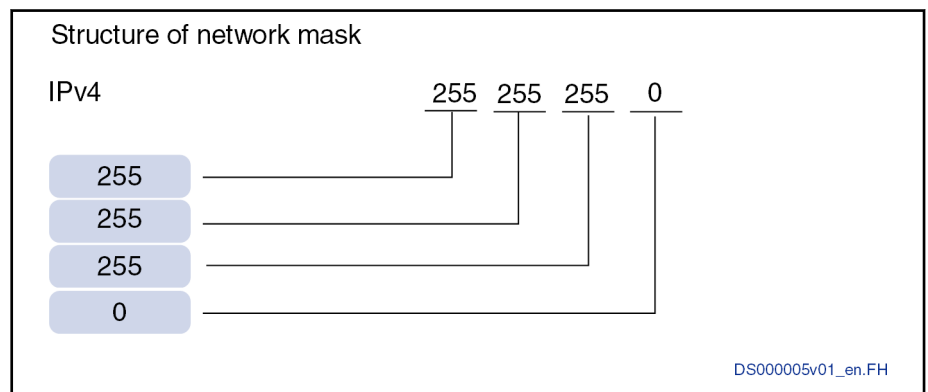


Fig. 5-239: P-0-1642, CCD: Network Mask

**Use**



The network mask must be set with regard to the specific application. It can be set via all communication interfaces or via the control panel.

See also Parameter Description:

P-0-1641, CCD: IP Address

P-0-1643, CCD: Gateway Address

S-0-1020, Master comm. engineering over IP: IP Address

P-0-1642 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			s. Text	
	MPC:	--- / ---			s. Text	
	MPE:	--- / ---			s. Text	
	MPM:	--- / ---			s. Text	

### 5.11.64 P-0-1643, CCD: Gateway address

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** device-specific

**Function** Parameter "P-0-1643" contains the gateway address of the CCD master as IP node which is required within the scope of IP communication.  
 If the communication node wants to transmit an IP package (Internet Protocol), the network parts of the source IP address and the target IP address are compared. If they do not match, the IP package is transmitted to the gateway IP address.



Changes in the parameter only become effective by:

- Switching on the 24 V supply of the drive again
- Executing drive command "C6100 Command Activate IP settings"

**Structure** The gateway address is a list parameter with the following structure:

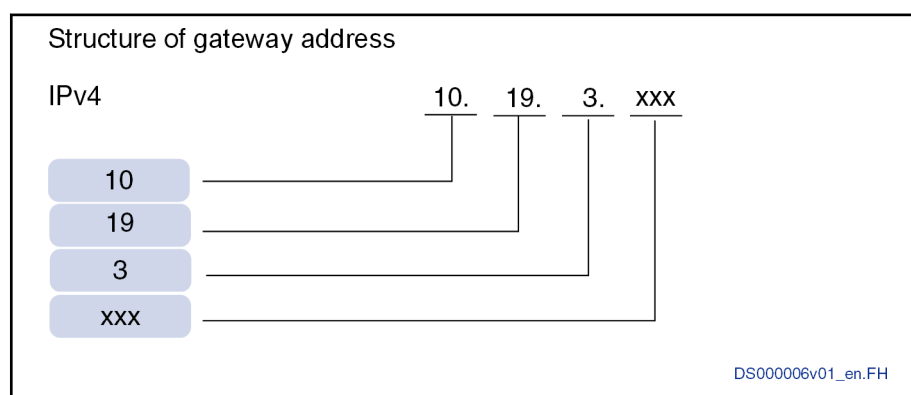


Fig.5-240: P-0-1643, CCD: Gateway Address

**Use**



The gateway address must be set with regard to the specific application. It can be set via all communication interfaces or via the control panel.

See also Parameter Description

P-0-1641, CCD: IP Address

P-0-1642, CCD: Network Mask

S-0-1022, Master comm. engineering over IP: Gateway Address

**P-0-1643 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	s. Text
<b>MPC:</b>	--- / ---	s. Text
<b>MPE:</b>	--- / ---	s. Text
<b>MPM:</b>	--- / ---	s. Text

## 5.11.65 P-0-1644, CCD: Status IP communication

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

Product-Specific Parameters

**Function** Via the parameter "P-0-1644, CCD: status IP communication", you can read the status information on the current status of IP communication at the CCD master of the device.

The parameter contains both general information on IP communication and device-dependent information for the CCD master in the device.

**Structure** The general status information on IP communication is preferably contained in the first 8 bits of parameter P-0-1644. The bits 8 to 31 contain the device-dependent information for the CCD master.

The individual bits of the parameter have the following significance:

Bit	Designation/function	Comment
1..0	<b>status internal memory TCP/IP stack</b> 00: no problem with internal memory 01: internal memory space full 10: internal memory space intermittently filled	
3..2	reserved	
6..4	<b>default gateway information</b> 000: not set 001: from Ethernet slave (S-0-1022) 010: from SERCOS III master (P-0-1643) 100: from Engineering Port (P-0-1533)	
7	reserved	
9..8	<b>setting of device gateway information</b> 00: no gateway information set 01: active gateway information manually set 10: active gateway information automatically generated	
11..10	<b>status of device gateway information</b> 00: gateway information not used 01: gateway address which was read is active 10: gateway address which was read has not been activated up to now	
12	<b>status of device network mask</b> 0: network mask which was read is active 1: network mask which was read has not been activated up to now	
15..13	reserved	
17..16	<b>setting of device IP address</b> 00: no IP address set 01: active IP address manually set 10: active IP address automatically set	

## Product-Specific Parameters

Bit	Designation/function	Comment
20..18	<b>status of IP address</b> 000: no IP address available for activation 001: IP address which was read is active 010: IP address which was read has not been activated up to now 100: "Duplicate IP Address", address not active	
21	reserved	
22	<b>validity of device IP settings</b> 0: IP settings valid 1: invalid IP settings (address and gateway in different networks)	
23	<b>status of IP communication</b> 0: IP communication possible 1: no IP communication possible (resources missing)	
25..24	<b>status of FPGA Rx Buffer Port1</b> 00: FPGA Rx Buffer Port1 able to receive data 01: FPGA Rx Buffer Port1 temporarily busy 10: FPGA Rx Buffer Port1 permanently busy	
27..26	<b>status of FPGA Rx Buffer Port2</b> 00: FPGA Rx Buffer Port2 able to receive data 01: FPGA Rx Buffer Port2 temporarily busy 10: FPGA Rx Buffer Port2 permanently busy	
29..28	<b>status of FPGA Tx Buffer Port1</b> 00: FPGA Tx Buffer Port1 able to receive data 01: FPGA Tx Buffer Port1 temporarily busy 10: FPGA Tx Buffer Port1 permanently busy	
30..31	<b>status of FPGA Tx Buffer Port2</b> 00: FPGA Tx Buffer Port2 able to receive data 01: FPGA Tx Buffer Port2 temporarily busy 10: FPGA Tx Buffer Port2 permanently busy	

Tab.5-241: P-0-1644, CCD: status IP communication

## P-0-1644 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.66 P-0-1645.x.1, CCD connection: Configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»

Product-Specific Parameters

**Hardware** optional drives card  
**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** device-specific

**Function** This parameter contains the configuration data of a CC connection with participation of the CCD master.

This data consists of:

- Activate configuration
- Connection type
- Configuration source
- Configuration type
- Clock generation (producer)
- Monitoring mechanism (consumer)

**Structure**

Bit	Designation/function	Comment
2-0	<b>Monitoring mechanism (consumer)</b> 00: Synchronous operation 01: Asynchronous operation (with watchdog) 10: Asynchronous operation (without watchdog) 11: Reserved	Only "00" possible
3	<b>Clock generation (producer)</b> 0: Synchronous 1: Asynchronous	
5-4	<b>Configuration type</b> 00: Configuration list with EIDNs (SE-6 relevant) 01: Container without assigned contents (SE-5 relevant) 10: Telegram type parameter FSP-Drive (S-0-0015 relevant) 11: Reserved	Only "00" and "10" possible
13-12	<b>Configuration source</b> 00: Bus master 01: Not bus master 10: Not bus master 11: Not bus master	
14	<b>Connection type</b> 0: Consumer 1: Producer	
15	<b>Configuration activation</b> 0: Slave does not need to evaluate/take into account configuration 1: Slave needs to evaluate/take into account configuration	

Tab.5-242: P-0-1645.x.1, CCD connection: Configuration

P-0-1645.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.11.67 P-0-1645.x.2, CCD connection: Connection number

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is used to unequivocally identify a connection. A bus master requires this parameter to determine the telegram offset, for example.

**Rules:**

1. Producer and consumer of one connection have the same connection number.
2. A slave cannot have the same connection numbers for its connections.
3. MS-AT and MS-MDT in a slave have different connection numbers.

P-0-1645.x.2 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.11.68 P-0-1645.x.3, CCD connection: Telegram assignment

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The telegram assignment defines at which position (telegram offset) and in which telegram (MDT or AT, telegram number) the connection is. The telegram offset points to the connection control (C-Con) of this connection. The parameter describes the CC connection with participation of the CCD master. Since the CCD master generates the telegram structure itself, this parameter is for display purposes only.

**Structure**

Bit	Designation/function	Comment
10-0	Telegram offset in bytes	
11	Telegram type 0: AT 1: MDT	
15-12	Telegram number 0: MDT0 / AT0 1: MDT1 / AT1 2: MDT2 / AT2 3: MDT3 / AT3	

Tab.5-243: P-0-1645.x.3, CCD connection: Telegram assignment

Product-Specific Parameters

<b>P-0-1645.x.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.69 P-0-1645.x.4, CCD connection: Max. length of connection

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b> device-specific		

**Function** With this parameter, the CCD master shows how many bytes it allows for this connection. The 2 bytes are included for the connection control C-Con.

<b>P-0-1645.x.4 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.70 P-0-1645.x.5, CCD connection: Current connection length

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b> device-specific		

**Function** With this parameter, the CCD master shows how many bytes are currently required for this connection. The 2 bytes are included for the connection control C-Con.

The date of this parameter is made available by the CCD master for all configuration types which can be set ("P-0-1645.x.1, CCD connection: Configuration") and is always updated after "P-0-1645.x. 6 , CCD connection: Configuration list" has been written.

<b>P-0-1645.x.5 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.71 P-0-1645.x.6, CCD connection: Configuration list

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b> device-specific		

## Product-Specific Parameters

**Function** The parameter describes the CC connection with participation of the CCD master.

This parameter contains the IDNs (4 bytes) which are cyclically transmitted in this connection. The content only takes effect in configuration type

00: Configuration with EIDNs (P-0-1645.x.1, CCD connection: Configuration).

With this configuration type, the CCD master determines parameter "P-0-1645.x.5, CCD connection: Current connection length" from the content of this parameter.

<b>P-0-1645.x.6 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		s. Text		
<b>MPC:</b>		--- / ---		s. Text		
<b>MPE:</b>		--- / ---		s. Text		
<b>MPM:</b>		--- / ---		s. Text		

## 5.11.72 P-0-1645.x.7, CCD connection: Assigned connection capability

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1645.0.7" is used to assign a connection type to a connection.

**Use** Observe the following aspects for parameter setting:

- If the value of the parameter is "-1", there was no assignment and the default settings are applicable.
- If the value of the parameter is "0", a clock-synchronous consumer connection is set with a maximum of 12 bytes.
- If the value of the parameter is "1", a clock-synchronous producer connection is set with a maximum of 12 bytes.
- When data is written to the value, parameters "P-0-1645.x.1, CCD connection: Configuration" and "P-0-1645.x.4, CCD connection: Max. length of connection" are adjusted according to the selection.
- During CCD phase startup, the system checks whether the maximum number of configurable connections of this type is exceeded when all connections are selected. If yes, an error code is output during CCD phase startup.

<b>P-0-1645.x.7 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		-1 / 1		---		
<b>MPC:</b>		-1 / 1		---		
<b>MPE:</b>		-1 / 1		---		
<b>MPM:</b>		-1 / 1		---		

## 5.11.73 P-0-1645.x.8, CCD connection: Connection control (C-Con)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** device-specific

**Function** This parameter contains the image of the connection control (C-Con) of the connection. This applies to producer and consumer connections.

Bit	Designation/function	Comment
0	<b>ProducerReady</b> 0: Producer does not generate any valid command values yet 1: Producer generates valid command values Slave can apply command values by toggling bit 1	
1	<b>NewData bit</b> Edge indicates that there is new data in the connection	
2	<b>CC DataFieldDelay</b> 1: CC producer data has a SERCOS cycle delay, because it was copied via the bus master. The consumer shall prefer taking the data of the port at which this bit has the value 0.	
3	<b>ProducerSynchronized</b> 0: The PLL of the producer is not synchronized with the clock of the ring 1: The PLL of the producer is synchronized with the clock of the ring	
6	<b>Real-time bit 1</b>	
7	<b>Real-time bit 2</b>	

Tab.5-244: P-0-1645.x.8, CCD connection: Connection control (C-Con)

### P-0-1645.x.8 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.74 P-0-1645.x.9, CCD connection: State

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter displays the current status of each single connection.

**Structure** The displayed value ("state") of the connection state machine depends on the connection type (producer, consumer):

## Product-Specific Parameters

Value	Description	Comment
0	init	State automatically reached on restart. Connection error bit is deleted from S-Dev.
1	prepare	State of an active connection if the connection check in the command during the CCD phase startup was without errors.
2	ready	Connection has been started - ProducerReady is sent with 1 - NewData does not yet toggle. Currently, the state cannot be detected in IndraDrive because the transfer is achieved immediately after "producing".
3	producing	NewData toggles according to specification - valid process data is transferred.
4	stopping	Stop bit is set - state of remaining bits in C-Con and state of process data are as desired. Currently, the state is not implemented in the IndraDrive.

Tab.5-245: P-0-1645.x.9, Value Code for Producer Connections

## Structure

Value	Description	Comment
0	init	State automatically reached on restart. Connection error bit is deleted from S-Dev.
1	prepare	State of an active connection if the connection check took place during the CCD phase startup.
2	waiting	Waiting for NewData; process data is not retrieved.
3	consuming	Process data is retrieved; connection monitoring is active.
4	stopped	Process data is not retrieved. Connection monitoring is not active. Currently, the state is not implemented in the IndraDrive.
5	warning	Process data is not retrieved. Connection monitoring is active.
7	error	Process data is not retrieved. Connection error bit is set in S-Dev. The state is exited by a CCD phase startup.

Tab.5-246: P-0-1645.x.9, Value Code for Consumer Connections

## P-0-1645.x.9 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.75 P-0-1645.x.10, CCD connection: Producer cycle time

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter indicates the cycle time within which the producer updates the data of the cyclic connection. In addition, the NewData bit in the connec-

Product-Specific Parameters

tion control is toggled. The consumer of the connection uses the time as a monitoring time to detect failures. The number of failures is displayed in "P-0-1645.x.12, CCD connection: Error counter data losses".

The parameter describes the CC connection with participation of the CCD master.

<b>P-0-1645.x.10 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		1000,000	
		MPC:	--- / ---		1000,000	
		MPE:	--- / ---		1000,000	
		MPM:	--- / ---		1000,000	

### 5.11.76 P-0-1645.x.11, CCD connection: Allowed losses of producer data

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
		<b>Funct. package(s):</b>	"open loop", "closed loop"	
		<b>Device parameter:</b>	device-specific	

**Function** This parameter indicates the number of allowed losses of producer data, before a connection is considered to be broken, the consumer does not process data anymore and sets the Err-Con bit for the bus master in the device status (S-Dev, S-IF).

The parameter describes the CC connection with participation of the CCD master.

<b>P-0-1645.x.11 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		2	
		MPC:	--- / ---		2	
		MPE:	--- / ---		2	
		MPM:	--- / ---		2	

### 5.11.77 P-0-1645.x.12, CCD connection: Error counter data losses

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
		<b>Funct. package(s):</b>	"open loop", "closed loop"	
		<b>Device parameter:</b>	device-specific	

**Function** This parameter indicates how many losses of producer data the consumer has already detected. This counter is without overflow and ends with 65535. The counter will be reset through the positive edge of ProducerReady in the connection control (C-Con).

<b>P-0-1645.x.12 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## Product-Specific Parameters

## 5.11.78 P-0-1645.x.20, CCD connection: IDN allocation of real-time bits

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains the IDN assignment (4Byte) of the real-time bits in the connection control (C-Con). The list contains a maximum of 2 IDNs. The bit assignment takes place in parameter "P-0-1645.x.21, CCD connection: Bit allocation of real-time bits".

The parameter describes the CC connection with participation of the CCD master.

P-0-1645.x.20 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

## 5.11.79 P-0-1645.x.21, CCD connection: Bit number allocation of real-time bits

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains the bit assignment of the real-time bits parameterized in "P-0-1645.x.20, CCD connection: IDN allocation of real-time bits". The list contains a maximum of 2 bit offsets with values from 0...31.

The parameter describes the CC connection with participation of the CCD master.

P-0-1645.x.21 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

## 5.11.80 P-0-1651, CCD: Master control word, slave 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-165x, CCD: Master control word, slave x" contains the control word which the CCD master delivers to CCD slave x and which arrives in "S-0-0134, Master control word" of the CCD slave.



"x" is the slave number → e.g. slave "1"

Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

**Use** When using the parameter, observe the following aspects:

- The internal PLC writes to the master control words (cf. P-0-165x) in MLD-M system mode.
- In CCD system mode and with active field bus connection, the internal profile interpreter writes to the master control words.
- In CCD basic mode and CCD system mode, direct writing to the parameters is allowed with a parallel interface and SERCOS master communication.

<b>P-0-1651 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

### 5.11.81 P-0-1652, CCD: Master control word, slave 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1651, CCD: Master control word, slave 1"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1652 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

### 5.11.82 P-0-1653, CCD: Master control word, slave 3

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1651, CCD: Master control word, slave 1"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1653 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## Product-Specific Parameters

## 5.11.83 P-0-1654, CCD: Master control word, slave 4

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1651, CCD: Master control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1654 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.84 P-0-1655, CCD: Master control word, slave 5

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1651, CCD: Master control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1655 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.85 P-0-1656, CCD: Master control word, slave 6

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1651, CCD: Master control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1656 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

Product-Specific Parameters

## 5.11.86 P-0-1657, CCD: Master control word, slave 7

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1651, CCD: Master control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1657 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## 5.11.87 P-0-1658, CCD: Master control word, slave 8

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1651, CCD: Master control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1658 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.88 P-0-1659, CCD: Master control word, slave 9

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1651, CCD: Master control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1659 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Product-Specific Parameters

## 5.11.89 P-0-1660.x.2, CCD: Device Control (C-Res)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1660.x.2" displays the SERCOS III: Device control word (S-0-1044) of the CCD slaves, which is transmitted from the CCD master to the CCD slaves in the MDT. The safety technology (SI) is used as slave index (0 = virt. slave, 1 = slave 1, etc.).

This parameter is an image of the Device Control (C-Dev) of the CCD slaves. It is read-only and can be used for diagnostic purposes.

See also Parameter Description "S-0-1044, SERCOS III: Device Control (C-Dev)"

See also Functional Description "Cross Communication (CCD)"

P-0-1660.x.2 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.90 P-0-1660.x.3, CCD: Connection-Control #1 (C-Con)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1660.x.3" displays the Connection Control #1 (C-Con) of the CCD slaves, which is transmitted from the CCD master to the CCD slaves in the MDT. The CCD master uses connection #1 (S-0-1050.1.x) of the CCD slaves for classic MS-MDT data. The safety technology (SI) is used as slave index (0 = virt. slave, 1 = slave 1, etc.).

The parameter is an image of C-Con of connection #1 in the CCD slave.

It is read-only and can be used for diagnostic purposes.

See also Parameter Description "S-0-1050.0.8, SIII-Connection: Connection control (C-Con)"

See also Functional Description "Cross-Communication (CCD)"

## Structure

Bit	Designation/function	Comment
0	<b>ProducerReady</b> 0: Producer does not generate any valid command values yet 1: Producer generates valid command values, slave can process the command values with toggle of bit 1	
1	<b>NewData bit</b> Edge indicates that there is new data in the connection	

Product-Specific Parameters

Bit	Designation/function	Comment
2	<b>CC DataFieldDelay</b> 1: CC producer data has a SERCOS cycle delay, because it was copied via the bus master. The consumer shall prefer taking the data of the port at which this bit has the value 0.	
3	<b>ProducerSynchronized</b> 0: The PLL of the producer is not synchronized with the clock of the ring 1: The PLL of the producer is synchronized with the clock of the ring	
6	<b>Real-time bit 1</b>	
7	<b>Real-time bit 2</b>	

Tab.5-247: P-0-1660.x.3, CCD: Connection-Control #1 (C-Con)

P-0-1660.x.3 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.91 P-0-1660.x.20, CDD: Resource-Control (C-Res)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1660.x.20" displays the "S-0-0134, Master status word" of the CCD slaves for drive slaves and the I/O control word for I/O slaves. The master parameterizes the resource control word to connection #1 of the CCD slaves. The master cyclically transmit the resource control word to the master. The safety technology (SI) is used as slave index (0 = virt. slave, 1 = slave 1, etc.).

For slaves of drive type, this parameter is an image of the master status word of the CCD slaves.

In MLD-M mode and CCD system mode, this parameter is for display purposes only. In CCD basic mode, the parameter can be used to preset the master control word "S-0-0134" of the CCD slaves.

Bit 12 in parameter "P-0-1600" can be used for slaves of type I/O to select whether the CCD master always automatically activates the outputs or whether this is determined by the application via parameter "P-0-1660.x.20".

The parameter is read-only and can be used for diagnostic purposes.

See also Functional Description "Cross-Communication (CCD)"

See also Parameter Description "S-0-0134, Master Control Word"

**Structure** S-0-1500.0.2, I/O status

## Product-Specific Parameters

Bit	Designation/function	Comment
12	<b>I/O warning</b> Not supported by EasyIO	
13	<b>I/O error</b> The bit is set if a class 1 diagnostics error is present.	
14	<b>Inputs valid</b> 0: Inputs not valid 1: Inputs valid	
15	<b>Outputs ready for operation</b> 0: Outputs not active 1: Outputs active	

Tab.5-248: Structure of I/O Status SERCOS III (S-Res)

## P-0-1660.x.20 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.92 P-0-1661, CCD: Drive status word, slave 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-166x, CCD: Drive status word, slave x" contains the status word delivered from CCD slave x to the CCD master (corresponds to the content of "S-0-0135, Drive status word" of CCD slave x).



"x" is the slave number → e.g. slave "1"

See also Functional Description "Cross Communication (CCD)"

**Use** Observe the following aspects when using parameters "P-0-166x":

- The internal PLC evaluates the drive status words (cf. P0-166x) in MLD-M system mode.
- In CCD system mode and with active field bus connection, the internal profile interpreter implements the drive status words.

## P-0-1661 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

Product-Specific Parameters

### 5.11.93 P-0-1662, CCD: Drive status word, slave 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1661, CCD: Drive status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1662 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.94 P-0-1663, CCD: Drive status word, slave 3

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1661, CCD: Drive status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1663 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.11.95 P-0-1664, CCD: Drive status word, slave 4

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1661, CCD: Drive status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1664 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## Product-Specific Parameters

## 5.11.96 P-0-1665, CCD: Drive status word, slave 5

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1661, CCD: Drive status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1665 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.97 P-0-1666, CCD: Drive status word, slave 6

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1661, CCD: Drive status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1666 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.98 P-0-1667, CCD: Drive status word, slave 7

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1661, CCD: Drive status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1667 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.99 P-0-1668, CCD: Drive status word, slave 8

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1661, CCD: Drive status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1668 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## 5.11.100 P-0-1669, CCD: Drive status word, slave 9

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1661, CCD: Drive status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1669 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.101 P-0-1670, CCD: Active actual position value, master

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1670 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	

## Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.11.102 P-0-1671, CCD: Active actual position value, slave 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The parameters "P-0-167x, CCD: active actual position value, master... slave x" display the active actual position values of the CCD slaves which are transmitted from the CCD slaves to the CCD master in the motion channel (AT) of the MLD-M.



The character "x" is the slave number → e.g. slave "1"!

See also Functional Description "Cross Communication (CCD)"

**Use** The following has to be observed for usage:

- Data are only transmitted to this parameter with active MLD-M, i.e. in the MLD system mode (cf. P-0-1600).
- In the case of error, this parameter can be used for diagnostic purposes.

P-0-1671 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.103 P-0-1672, CCD: Active actual position value, slave 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"

See also Functional Description "Cross Communication (CCD)"

P-0-1672 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.104 P-0-1673, CCD: Active actual position value, slave 3

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1673 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.105 P-0-1674, CCD: Active actual position value, slave 4

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1674 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.106 P-0-1675, CCD: Active actual position value, slave 5

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1675 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV

## Product-Specific Parameters

Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.107 P-0-1676, CCD: Active actual position value, slave 6

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1676 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.108 P-0-1677, CCD: Active actual position value, slave 7

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1677 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.109 P-0-1678, CCD: Active actual position value, slave 8

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			

Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"		
	<b>Device parameter:</b>		device-specific		
<b>Function</b>	See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"				
	See also Functional Description "Cross Communication (CCD)"				
<b>P-0-1678 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b> 4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b> DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b> S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b> --
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
	<b>MPB:</b>	--- / ---		---	
	<b>MPC:</b>	--- / ---		---	
	<b>MPE:</b>	--- / ---		---	
	<b>MPM:</b>	--- / ---		---	

### 5.11.110 P-0-1679, CCD: Active actual position value, slave 9

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1671, CCD: active actual position value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1679 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.111 P-0-1680, CCD: Actual velocity value, master

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1680 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Product-Specific Parameters

## 5.11.112 P-0-1681, CCD: Actual velocity value, slave 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The parameters "P-0-168x, CCD: actual velocity value, master... slave x" display the actual torque/force values of the CCD slaves which are transmitted from the CCD slaves to the CCD master in the motion channel (AT) of the MLD-M.



The character "x" is the slave number → e.g. slave "1"!

See also Functional Description "Cross Communication (CCD)"

**Use** The following has to be observed for usage:

- Data are only transmitted to this parameter with active MLD-M, i.e. in the MLD system mode (cf. P-0-1600).
- In the case of error, this parameter can be used for diagnostic purposes.

## P-0-1681 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.113 P-0-1682, CCD: Actual velocity value, slave 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"

See also Functional Description "Cross Communication (CCD)"

## P-0-1682 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.114 P-0-1683, CCD: Actual velocity value, slave 3

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»

Product-Specific Parameters

	Contained in 18VRS:			
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1683 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	S-0-0044	Extr. val. ch.:	--
	Cycl. tra.:	AT	Comb. check:	--
			Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

### 5.11.115 P-0-1684, CCD: Actual velocity value, slave 4

	Contained in 16VRS:			
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1684 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	S-0-0044	Extr. val. ch.:	--
	Cycl. tra.:	AT	Comb. check:	--
			Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

### 5.11.116 P-0-1685, CCD: Actual velocity value, slave 5

	Contained in 16VRS:			
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1685 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	S-0-0044	Extr. val. ch.:	--
	Cycl. tra.:	AT	Comb. check:	--
			Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	

## Product-Specific Parameters

MPE:	---	---	---
MPM:	---	---	---

## 5.11.117 P-0-1686, CCD: Actual velocity value, slave 6

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"					
See also Functional Description "Cross Communication (CCD)"						
P-0-1686 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.118 P-0-1687, CCD: Actual velocity value, slave 7

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"					
See also Functional Description "Cross Communication (CCD)"						
P-0-1687 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.119 P-0-1688, CCD: Actual velocity value, slave 8

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"				
	See also Functional Description "Cross Communication (CCD)"				

Product-Specific Parameters

P-0-1688 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.120 P-0-1689, CCD: Actual velocity value, slave 9

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1681, CCD: actual velocity value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1689 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	


### 5.11.121 P-0-1690, CCD: Actual torque/force value, master

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1690 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.122 P-0-1691, CCD: Actual torque/force value, slave 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»

## Product-Specific Parameters

	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		
<b>Function</b>	The parameters "P-0-169x, CCD: actual torque/force value, master... slave x" display the actual torque/force values of the CCD slaves which are transmitted from the CCD slaves to the CCD master in the motion channel (AT) of the MLD-M.			
<hr/>				
		The character "x" is the slave number → e.g. slave "1"!		
<hr/>				
	See also Functional Description "Cross Communication (CCD)"			
<b>Use</b>	The following has to be observed for usage:			
	<ul style="list-style-type: none"><li>• Data are only transmitted to this parameter with active MLD-M, i.e. in the MLD system mode (cf. P-0-1600).</li></ul>			
<b>P-0-1691 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
			<b>Format:</b>	DEC_MV
			<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
			<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.123 P-0-1692, CCD: Actual torque/force value, slave 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1692 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	S-0-0086	Extr. val. ch.:	--
	Cycl. tra.:	AT	Comb. check:	--
			Data length:	2Byte
			Format:	DEC_MV
			Decim. pl.:	S-0-0093 / S-0-0094
			Set-depend.:	--
		Input	min./max.	Default value
		MPB:	--- / ---	---
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

## 5.11.124 P-0-1693, CCD: Actual torque/force value, slave 3

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"				
	See also Functional Description "Cross Communication (CCD)"				

Product-Specific Parameters

P-0-1693 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.125 P-0-1694, CCD: Actual torque/force value, slave 4

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1694 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.126 P-0-1695, CCD: Actual torque/force value, slave 5

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1695 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.127 P-0-1696, CCD: Actual torque/force value, slave 6

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»

## Product-Specific Parameters

	<b>Hardware</b>		optional drives card	
	<b>Funct. package(s):</b>		"open loop", "closed loop"	
	<b>Device parameter:</b>		device-specific	
<b>Function</b>	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
<b>P-0-1696 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
			<b>Format:</b>	DEC_MV
			<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
			<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	--- / ---		---
	<b>MPC:</b>	--- / ---		---
	<b>MPE:</b>	--- / ---		---
	<b>MPM:</b>	--- / ---		---

## 5.11.128 P-0-1697, CCD: Actual torque/force value, slave 7

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1697 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	


## 5.11.129 P-0-1698, CCD: Actual torque/force value, slave 8

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1698 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.130 P-0-1699, CCD: Actual torque/force value, slave 9

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1691, CCD: actual torque/force value, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1699 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0086	Extr. val. ch.:	--	Decim. pl.:	S-0-0093 / S-0-0094
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.131 P-0-1701, CCD: Diagnostic message number, slave 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This parameter is used to display and evaluate the diagnostic message number of the CCD slaves x in the CCD master.					
<hr/>						
 "x" is the slave number → e.g., slave "1".						
<hr/>						
See also Functional Description "Cross-Communication (CCD)"						
Use	The following aspects have to be observed for use:					
	<ul style="list-style-type: none"><li>With active CCD error reaction (P-0-1600, bit 8 = 1) and in MLDM mode, the CCD master automatically configures "S-0-0390" in the AT of slave x and copies the content to P-0-170x.</li><li>A special handling for P-0-170x is implemented in the master to interpret the diagnostic message of a slave and, if necessary, trigger a reaction in the master.</li></ul>					
P-0-1701 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

### 5.11.132 P-0-1702, CCD: Diagnostic message number, slave 2

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»

## Product-Specific Parameters

	Contained in 18VRS:			
	Hardware	optional drives card	«-»	«-»
	Funct. package(s):			
	"open loop", "closed loop"			
	Device parameter:			
	device-specific			
Function	See also Parameter Description "P-0-1701, CCD: diagnostic message number slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1702 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
			Format:	HEX
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.133 P-0-1703, CCD: Diagnostic message number, slave 3

Allocation	Contained in 16VRS:			
	Hardware	optional drives card	«-»	«-»
	Contained in 17VRS:			
	Funct. package(s):	"open loop", "closed loop"	«-»	«MPC»
	Contained in 18VRS:			
	Device parameter:	device-specific	«-»	«-»
Function	See also Parameter Description "P-0-1701, CCD: diagnostic message number slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1703 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
			Format:	HEX
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.134 P-0-1704, CCD: Diagnostic message number, slave 4

Allocation	Contained in 16VRS:			
	Hardware	optional drives card	«-»	«-»
	Contained in 17VRS:			
	Funct. package(s):	"open loop", "closed loop"	«-»	«MPC»
	Contained in 18VRS:			
	Device parameter:	device-specific	«-»	«-»
Function	See also Parameter Description "P-0-1701, CCD: diagnostic message number slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1704 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
			Format:	HEX
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

Product-Specific Parameters

## 5.11.135 P-0-1705, CCD: Diagnostic message number, slave 5

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1701, CCD: diagnostic message number slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1705 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.136 P-0-1706, CCD: Diagnostic message number, slave 6

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1701, CCD: diagnostic message number slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1706 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.137 P-0-1707, CCD: Diagnostic message number, slave 7

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1701, CCD: diagnostic message number slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1707 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.138 P-0-1708, CCD: Diagnostic message number, slave 8

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1701, CCD: diagnostic message number slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1708 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.139 P-0-1709, CCD: Diagnostic message number, slave 9

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1701, CCD: diagnostic message number slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1709 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
			Format:	HEX
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.140 P-0-1710, CCD: Signal status word, master

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"				
	See also Functional Description "Cross Communication (CCD)"				

Product-Specific Parameters

<b>P-0-1710 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.141 P-0-1711, CCD: Signal status word, slave 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	device-specific		

**Function** The parameter in the CCD master contains the bits corresponding to the content of the signal status word (S-0-0144) in the CCD slave. Parameterization is done via:

- P-0-1611, CCD: Configuration list signal status word
- P-0-1613, CCD: Assignment list signal status word



"x" is the slave number → e.g. slave "1"

See also Functional Description "Cross Communication (CCD)"

**Use** The following must be observed during use of this parameter:

- The signal status word of slave x is automatically configured and interpreted only in MLD system mode and CCD system mode.
- In CCD basic mode, the signal status word of slave x is not operated.



Parameter "P-0-1710" is reserved for the virtual slave in the master. At present, "0" is always displayed!

<b>P-0-1711 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.142 P-0-1712, CCD: Signal status word, slave 2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	device-specific		

**Function** See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"  
See also Functional Description "Cross Communication (CCD)"

<b>P-0-1712 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		---	---	---	---
MPC:		---	---	---	---
MPE:		---	---	---	---
MPM:		---	---	---	---

## 5.11.143 P-0-1713, CCD: Signal status word, slave 3

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1713 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.144 P-0-1714, CCD: Signal status word, slave 4

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1714 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.145 P-0-1715, CCD: Signal status word, slave 5

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"				
	See also Functional Description "Cross Communication (CCD)"				

Product-Specific Parameters

<b>P-0-1715 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.146 P-0-1716, CCD: Signal status word, slave 6

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1716 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.147 P-0-1717, CCD: Signal status word, slave 7

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1717 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.148 P-0-1718, CCD: Signal status word, slave 8

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"				
	See also Functional Description "Cross Communication (CCD)"				

## Product-Specific Parameters

<b>P-0-1718 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

## 5.11.149 P-0-1719, CCD: Signal status word, slave 9

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1711, CCD: signal status word, slave 1"  
See also Functional Description "Cross Communication (CCD)"

<b>P-0-1719 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

## 5.11.150 P-0-1720, CCD: Signal control word, master

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1721, CCD: signal control word, slave 1"  
See also Functional Description "Cross Communication (CCD)"

<b>P-0-1720 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

## 5.11.151 P-0-1721, CCD: Signal control word, slave 1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

Product-Specific Parameters

**Function** The parameter in the CCD master contains the bits written to the signal control word (S-0-0145) in CCD slave x via the CCD bus.



"x" is the slave number → e.g. slave "1"

See also Functional Description "Cross Communication (CCD)"

**Use** The following must be observed during use of this parameter:

- In MLD-M system mode, the internal PLC writes to the signal control words.
- In CCD system mode and with active field bus connection, the internal profile interpreter writes to the signal control words.
- In CCD basic mode, there is direct write access to the parameters.
  - Parameterization is done via:
    - P-0-1612, CCD: Configuration list signal control word
    - P-0-1614, CCD: Assignment list signal control word



Parameter "P-0-1720" is reserved for the virtual slave in the master. No function at present!

**P-0-1721 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.11.152 P-0-1722, CCD: Signal control word, slave 2

**Allocation**

<b>Contained in 16VRS:</b>	«-»	«-»	«-»
<b>Contained in 17VRS:</b>	«-»	«-»	«-» «MPC»
<b>Contained in 18VRS:</b>	«-»	«-»	«-» «-»
<b>Hardware</b>	optional drives card		
<b>Funct. package(s):</b>	"open loop", "closed loop"		
<b>Device parameter:</b>	device-specific		

**Function** See also Parameter Description "P-0-1721, CCD: signal control word, slave 1"

See also Functional Description "Cross Communication (CCD)"

**P-0-1722 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.11.153 P-0-1723, CCD: Signal control word, slave 3

**Allocation**

<b>Contained in 16VRS:</b>	«-»	«-»	«-»
<b>Contained in 17VRS:</b>	«-»	«-»	«-» «MPC»
<b>Contained in 18VRS:</b>	«-»	«-»	«-» «-»
<b>Hardware</b>	optional drives card		

## Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"	
	<b>Device parameter:</b>		device-specific	
Function	See also Parameter Description "P-0-1721, CCD: signal control word, slave 1"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1723 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
		<b>Format:</b>	BIN	
		<b>Decim. pl.:</b>	0	
		<b>Set-depend.:</b>	--	
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.154 P-0-1724, CCD: Signal control word, slave 4

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»		
	Contained in 18VRS:	«-»	«-»	«-»		
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1721, CCD: signal control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1724 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## 5.11.155 P-0-1725, CCD: Signal control word, slave 5

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»		
	Contained in 18VRS:	«-»	«-»	«-»		
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1721, CCD: signal control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1725 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## 5.11.156 P-0-1726, CCD: Signal control word, slave 6

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1721, CCD: signal control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1726 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		---	/	---	
	MPC:		---	/	---	
	MPE:		---	/	---	
	MPM:		---	/	---	

## 5.11.157 P-0-1727, CCD: Signal control word, slave 7

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1721, CCD: signal control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1727 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## 5.11.158 P-0-1728, CCD: Signal control word, slave 8

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1721, CCD: signal control word, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1728 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

P-0-1729 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	--- --
MPC:	--- / ---	--- --
MPE:	--- / ---	--- --
MPM:	--- / ---	--- --

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
Hardware		--			
Funct. package(s):		motion logic			
Device parameter:		device-specific			

P-0-1730 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

Function	MPx-05 and below: CCD: MDT real-time container 1, master ... slave x
----------	--

## Product-Specific Parameters

In MLD system mode (cf. P-0-1600), parameters "P-0-173x" are used for the real-time channel.



"x" is the slave number → e.g., slave "1".

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4 bytes data to the CCD slave in the command value telegram (e.g., P-0-1731 → S-0-0036).

**Example:**

Slave 1 files "P-0-0434" to the AT → Master copies to "P-0-1731" and files "P-0-1731" to the MDT for slave 1 as "S-0-0047".



Parameters "P-0-1820" to "P-0-1899" are to be used for transmitting 2-byte data.

### P-0-1731 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	---	
<b>MPC:</b>			--- / ---	---	
<b>MPE:</b>			--- / ---	---	
<b>MPM:</b>			--- / ---	---	

## 5.11.162 P-0-1732, CCD: Command value data container 1, Slave 2 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** See also Parameter Description "P-0-1731, CCD: Command value data container 1, Slave 1 4Byte "

See also Functional Description "Cross-Communication (CCD)"

### P-0-1732 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	---	
<b>MPC:</b>			--- / ---	---	
<b>MPE:</b>			--- / ---	---	
<b>MPM:</b>			--- / ---	---	

## 5.11.163 P-0-1733, CCD: Command value data container 1, Slave 3 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		

## Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		device-specific			
<b>Function</b>	See also Parameter Description "P-0-1731, CCD: Command value data container 1, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
<b>P-0-1733 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

## 5.11.164 P-0-1734, CCD: Command value data container 1, Slave 4 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1731, CCD: Command value data container 1, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1734 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
MPE:			--- / ---	---		
MPM:			--- / ---	---		

## 5.11.165 P-0-1735, CCD: Command value data container 1, Slave 5 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1731, CCD: Command value data container 1, Slave 1 4Byte "					
See also Functional Description "Cross Communication (CCD)"						
P-0-1735 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:				--- / ---	---
MPC:				--- / ---	---	
MPE:				--- / ---	---	
MPM:				--- / ---	---	

Product-Specific Parameters

## 5.11.166 P-0-1736, CCD: Command value data container 1, Slave 6 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1731, CCD: Command value data container 1, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1736 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.167 P-0-1737, CCD: Command value data container 1, Slave 7 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1731, CCD: Command value data container 1, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1737 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.168 P-0-1738, CCD: Command value data container 1, Slave 8 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1731, CCD: Command value data container 1, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1738 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.169 P-0-1739, CCD: Command value data container 1, Slave 9 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1731, CCD: Command value data container 1, Slave 1 4Byte "			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1739 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
			Format:	DEC_MV
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.170 P-0-1740, CCD: Command value data container 2, Master 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte "			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1740 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
			Format:	DEC_MV
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.171 P-0-1741, CCD: Command value data container 2, Slave 1 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	In MLD system mode (cf. P-0-1600), parameters "P-0-174x" are used for the real-time channel.				

Product-Specific Parameters



"x" is the slave number → e.g., slave "1".

See also Functional Description "Cross-Communication (CCD)"

**Use**

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4 bytes data to the CCD slave in the command value telegram (e.g., P-0-1741 → S-0-0036).

**Example:**

Slave 1 files "S-0-0040" to the AT → Master copies to "P-0-1741" and files "P-0-1741" to the MDT for slave 1 as "S-0-0036".



Parameters "P-0-1820" to "P-0-1899" are to be used for transmitting 2-byte data.

**P-0-1741 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.172 P-0-1742, CCD: Command value data container 2, Slave 2 4Byte

**Allocation**

<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	device-specific			

**Function**

See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

**P-0-1742 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.173 P-0-1743, CCD: Command value data container 2, Slave 3 4Byte

**Allocation**

<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	device-specific			

**Function**

See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte"

## Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

## P-0-1743 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.174 P-0-1744, CCD: Command value data container 2, Slave 4 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

Function See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1744 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.175 P-0-1745, CCD: Command value data container 2, Slave 5 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

Function See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1745 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.176 P-0-1746, CCD: Command value data container 2, Slave 6 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card			

Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"		
	<b>Device parameter:</b>		device-specific		
<b>Function</b>	See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte"				
	See also Functional Description "Cross Communication (CCD)"				
"					
<b>P-0-1746 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b> 4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b> DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b> --
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>
	<b>MPB:</b>	--- / ---			---
	<b>MPC:</b>	--- / ---			---
	<b>MPE:</b>	--- / ---			---
	<b>MPM:</b>	--- / ---			---

### 5.11.177 P-0-1747, CCD: Command value data container 2, Slave 7 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1747 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.178 P-0-1748, CCD: Command value data container 2, Slave 8 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1748 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
		Format:	DEC_MV	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## Product-Specific Parameters

## 5.11.179 P-0-1749, CCD: Command value data container 2, Slave 9 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1741, CCD: Command value data container 2, Slave 1 4Byte"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1749 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
		Format:	DEC_MV	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.180 P-0-1750, CCD: Command value data container 3, Master 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	motion logic		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "			
	See also Functional Description "Cross-Communication (CCD)"			
P-0-1750 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
		Format:	DEC_MV	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.181 P-0-1751, CCD: Command value data container 3, Slave 1 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	In MLD system mode (cf. P-0-1600), parameters "P-0-175x" are used for the real-time channel.				



"x" is the slave number → e.g., slave "1".

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

## Product-Specific Parameters

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4 bytes data to the CCD slave in the command value telegram (e.g., P-0-1751 -> S-0-0036).

### Example:

The PLC writes to "P-0-1751" -> Master files this parameter to the MDT for slave 1 as "S-0-0282".



Parameters "P-0-1820" to "P-0-1899" are to be used for transmitting 2-byte data.

#### P-0-1751 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.182 P-0-1752, CCD: Command value data container 3, Slave 2 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

Function See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "

See also Functional Description "Cross Communication (CCD)"

#### P-0-1752 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.183 P-0-1753, CCD: Command value data container 3, Slave 3 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

Function See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "

See also Functional Description "Cross Communication (CCD)"

#### P-0-1753 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.184 P-0-1754, CCD: Command value data container 3, Slave 4 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1754 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.185 P-0-1755, CCD: Command value data container 3, Slave 5 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1755 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
			Format:	DEC_MV
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.186 P-0-1756, CCD: Command value data container 3, Slave 6 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "				
	See also Functional Description "Cross Communication (CCD)"				

Product-Specific Parameters

<b>P-0-1756 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.187 P-0-1757, CCD: Command value data container 3, Slave 7 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1757 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.188 P-0-1758, CCD: Command value data container 3, Slave 8 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1758 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.189 P-0-1759, CCD: Command value data container 3, Slave 9 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				

## Product-Specific Parameters

**Function** See also Parameter Description "P-0-1751, CCD: Command value data container 3, Slave 1 4Byte "

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1759 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.190 P-0-1760, CCD: Command value data container 4, Master 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte "

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1760 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.191 P-0-1761, CCD: Command value data container 4, Slave 1 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** In MLD system mode (cf. P-0-1600), parameters "P-0-176x" are used for the real-time channel.



"x" is the slave number → e.g., slave "1".

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4 bytes data to the CCD slave in the command value telegram (e.g., P-0-1761 → S-0-0036).

**Example:**

The PLC writes to "P-0-1761" → Master files this parameter to the MDT for slave 1 as "S-0-0282".

Product-Specific Parameters



Parameters "P-0-1820" to "P-0-1899" are to be used for transmitting 2-byte data.

P-0-1761 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			---	
MPC:	--- / ---			---	
MPE:	--- / ---			---	
MPM:	--- / ---			---	

### 5.11.192 P-0-1762, CCD: Command value data container 4, Slave 2 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1762 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.193 P-0-1763, CCD: Command value data container 4, Slave 3 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1763 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.194 P-0-1764, CCD: Command value data container 4, Slave 4 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			

## Product-Specific Parameters

	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		
<b>Function</b>	See also "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte " See also Functional Description "Cross Communication (CCD)"			
<b>P-0-1764 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	4Byte
		<b>Format:</b>	DEC_MV	
		<b>Decim. pl.:</b>	0	
		<b>Set-depend.:</b>	--	
	<b>Input</b>		<b>min./max.</b>	<b>Default value</b>
	<b>MPB:</b>		--- / ---	---
	<b>MPC:</b>		--- / ---	---
	<b>MPE:</b>		--- / ---	---
	<b>MPM:</b>		--- / ---	---

## 5.11.195 P-0-1765, CCD: Command value data container 4, Slave 5 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1765 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.196 P-0-1766, CCD: Command value data container 4, Slave 6 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte "			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1766 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	4Byte
		Format:	DEC_MV	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.197 P-0-1767, CCD: Command value data container 4, Slave 7 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»

Product-Specific Parameters

	<b>Hardware</b>		optional drives card	
	<b>Funct. package(s):</b>		"open loop", "closed loop"	
	<b>Device parameter:</b>		device-specific	
<b>Function</b>	See also "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte "			
	See also Functional Description "Cross Communication (CCD)"			
<b>P-0-1767 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	4Byte
			<b>Format:</b>	DEC_MV
			<b>Decim. pl.:</b>	0
			<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>	<b>Default value</b>
	<b>MPB:</b>		--- / ---	---
	<b>MPC:</b>		--- / ---	---
	<b>MPE:</b>		--- / ---	---
	<b>MPM:</b>		--- / ---	---

### 5.11.198 P-0-1768, CCD: Command value data container 4, Slave 8 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1768 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.11.199 P-0-1769, CCD: Command value data container 4, Slave 9 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also "P-0-1761, CCD: Command value data container 4, Slave 1 4Byte "					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1769 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.11.200 P-0-1770, CCD: Actual value data container 1, Master 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>		«-»	«-»	«-»
	<b>Contained in 17VRS:</b>		«MPB»	«-»	«-»
					«MPC»

## Product-Specific Parameters

	Contained in 18VRS:		« - »	« - »	« - »	« - »
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"					
	See also Functional Description "Cross-Communication (CCD)"					
P-0-1770 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.201 P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (cf. P-0-1600), parameters P-0-177x are used for the real-time channel.



"x" is the slave number → e.g. slave "1"

See also Functional Description "Cross Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4 bytes data from the CCD slave in the actual value telegram (e.g. P-0-1771 ← S-0-0051).

**Example:**

The slave files "S-0-0051" to the AT. The master copies the content of the AT to P-0-1771. P-0-1771 is used in the master for internal processing.

P-0-1771 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
	Data length:		4Byte	
	Format:		DEC_MV	
	Decim. pl.:		0	
	Set-depend.:		--	
	Input		min./max.	
	MPB:		--- / ---	
	MPC:		--- / ---	
	MPE:		--- / ---	
	MPM:		--- / ---	
	Default value		---	
	---		---	
	---		---	
	---		---	
	---		---	

## 5.11.202 P-0-1772, CCD: Actual value data container 1, Slave 2 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"

Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

P-0-1772 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.203 P-0-1773, CCD: Actual value data container 1, Slave 3 4Byte

Allocation

Contained in 16VRS:	<->	<->	<->
Contained in 17VRS:	<->	<->	<->
Contained in 18VRS:	<->	<->	<->
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

Function

See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

P-0-1773 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.204 P-0-1774, CCD: Actual value data container 1, Slave 4 4Byte

Allocation

Contained in 16VRS:	<->	<->	<->
Contained in 17VRS:	<->	<->	<->
Contained in 18VRS:	<->	<->	<->
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

Function

See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

P-0-1774 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.205 P-0-1775, CCD: Actual value data container 1, Slave 5 4Byte

Allocation

Contained in 16VRS:	<->	<->	<->
Contained in 17VRS:	<->	<->	<->
Contained in 18VRS:	<->	<->	<->
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

Function

See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"

## Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

## P-0-1775 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.206 P-0-1776, CCD: Actual value data container 1, Slave 6 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1776 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.207 P-0-1777, CCD: Actual value data container 1, Slave 7 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1777 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.208 P-0-1778, CCD: Actual value data container 1, Slave 8 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"

Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1778 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.209 P-0-1779, CCD: Actual value data container 1, Slave 9 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1771, CCD: Actual value data container 1, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1779 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.210 P-0-1780, CCD: Actual value data container 2, Master 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	motion logic		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1780 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.211 P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

## Product-Specific Parameters

**Function** In MLD system mode (cf. P-0-1600), parameters "P-0-178x" are used for the real-time channel.



"x" is the slave number → e.g., slave "1".

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4 bytes data from the CCD slave in the actual value telegram (e.g. P-0-1781 <- S-0-0051).

**Example:**

The slave files "S-0-0040" to the AT. The master copies the content of the AT to "P-0-1781". In the master, "P-0-1781" is used for internal processing



Parameters "P-0-1820" to "P-0-1899" are to be used for transmitting 2-byte data.

**P-0-1781 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.212 P-0-1782, CCD: Actual value data container 2, Slave 2 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

**P-0-1782 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.213 P-0-1783, CCD: Actual value data container 2, Slave 3 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1783 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.214 P-0-1784, CCD: Actual value data container 2, Slave 4 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				

**Function** See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1784 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.215 P-0-1785, CCD: Actual value data container 2, Slave 5 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1785 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.216 P-0-1786, CCD: Actual value data container 2, Slave 6 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				

**Function** See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

## Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

## P-0-1786 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.217 P-0-1787, CCD: Actual value data container 2, Slave 7 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1787 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.218 P-0-1788, CCD: Actual value data container 2, Slave 8 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1788 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.219 P-0-1789, CCD: Actual value data container 2, Slave 9 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function See also "P-0-1781, CCD: Actual value data container 2, Slave 1 4Byte"

Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

P-0-1789 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.220 P-0-1790, CCD: Actual value data container 3, Master 4Byte

Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«MPB»	«-»	«MPC»
Contained in 18VRS:	«-»	«-»	«-»
Hardware	--		
Funct. package(s):	motion logic		
Device parameter:	device-specific		

Function

See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"

See also Functional Description "Cross-Communication (CCD)"

P-0-1790 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.221 P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte

Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«MPC»
Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

Function

In MLD system mode (cf. P-0-1600), parameters "P-0-179x" are used for the real-time channel.



"x" is the slave number → e.g., slave "1".

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4 bytes data from the CCD slave in the actual value telegram (e.g. P-0-1791 ← S-0-0051).

Example:

The slave files "S-0-0189" to the AT. The master copies the content of the AT to "P-0-1791". In the master, "P-0-1791" is used for internal processing



Parameters "P-0-1820" to "P-0-1899" are to be used for transmitting 2-byte data.

## Product-Specific Parameters

<b>P-0-1791 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.222 P-0-1792, CCD: Actual value data container 3, Slave 2 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"  
See also Functional Description "Cross Communication (CCD)"

<b>P-0-1792 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.223 P-0-1793, CCD: Actual value data container 3, Slave 3 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"  
See also Functional Description "Cross Communication (CCD)"

<b>P-0-1793 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.224 P-0-1794, CCD: Actual value data container 3, Slave 4 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"  
See also Functional Description "Cross Communication (CCD)"

Product-Specific Parameters

<b>P-0-1794 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.225 P-0-1795, CCD: Actual value data container 3, Slave 5 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1795 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.226 P-0-1796, CCD: Actual value data container 3, Slave 6 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1796 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.11.227 P-0-1797, CCD: Actual value data container 3, Slave 7 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"				
	See also Functional Description "Cross Communication (CCD)"				

## Product-Specific Parameters

<b>P-0-1797 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.228 P-0-1798, CCD: Actual value data container 3, Slave 8 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"  
See also Functional Description "Cross Communication (CCD)"

<b>P-0-1798 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.229 P-0-1799, CCD: Actual value data container 3, Slave 9 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1791, CCD: Actual value data container 3, Slave 1 4Byte"  
See also Functional Description "Cross Communication (CCD)"

<b>P-0-1799 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.230 P-0-1800, CCD: Actual value data container 4, Master 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte"  
See also Functional Description "Cross-Communication (CCD)"

Product-Specific Parameters

<b>P-0-1800 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	<b>MPB:</b>		--- / ---		---	
	<b>MPC:</b>		--- / ---		---	
	<b>MPE:</b>		--- / ---		---	
	<b>MPM:</b>		--- / ---		---	

## 5.11.231 P-0-1800.0.1, CCD: Configuration

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter serves to configure the CCD communication in the CCD master.

See also Functional Description "Cross-Communication (CCD)"

**Structure** The bits of the configuration word have the following significance and function:

Bit	Designation/function	Comment
0	<b>Activation of cross communication in the master</b> 0: CCD master not active 1: CCD master active	
1	Reserved	
2	Reserved	
4/3	<b>CCD operation mode</b> 00: CCD system mode 01: MLD-M system mode 10: CCD basic mode	
5	<b>Decoupling from CCD phase switchover:</b> 0: Coupling to OM/PM switchover of CCD master (behavior in the past) 1: No coupling to OM/PM switchover of CCD master (default setting)	
6	<b>Synchronization of system times</b> 0: Function is switched off 1: The system time (P-0-0197) of the CCD master is distributed to the CCD slaves on CCD phase startup	

## Product-Specific Parameters

Bit	Designation/function	Comment
8/7	<b>CCD error reaction</b> <b>00: No reaction:</b> There is no reaction to errors of the CCD node. Any desired reaction has to be programmed in the control unit. <b>01: Simple error reaction:</b> In case of errors in a CCD node, warning "E2140" is displayed in the master. <b>10: Master-controlled synchronous error reaction</b> If this error reaction is active, parameter "P-0-1808.x.1, Diagnostic message number slave x" is cyclically evaluated and accordingly reacts to the other slaves in the master. Bit 10 can be used to select whether "P-0-1808.x.1" and "S-0-0390" are configured automatically for all slaves. <b>11: Automatic complete error reaction:</b> As soon as an error occurs in an axis, all axes are decelerated as parameterized in "P-0-0119". Error F2140/E2140 is set in the master.	
9	<b>Only in effect if bit 8/7 = 10</b> Definition of the reaction of the CCD master to an F8xxx error in the CCD group <b>0:</b> Torque disable; master clears "Drive enable" in the master control word of the CCD slaves <b>1:</b> Best possible deceleration; master clears "Drive on" in the master control word of the CCD slaves	
10	<b>CCD group error reaction if bit 8/7 = 10</b> Definition of whether "S-0-0390" of the slaves is automatically configured in AT, i.e., whether all slaves participate in the error reaction. <b>0:</b> Group reaction active <b>1:</b> Selective error reaction of the slaves (manual configuration)	
11	<b>Reaction in case of telegram failure</b> If the number of telegram failures in phase 4 exceeds the number parameterized in "P-0-1800.0.5", error F4140 is generated. <b>0:</b> The master attempts a phase return to phase 2 via phase 0. <b>1:</b> The master continues to preset phase 4.	
13	<b>Only in effect if bit 8/7 = 10</b> Is used to define the reaction of the CCD master to a non-fatal error or errors of class F6/F7xxx in the CCD group. <b>0:</b> No additional reaction <b>1:</b> Master clears "Drive on" in the master control word of the CCD slaves	

Tab.5-249: CCD Configuration

**Use** Observe the following aspects for parameter setting:



"P-0-1800.0.1" is only set in the CCD master because CCD slaves are mere sercos drives.

**Bits 4/3: CCD operation mode** for the CCD group. Depending on the application, the appropriate mode must be selected:

- **00: CCD system mode:**

Commands for the CCD slaves are triggered by the higher-level control (remote and external with profile interpreter with profile 0xFFFE and 0xFFFD) or, where appropriate, by the local MLD in the CCD slaves with constant control and profile type FFFD.

Process data can be exchanged between CCD master and slaves, as well as between the external control and CCD slaves --> CCD slaves are known in the external control.

- **01: MLD-M system mode:**

Commands for the CCD slaves are triggered via MLD in the master drive. Process data are only exchanged between CCD master and slaves --> CCD slaves are not known in the external control.

- **10: CCD basic mode:**

Command for the CCD slaves can be triggered by the higher-level control (remote and external, but without profile interpreter) via parameter P-0-1806.x.11 in the master, via MLD in the master drive or, where appropriate, via the local MLD-S with constant/local control. Process data are only exchanged between CCD master and slaves --> CCD slaves are not known in the external control.

**Bit 5: Decoupling from CCD phase switchover:**

This allows restoring the past behavior in versions below MPC-08:

- **1: No coupling to OM/PM switchover of CCD master:**

OM/PM switchover in the CCD master (C02 or C04) does not affect phase switchover of the CCD group. If the CCD group is in phase 4, a switchover to PM of the CCD master does not cause a phase return to CCD phase 2. In the CCD slaves, sercos phase startup is decoupled from the device switchover, with the result that an error occurring during initialization of the axis does not lead to abortion of the CCD phase startup (default setting). In case of sercos or EtherCat master communication, CCD phase switchover is coupled to master communication phase switchover in CCD system mode.

- **0: Coupling to PM<->OM switchover of CCD master:**

Permanent coupling of CCD phase switchover to OM/PM switchover in the CCD master. A switchover to PM in the CCD master always results in specification of CCD phase 2. An error occurring in switchover command C02 (OM) of a CCD node always leads to abortion of the CCD phase startup (past behavior in versions below MPC-08).

**Bits 8/7: Error reaction:**

- **00: No reaction**

In case of an error in a CCD axis, other CCD axes are not automatically decelerated. A group error reaction has to be explicitly programmed by the control unit.

- **01: Simple error reaction:** In case of errors in a CCD node, warning E2140 is displayed in the master.

- **10: Master-controlled synchronous error reaction**

## Product-Specific Parameters

If the error reaction is active, parameter "P-0-1808.x.1, Diagnostic message number slave x" is cyclically evaluated. For this purpose, "P-0-1808.x.1" must be configured for each slave in "P-0-1805.x.2". In "P-0-1805.x.4", parameter "S-0-0390" must have been entered at the corresponding place. The error reactions of both master and slaves are dependent on the error number detected.

- **11: Automatic complete error reaction:**

If the CCD master detects that an axis in the CCD group (master or slave) signals a class 1 diagnostics error, all axes are decelerated with best possible deceleration, as parameterized in "P-0-0119". The CCD master outputs error "F2140 CCD slave error". If the CCD master is not in control mode, only warning E2140 is displayed.

**Bit 10: CCD error reaction on the master side** (only in case of a master-controlled synchronous error reaction)

- If a slave in the CCD axis group is not to participate in the activated error reaction in the master, the automatic parameterization of the slave diagnosis for all slaves must be switched off with bit 10 of "P-0-1800.0.1". In this case, the entries for the diagnostic message numbers of the slaves to participate in the error reaction must be made manually in "P-0-1805.x.2" and "P-0-1805.x.4".

(P-0-1805.x.2[i] = P-0-1808.x.1 and P-0-1805.x.4[i] = S-0-0390)

**P-0-1800.0.1 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		s. Text		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

**5.11.232 P-0-1800.0.3, CCD: Control word**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
<b>Function</b>	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

This parameter can be used to control the functions of the CCD master during ongoing operation. The parameter is not stored.

**Structure**

Bit	Designation/function	Comment
0	<b>Target phase</b> 0: Synch. osci. function in CCD master deactivated (default) 1: Synch. osci. function in CCD master activated	

Tab.5-250: CCD Control Word

**P-0-1800.0.3 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		

Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

### 5.11.233 P-0-1800.0.5, CCD: Allowed telegram failures

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter can be used to parameterize the allowed telegram failures before error F4140 is trigger.

The parameter specifies the number of allowed telegram failures (MDT or AT) which may occur directly one after the other in phase 4, before the drive triggers an F4 error. The parameter can be changed and is retained in the parameter memory (default value = 1).

See also Functional Description "Cross-Communication (CCD)"

P-0-1800.0.5 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 65000	s. Text
MPC:	0 / 65000	s. Text
MPE:	0 / 65000	s. Text
MPM:	0 / 65000	s. Text

### 5.11.234 P-0-1800.0.10, CCD: Cycle time

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter can be used to set a CCD cycle time shorter than the master communication cycle time "S-0-0001" or S-0-1050.x.10 (consumer connection) of the CCD master.

See also Functional Description "Cross-Communication (CCD)"

**Use** The resulting cycle time which the CCD master specifies for the CCD slaves in S-0-1050.x.10 results from the lower value of "S-0-0001" or S-0-1050.x.10 (consumer connection) of the CCD master and "P-0-1800.0.10 " of the master. This means that if the value in "P-0-1800.0.10 CCD: Cycle time" is unequal to 0 and less than the master communication cycle time of the master, "P-0-1800.0.10" is specified as the connection cycle time for the CCD slaves.

P-0-1800.0.10 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,000 / 4000,000	0,000
MPC:	0,000 / 4000,000	0,000
MPE:	0,000 / 4000,000	0,000
MPM:	0,000 / 4000,000	0,000

## Product-Specific Parameters

## 5.11.235 P-0-1800.0.20, CCD: Application connection configuration, incremental

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1800.0.20" can be used by each CC configurator to configure its own CC connections. Parameter P-0-1800.0.20 contains information in CFG\_bin format. This is the format to be used for informing the CCD master about all CC connection data of an application ID (per configurator) in the CCD group.

P-0-1800.0.20 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.236 P-0-1800.0.21, CCD: Application connection configuration, overall

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1800.0.21" stores the sum total of all CC connections specified by configurators. It is required for initializing the overall system after restart or for parameter backup.

The parameter serves to store all connections which CC configurators reported to the CCD master via parameter "P-0-1800.0.20".

P-0-1800.0.21 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		s. Text		
MPC:		--- / ---		s. Text		
MPE:		--- / ---		s. Text		
MPM:		--- / ---		s. Text		

## 5.11.237 P-0-1800.0.22, CCD: Current connection configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** P-0-1800.0.22 serves for diagnosing all connections of the CCD group.

P-0-1800.0.22 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--


Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.238 P-0-1800.0.30, CCD: Extrapolated cmd value IDN list signal selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	The transmission delay between CCD master and slaves must be compensated for which reason the command value for the slaves is extrapolated. This is achieved by means of parameter "P-0-1800.0.30" which serves as a selection list for parameterizing "P-0-1800.0.31".			
See also Functional Description "Cross-Communication (CCD)"				
P-0-1800.0.30 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	4Byte var.
		Format:	IDN	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

### 5.11.239 P-0-1800.0.31, CCD: Extrapolated cmd value signal selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»		
	Contained in 18VRS:	«-»	«-»	«MPC»		
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	The transmission delay between CCD master and slaves must be compensated for which reason the command value for the slaves is extrapolated. To achieve this, parameter "P-0-1800.0.31" is used for configuring the CCD master signal used for extrapolation.					
<div> The extrapolated value is then entered in parameter "P-0-1800.0.33, CCD: Extrapolated command value".</div>						
See also Functional Description "Cross-Communication (CCD)"						
P-0-1800.0.31 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

## Product-Specific Parameters

## 5.11.240 P-0-1800.0.32, CCD: Number of extrapolation steps

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The transmission delay between CCD master and slaves must be compensated for which reason the command value for the slaves is extrapolated. To achieve this, the number of extrapolation steps to be taken is specified in "P-0-1800.0.32".

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects when setting "P-0-1800.0.32":

- The extrapolation covers n sercos cycles.
- The range of input values is from 0 to 2.

P-0-1800.0.32 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0 / 3		2		
	MPC:	0 / 3		2		
	MPE:	0 / 3		2		
	MPM:	0 / 3		2		

## 5.11.241 P-0-1800.0.33, CCD: Extrapolated command value

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The transmission delay between CCD master and slaves must be compensated for which reason the command value for the slaves is extrapolated. To achieve this, the extrapolated command value is entered in "P-0-1800.0.31" and can then be assigned to the slaves (P-0-1805.x.1[i] = P-0-1800.0.33).

See also Functional Description "Cross-Communication (CCD)"

P-0-1800.0.33 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.242 P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

## Product-Specific Parameters

**Function** In MLD system mode (cf. P-0-1600), parameters "P-0-180x" are used for the real-time channel.



"x" is the slave number → e.g., slave "1".

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4 bytes data from the CCD slave in the actual value telegram (e.g. P-0-1801 ← S-0-0051).

### Example:

The slave files "S-0-0303" to the AT. The master copies the content of the AT to "P-0-1801". In the master, "P-0-1801" is used for internal processing



Parameters "P-0-1820" to "P-0-1899" are to be used for transmitting 2-byte data.

#### P-0-1801 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.243 P-0-1801.0.1, CCD: Slave identification

#### Allocation

<b>Contained in 16VRS:</b>	«-»	«-»	«-»
<b>Contained in 17VRS:</b>	«-»	«-»	«-»
<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
<b>Hardware</b>	optional drives card		
<b>Funct. package(s):</b>	"open loop", "closed loop"		
<b>Device parameter:</b>	device-specific		

#### Function

Parameter "P-0-1801.0.1" can be used to control the diagnosis LED of a sercos slave in phases 2 to 4 of the CCD group by entering a topology location via the CCD master. If value 0 is entered, the function is deactivated. It allows unique assignment of a CCD slave to an address from parameter "P-0-1801.0.2". This function is useful for remote address assignment.

Topology location 1 corresponds to the first element from parameter "P-0-1801.0.3", etc.

#### P-0-1801.0.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0 / 32	---
MPC:	0 / 32	---
MPE:	0 / 32	---
MPM:	0 / 32	---

## Product-Specific Parameters

## 5.11.244 P-0-1801.0.2, CCD: Command topology addresses

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is used in conjunction with the drive cross communication (CCD). All addresses of the CCD slaves (drives and I/Os) connected to the CCD master must be specified in ascending order of their topology (list element 0 corresponds to the CCD slave directly next to the CCD master, etc.). Each address may be assigned only once.

If drives are projected in "P-0-1801.0.10" or I/Os in "P-0-1801.0.11", which are not contained in "P-0-1801.0.2", this will result in warning "E4013 Incorrect CCD addressing" when the CCD phase is started up.

The command and actual topologies must always be identical. The monitoring order is not defined. All addresses must be available and "P-0-1801.0.3, CCD: Actual topology addresses" or "P-0-1801.0.2" may not contain any further or other addresses.

Either the entries in "P-0-1801.0.2" must be adjusted to the actual topology or the addresses of the CCD slaves must be set to the command topology by means of command "C7000 CCD: Command Adjust slave addresses".

See also Functional Description "Cross-Communication (CCD)"

**Structure** The list parameter (2 bytes per element) has the following structure and content:

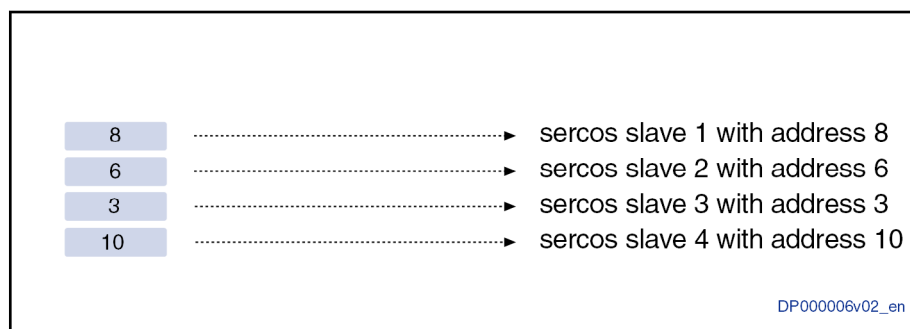


Fig.5-251: P-0-1801.0.2, CCD: Command topology addresses

Element 0 corresponds to the CCD slave which is directly connected to the CCD master.

P-0-1801.0.2 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			s. Text	
MPC:		--- / ---			s. Text	
MPE:		--- / ---			s. Text	
MPM:		--- / ---			s. Text	

## 5.11.245 P-0-1801.0.3, CCD: Actual topology addresses

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** device-specific

**Function** This parameter is used in conjunction with the drive cross communication (CCD). It displays the addresses of the sercos slaves (drives and I/Os) found in phase 0, in ascending order according to their topology (list element 0 corresponds to the CCD slave directly at the CCD master, etc.). Only the slaves contained in this list can be addressed in CCD phase 2 and higher phases. Up to phase 2, multiple addresses can exist.

If "P-0-1801.0.10" contains drives not contained in "P-0-1803.0.11", warning "E4013" or "C0265" is generated while command "C0200" is executed.

If the command topology in "P-0-1801.0.2" differs from the actual topology, warning "E4013" is generated. Switching on to CCD phase 3 or 4 is impossible.

The content of command and actual topologies must always be identical. Either the entries in "P-0-1801.0.2" must be adjusted to the actual topology or the addresses of the CCD slaves must be set to the command topology by means of command "P-0-1801.0.5, C7000 CCD: Command adjust slave addresses".

See also Functional Description "Cross-Communication (CCD)"

**Structure** The list parameter (2 bytes per element) has the following structure and content:

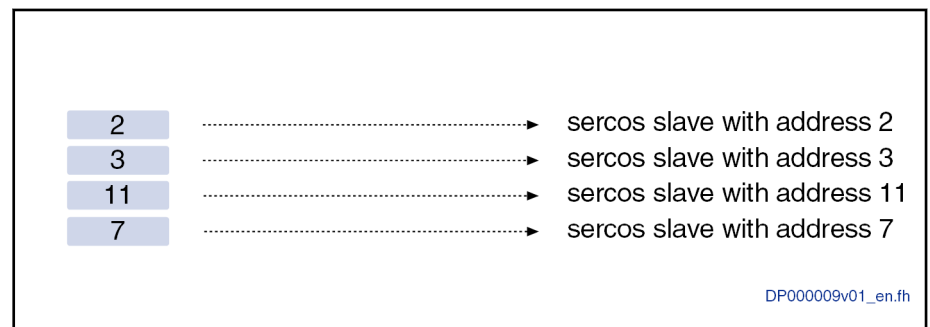


Fig. 5-252: P-0-1801.0.3, CCD: Actual topology

### P-0-1801.0.3 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.246 P-0-1801.0.4, CCD: Slave information at topology location

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1801.0.4" provides different pieces of information on the recognized slaves at the topology location. The parameter is created in binary format (4-byte list).

## Product-Specific Parameters

The information in this parameter serves to diagnose the slaves via the topology location and can be adjusted and displayed via the commissioning software "IndraWorks Ds/D/MLD".

The following information is provided for each slave:

- Vendor Code
- Device Name
- Vendor Device ID
- Connected to sub-device
- Serial number
- FSP type

Addressing variant with:

0 = no information or slave not available.

1 = address can be set via switch/control panel; remote address assignment not possible.

2 = address can be set via switch/control panel or remote address assignment.

3 = address can only be set via remote address assignment.

**Function** The topology location is the physical position of the slave at the sercos master interface. Observe the following aspects for the different wiring topologies:

- Line at port 1:

Index 0 = 1st slave at port 1 of the master

Index 1 = 2nd slave at port 1 of the master, etc.

- Line at port 2:

Index 0 = 1st slave at port 1 of the master

Index 1 = 2nd slave at port 2 of the master, etc.

If the configured command topology is a ring, the addresses of the slaves are displayed in reverse order at port 2 so that, if the ring is interrupted, it is of no relevance whether the ring is interrupted directly at port 2 of the master or between two slaves.

- Ring: same as line at port 1

- 2 lines: same as ring without interruption

See also Functional Description "Cross-Communication (CCD)"

**P-0-1801.0.4 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

**5.11.247 P-0-1801.0.5, C7000 CCD: Command adjust slave addresses**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

## Product-Specific Parameters

**Function** Command P-0-1801.0.5 is used to set the addresses of the CCD slaves. The addresses from "P-0-1801.0.2, CCD: Command topology addresses" are specified to the corresponding CCD slaves and applied to the CCD slaves.

"List element 0" corresponds to the command address for the first CCD slave which is connected to the CCD master. This is the only way to assign a unique address, e.g., to the compact I/Os.

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1801.0.5 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>		--- / ---			---	
<b>MPC:</b>		--- / ---			---	
<b>MPE:</b>		--- / ---			---	
<b>MPM:</b>		--- / ---			---	

### 5.11.248 P-0-1801.0.10, CCD: Addresses of projected drives

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** This parameter is used along with the drive cross communication (CCD) to list the addresses of the CCD slaves (drives) projected in the CCD group, thus establishing the assignment of the actual drive address and drive number (logical drive address) in the CCD group.

If all projected drives are detected (P-0-1801.0.3), the addresses are entered in the same order as given in "P-0-1801.0.10" and applied to "P-0-4031". The order can be selected as desired and is applied after the address of the CCD master according to "P-0-4031" (P0->P1). On transition to P2, it is verified whether the addresses projected here are also of the drive type.

See also Functional Description "Cross-Communication (CCD)"



If the address of a sercos slave, which is not contained in "P-0-1801.0.3, CCD: Actual topology addresses", is mentioned in "P-0-1801.0.10", warning E4013 is generated.

**Structure** The list parameter (2 bytes per element) has the following structure and content:

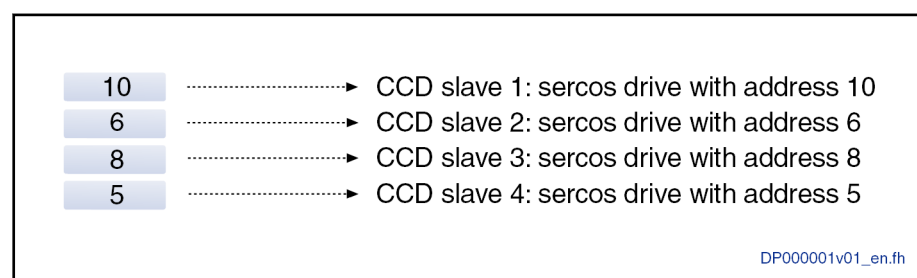


Fig.5-253: P-0-1801.0.10, CCD: addresses of projected drives

**Use** Observe the following aspects for parameterizing P-0-1801.0.10:

- "P-0-1801.0.10" is only present in the CCD master and must therefore be parameterized there.

## Product-Specific Parameters

- The drive having the address entered in list element 0 corresponds to CCD drive 1, etc.
- A configured slave can be deactivated via bit 15 = 1 in a list element. As a result, the order of parameterization in the CCD lists and the PLC programs can remain identical for similar applications.



When all CCD slaves have been deactivated, X24 has to be connected to X25 with a sercos cable.

## P-0-1801.0.10 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.249 P-0-1801.0.11, CCD: Addresses of projected I/Os

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is used along with the drive cross communication (CCD) to list the addresses of the CCD slaves (I/Os) projected in the CCD group, thus establishing the assignment of the actual I/O address and I/O number (logical I/O address) in the CCD group.

If all configured I/Os are detected (P-0-1801.0.3), the addresses are entered in the same order as given in "P-0-1801.0.11" and applied to "P-0-4031". The order can be selected as desired and is applied after the drive addresses according to "P-0-4031" (P0->P1). On transition to P2, it is verified whether the addresses configured here are indeed allowed I/Os.

See also Functional Description "Cross-Communication (CCD)"



If the address of a sercos slave, which is not contained in "P-0-1801.0.3, CCD: Actual topology addresses", is mentioned in "P-0-1801.0.11", warning "E4013" is generated.

**Structure** The list parameter (2 bytes per element) has the following structure and content:

2	.....>	sercos I/O1: sercos I/O with address 2
3	.....>	sercos I/O2: sercos I/O with address 3
11	.....>	sercos I/O3: sercos I/O with address 11
7	.....>	sercos I/O4: sercos I/O with address 7

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Fig. 5-254: P-0-1801.0.11, CCD: Addresses of projected I/Os

**Use** Observe the following aspects when parameterizing "P-0-1801.0.11":

## Product-Specific Parameters

- "P-0-1801.0.11" is only present in the CCD master and must therefore be parameterized there.
- The I/O module having the address entered in list element 0 corresponds to CCD I/O 1, etc.

A configured slave can be deactivated via bit 15 = 1 in a list element. As a result, the order of parameterization in the CCD lists and the PLC programs can remain identical for similar applications.

### P-0-1801.0.11 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.250 P-0-1801.0.20, CCD: Command topology

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1801.0.20" serves to define the command topology of the slave interfacing.

- 0 = no monitoring
- 1 = line at port 1
- 2 = line at port 2
- 3 = line 1 at port 1 and line at port 2
- 4 = dual ring

Monitoring of the "actual topology" is active if a value unequal to 0 is parameterized in the parameter. If the "actual topology" from "P-0-1801.0.21" is different from the "command topology", warning "E4016" is output.

See also Functional Description "Cross-Communication (CCD)"

**Use** The command topology from "P-0-1801.0.20" is used to monitor the "actual topology" (see P-0-1801.0.21).

### P-0-1801.0.20 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0 / 4	0
MPC:	0 / 4	0
MPE:	0 / 4	0
MPM:	0 / 4	0

## 5.11.251 P-0-1801.0.21, CCD: Actual topology

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

## Product-Specific Parameters

**Function** Parameter "P-0-1801.0.21" displays the actual topology (status of the sercos ring) of the slave interfacing.

- 0 = no line at port and port 2
- 1 = line at port 1
- 2 = line at port 2
- 3 = line at port 1 and line at port 2
- 4 = dual ring

See also Functional Description "Cross-Communication (CCD)"

**Use** The actual topology is used to monitor the command topology (see P-0-1801.0.20).

**P-0-1801.0.21 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.252 P-0-1801.0.22, CCD: Slave addresses at end of line

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1801.0.22" is a list parameter with two list elements. If the topology is a line topology, this parameter is filled with the addresses of the CCD slaves at the end of the lines. If there is a dual ring, both list elements contain the value 0.

List element 0 = address of the CCD slave at the end of the line at port 1

List element 1 = address of the CCD slave at the end of the line at port 2

If no slave is connected to anyone port of the CCD master, the associated list element displays the value 0. This parameter can be used for diagnosing a ring breakage.

See also Functional Description "Cross-Communication (CCD)"

**P-0-1801.0.22 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.253 P-0-1801.0.23, C7100 CCD: Command Close ring

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

Product-Specific Parameters

**Function** The CCD master provides command "P-0-1801.0.22" (C7100) for ring healing purposes. This allows closing the line or the two lines to the dual ring in the "command topology" P-0-1801.0.20 = 4 (dual ring). If an error occurs in command C7100, the message C7101 CCD: Impossible to close ring is displayed.

Cause:

- CCD group not in phase 4
- Topology does not consist of a line or dual line
- No line available between the last nodes of the lines.
- New ring delay could not be transmitted to the slave.

See also Functional Description "Cross-Communication (CCD)"

P-0-1801.0.23 - Attributes	<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.254 P-0-1802, CCD: Actual value data container 4, Slave 2 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also "P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

P-0-1802 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.255 P-0-1802.0.1, C7400 CCD: Switching to phase 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This command can be used to switch the CCD communication over to sercos phase 2. Parameter "P-0-1802.0.3, CCD: Command communication phase" is set to phase 2. Thereafter, an attempt is made to reach "Phase 2" via "Phase 0" and "Phase 1". This should be done only if the CCD master is not in OM because otherwise error "F4140" is output.

See also Functional Description "Cross-Communication (CCD)"

## Product-Specific Parameters

<b>P-0-1802.0.1 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.256 P-0-1802.0.2, C7500 CCD: Switching to phase 4

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
		<b>Funct. package(s):</b>	"open loop", "closed loop"	
		<b>Device parameter:</b>	device-specific	

**Function** This command can be used to switch the CCD communication over to sercos phase 4. Parameter "P-0-1802.0.3, CCD: Command communication phase" is set to phase 4. Subsequently, an attempt is made to switch over to phase 4 via the sercos phase startup. During this startup, switching commands "S-0-0127" and "S-0-0128" of the sercos slaves are started. If an error occurs during this process or during phase switchover, the command is exited with an error.

See also Parameter Description "P-0-1810.0.10, CCD: Diagnosis"

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1802.0.2 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.257 P-0-1802.0.3, CCD: Command communication phase

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
		<b>Funct. package(s):</b>	"open loop", "closed loop"	
		<b>Device parameter:</b>	device-specific	

**Function** This parameter is used to specify the command phase for the CCD group.



P-0-1802.0.3 is only available in the CCD master.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects when writing to this parameter:

- Possible phase specification:
  - 0: P0
  - 1: P1
  - 2: P2
  - 3: P3

Product-Specific Parameters

– 4: P4

- Normally, the CCD phase input is automatically made by commands "P-0-1802.0.1" and "P-0-1802.0.2" in the CCD master, i.e. the master internally writes to "P-0-1802.0.3".

P-0-1802.0.3 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		Input		min./max.	Default value	
		MPB:		0 / 4	---	
		MPC:		0 / 4	---	
		MPE:		0 / 4	---	
		MPM:		0 / 4	---	

### 5.11.258 P-0-1802.0.4, CCD: Actual communication phase

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		device-specific		

**Function** This parameter displays the current actual communication phase of the CCD group.



"P-0-1802.0.4" cannot be changed by the user and exists in the CCD master for diagnostic purposes only.

See also Functional Description "Cross-Communication (CCD)"

P-0-1802.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		Input		min./max.	Default value	
		MPB:		--- / ---	---	
		MPC:		--- / ---	---	
		MPE:		--- / ---	---	
		MPM:		--- / ---	---	

### 5.11.259 P-0-1803, CCD: Actual value data container 4, Slave 3 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		device-specific		

**Function** See also "P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

P-0-1803 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
		Input		min./max.	Default value	
		MPB:		--- / ---	---	
		MPC:		--- / ---	---	
		MPE:		--- / ---	---	
		MPM:		--- / ---	---	

## Product-Specific Parameters

## 5.11.260 P-0-1803.x.1, CCD: Slave address in high level network

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Replacement parameter "P-0-232x" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter defines the sercos address of the CCD slaves in the master communication network of the CCD master (high level network). The address to be set is that which the master communication master can use to address the CCD slaves.

The reference to the CCD slave in the lower-level sercos network is established via parameter "P-0-1801.0.10, CCD:Addresses of projected drives". Parameter "P-0-1803.0.1" refers to the CCD slave with the sercos address which is entered in element 0 of "P-0-1801.0.10". Parameter "P-0-1803.1.1" refers to the CCD slave with the sercos address which is entered in element 1 of "P-0-1801.0.10".



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

In CCD system mode, parameter "P-0-1803.x.1" has for sercos the additional function of the appropriate master communication parameter "S-0-1040" for the CCD slaves. Any write or read access to parameter "S-0-1040" by the sercos master is bypassed to parameter "P-0-1803.x.1" in the CCD master because parameter "S-0-1040" is used for sercos communication in the CCD slave and can therefore not be used for sercos communication of the high level network.

See also Functional Description "Cross-Communication (CCD)"

## P-0-1803.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0 / 99		s. Text		
<b>MPC:</b>	0 / 99		s. Text		
<b>MPE:</b>	0 / 99		s. Text		
<b>MPM:</b>	0 / 99		s. Text		

## 5.11.261 P-0-1803.x.11, CCD: Configuration list master communication cmd values


Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		


**Function** Parameter "P-0-1803.x.11" serves to configure the command values in "CCD system mode". In the group field bus connection, these command values are transmitted from the external field bus master via the CCD master to the CCD slaves in the MDT.

As a result, parameter "P-0-1803.x.11" corresponds to a list of command values which are provided via the master communication command value tele-

## Product-Specific Parameters

gram (P-0-4081) and which the master directly copies to the MDT CCD interface for the appropriate CCD slaves.

 The content of "P-0-1803.x.11", along with the content of "P-0-1805.x.3", is also directly copied to the list of cyclic command values of the associated slave.

 x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for parameter setting:

- The only values that can be entered in parameter "P-0-1803.x.11" are command values that can be configured cyclically (S-0-0188).
- The cyclic master communication command values of the slaves are configured via "P-0-1803.x.11". The master communication command values of the CCD master are still entered in "P-0-4081".
- Due to the allowed maximum number of 16 IDNs for each CCD slave, the number of maximum possible entries is limited in "P-0-1803.x.11".

### P-0-1803.x.11 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--


Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text


## 5.11.262 P-0-1803.x.12, CCD: Configuration list master communication actual values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In "CCD system mode", parameter "P-0-1803.x.12" serves to configure the actual values which are transferred from the individual CCD slaves via the CCD master to the external field bus master in the group field bus connection.

As a result, "P-0-1803.x.12" corresponds to a list of actual values which are supplied by the particular CCD slave via CCD-AT and which the master directly copies to the master communication actual value telegram.

 The content of "P-0-1803.x.12", along with the content of "P-0-1805.x.4", is also directly copied to the list of actual cyclic values of the associated slave.

 x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for parameter setting:

- The only values that can be entered in parameter "P-0-1803.x.12" are actual values that can be configured cyclically (S-0-0188).

## Product-Specific Parameters

- The cyclic master communication actual values of the slaves are configured via "P-0-1803.x.12". The master communication actual values of the CCD master are still entered in "P-0-4080".
- Due to the allowed maximum number of 16 IDNs for each CCD slave, the number of maximum possible entries is limited in "P-0-1803.x.12".

## P-0-1803.x.12 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		s. Text	
<b>MPC:</b>		--- / ---		s. Text	
<b>MPE:</b>		--- / ---		s. Text	
<b>MPM:</b>		--- / ---		s. Text	

## 5.11.263 P-0-1803.x.20, CCD: Master comm. C0100 Comm. phase 3 transition check

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In CCD system mode, parameter "P-0-1803.x.20" has the function of the appropriate master communication parameter "S-0-0127, C0100 Communication phase 3 transition check" for sercos and EtherCAT. In the CCD master, initiation of the command is bypassed to parameter "P-0-1803.x.20" because parameter "S-0-0127" is reserved for sercos communication in the CCD slave.

The appropriate action for the associated master communication slave is carried out in the CCD master.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See Functional Description "Cross-Communication (CCD)"

## P-0-1803.x.20 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	P23	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		0x0 / 0x3		---	
<b>MPC:</b>		0x0 / 0x3		---	
<b>MPE:</b>		0x0 / 0x3		---	
<b>MPM:</b>		0x0 / 0x3		---	

## 5.11.264 P-0-1803.x.21, CCD: Master comm. C5200 Comm. phase 4 transition check

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In CCD system mode, parameter "P-0-1803.x.21" has the function of the appropriate master communication parameter "S-0-0128, C5200 Communication phase 4 transition check" for sercos and EtherCAT. In the CCD master, initiation of the command is bypassed to parameter "P-0-1803.x.21" because

Product-Specific Parameters

parameter "S-0-0128" is reserved for sercos communication in the CCD slave.

The appropriate action for the associated master communication slave is carried out in the CCD master.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See Functional Description "Cross-Communication (CCD)"

P-0-1803.x.21 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0x0 / 0x3	---
MPC:	0x0 / 0x3	---
MPE:	0x0 / 0x3	---
MPM:	0x0 / 0x3	---

## 5.11.265 P-0-1803.x.22, C5300 CCD: sercos SYNC delay measuring procedure command

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In CCD system mode, parameter "P-0-1803.x.22" has the function of the appropriate master communication parameter "S-0-1024" for sercos. In the CCD master, initiation of the command is bypassed to parameter "P-0-1803.x.22" because parameter "S-0-1024" is reserved for the outer sercos network in the CCD slave. The appropriate action for the associated sercos slave is carried out in the upper network of the CCD gateway.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See Functional Description "Cross-Communication (CCD)"

P-0-1803.x.22 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.266 P-0-1803.x.24, CCD: Master communication gateway parameter pool

1

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is required for the sercos and EtherCAT gateways in CCD system mode. It serves to store all parameters of the master communication slaves for which there are no parameters in the CCD master. These master communication slave parameters are simulated for the interface.

## Product-Specific Parameters



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

The parameter is created in binary format (4 byte variable) and can only be interpreted and displayed with a commissioning program (IndraDrive). This program provides a dialog which displays the data of the parameter and its significance.

See also Functional Description "Cross-Communication (CCD)"

## P-0-1803.x.24 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

5.11.267 P-0-1803.x.25, CCD: Master communication gateway parameter pool  
2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is required for the sercos and EtherCAT gateways in CCD system mode. It serves to display all parameters of the master communication slaves which are not stored and for which there are no parameters in the CCD master. These master communication slave parameters are simulated for the interface.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

The parameter is created in binary format (4 byte variable) and can only be interpreted and displayed with a commissioning program (IndraDrive). This program provides a dialog which displays the data of the parameter and its significance.

See also Functional Description "Cross-Communication (CCD)"

## P-0-1803.x.25 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.268 P-0-1804, CCD: Actual value data container 4, Slave 4 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte"

Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

P-0-1804 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.269 P-0-1804.x.1, CCD: Configuration list signal status word

Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«-»
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

Function

List parameter for configuring the signals (S-0-0026) of the signal status words in all CCD slaves.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See also Functional Description "Cross-Communication (CCD)"

P-0-1804.x.1 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.270 P-0-1804.x.2, CCD: Configuration list signal control word

Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«-»
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

Function

List parameter for configuring the signals (S-0-0027) of the signal status word in all CCD slaves.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See also Functional Description "Cross-Communication (CCD)"

P-0-1804.x.2 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## Product-Specific Parameters

## 5.11.271 P-0-1804.x.3, CCD: Assignment list signal status word

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	List parameter for configuring the bits (S-0-0328) of the signal status words in all CCD slaves.				



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See also Functional Description "Cross-Communication (CCD)"

## P-0-1804.x.3 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.272 P-0-1804.x.4, CCD: Assignment list signal control word

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	List parameter for configuring the bits (S-0-0329) of the signal control words in all CCD slaves.				



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !

See also Functional Description "Cross-Communication (CCD)"

## P-0-1804.x.4 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.273 P-0-1805, CCD: Actual value data container 4, Slave 5 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function See also "P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte"  
See also Functional Description "Cross Communication (CCD)"

Product-Specific Parameters

<b>P-0-1805 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.274 P-0-1805.x.1, CCD: Configuration list master cmd values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1805.x.1" serves to configure the command values. These are transmitted from the CCD master to the CCD slaves in the MDT. The list contains command values which the CCD master files in the MDT (sercos).



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !



Parameter "P-0-1805.x.3, CCD:Configuration list slave cmd values" describes how these values are interpreted by the CCD slave.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects when parameterizing "P-0-1805.x.1":

- Parameter "P-0-1805.x.1" can be used to enter actual values and command values that can be configured cyclically (cf. "S-0-0187", "S-0-0188").
- Due to the allowed maximum of 16 IDNs, the number of maximum possible entries is limited and therefore depends on the number of entries in "P-0-1803.x.11".

<b>P-0-1805.x.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		s. Text		
	<b>MPC:</b>	--- / ---		s. Text		
	<b>MPE:</b>	--- / ---		s. Text		
	<b>MPM:</b>	--- / ---		s. Text		

## 5.11.275 P-0-1805.x.2, CCD: Configuration list actual master values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1805.x.2" serves to configure the actual values. These are transmitted from the CCD slaves to the CCD master in the AT. The list contains the IDNs to which the data are filed which are put into the AT by the

## Product-Specific Parameters

CCD slave and are intended for the CCD master. The CCD master internally copies this data to the parameters mentioned.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !



Parameter "P-0-1805.x.4, CCD: Configuration list actual slave values" contains the data which the slave files to the AT to achieve this.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for parameter setting:

- If transmission of the global AxisData structure is active (P-0-1367, bit 6 = "1") and additional axis information is to be output (e.g., via AxisData[1].dwUserActualDataA\_i), such information must be parameterized in the first four IDNs of each axis). For more parameterization instructions, please refer to the IndraMotion MLD Application Manual under index entry "AxisData".
- Parameter "P-0-1805.x.2" allows entering command values that can be configured cyclically (S-0-0188).
- Due to the allowed maximum of 16 IDNs, the number of maximum possible entries is limited and therefore depends on the number of entries in "P-0-1803.x.12".

## P-0-1805.x.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>	--- / ---			s. Text	
<b>MPC:</b>	--- / ---			s. Text	
<b>MPE:</b>	--- / ---			s. Text	
<b>MPM:</b>	--- / ---			s. Text	

## 5.11.276 P-0-1805.x.3, CCD: Configuration list slave cmd values

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1805.x.3" serves to configure the command values. These are transmitted from the CCD master to the CCD slaves in the MDT.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !



The list contains IDNs which are also copied to the cyclic consumer connection of the associated slave. The command values are generated by the master. "P-0-1805.x.1" (e.g. P-0-0434 → S-0-0047) is applicable as a reference list for the CCD master.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for parameter setting:

- The only values that can be entered in parameter "P-0-1805.x.3" are command values that can be configured cyclically (S-0-0188).

Product-Specific Parameters

- Due to the allowed maximum of 16 IDNs, the number of maximum possible entries is limited and therefore depends on the number of entries in "P-0-1803.x.11".

P-0-1805.x.3 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.277 P-0-1805.x.4, CCD: Configuration list actual slave values

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-1805.x.2" serves to configure the actual values. These are transmitted from the CCD slaves to the CCD master in the AT.



x is the slave number → e.g. 1 = local slave; 2 = slave 1 ... !



The list contains actual values for the CCD master (internal) which the slave puts into the sercos AT. The parameters of the list are directly copied to the list of the producer connection of the associated slave. Parameter "P-0-1805.x.2, CCD: Configuration list actual master values" describes how the CCD master interprets these data.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for parameter setting:

- If transmission of the global AxisData structure is active (P-0-1367, bit 6 = "1") and additional axis information is to be output (e.g., via AxisData[1].dwUserActualDataA\_i), such information must be parameterized in the first four IDNs of each axis. For more parameterization instructions, please refer to the IndraMotion MLD Application Manual under index entry "AxisData".
- Parameter "P-0-1805.x.4" allows entering actual values that can be configured cyclically (S-0-0187).
- Due to the allowed maximum of 16 IDNs, the number of maximum possible entries is limited and therefore depends on the number of entries in "P-0-1803.x.12".

P-0-1805.x.4 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## Product-Specific Parameters

## 5.11.278 P-0-1806, CCD: Actual value data container 4, Slave 6 4Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also "P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1806 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.279 P-0-1806.x.1, CCD: Slave IP address

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** The CCD master displays the IP addresses of the sercos master communication of the CCD slaves in parameter "P-0-1806.x.1". The sercos instance (x) corresponds to the slave index in the CCD group (1 = local slave, 2 = slave 1, etc.). The master reads the IP addresses of the CCD slaves immediately after phase 2 has been reached. These IP addresses are displayed in this parameter.

Description	Parameter in the CCD master	Parameter in the drive
Master IP address	P-0-1806.1.1	127.0.0.1 (P-0-1641 from CCD master is active)
Slave 1 IP address	P-0-1806.2.1	Content from S-0-1020 in slave 1
Slave 2 IP address	P-0-1806.3.1	Content from S-0-1020 in slave 2

Tab.5-255: P-0-1806.x.1, CCD: Slave IP Address

See also Functional Description "Cross-Communication (CCD)"

#### P-0-1806.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	---
<b>MPC:</b>	--- / ---	---
<b>MPE:</b>	--- / ---	---
<b>MPM:</b>	--- / ---	---

Tab.5-255: P-0-1806.x.1, CCD: Slave IP Address

See also Functional Description "Cross-Communication (CCD)"

Description	Parameter in the CCD master	Parameter in the drive
Master IP address	P-0-1806.1.1	127.0.0.1 (P-0-1641 from CCD master is active)
Slave 1 IP address	P-0-1806.2.1	Content from S-0-1020 in slave 1
Slave 2 IP address	P-0-1806.3.1	Content from S-0-1020 in slave 2

## 5.11.280 P-0-1806.x.2, CCD: Device Status (S-Dev)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1806.x.2" displays the SERCOS III: Device Status (S-Dev) (S-0-1045) of the CCD slaves, which is transmitted from the CCD slaves to the CCD master in the AT. The sercos instance (x) corresponds to the slave index in the CCD group (1 = local slave, 1 = slave 1, etc.). This parameter is an image of the Device Status (S-Dev) of the CCD slaves. It is read-only and can be used for diagnostic purposes.

Description	Parameter in the CCD master	Parameter in the drive
CCD: Device status word	P-0-1806.1.2	Formed directly
CCD: Device status word	P-0-1806.2.2	Content S-0-1045 of CCD slave 1
CCD: Device status word	P-0-1806.3.2	Content S-0-1045 of CCD slave 2

Tab.5-256: P-0-1806.x.2, CCD: Device Status (S-Dev)

See also Functional Description "Cross-Communication (CCD)"

### P-0-1806.x.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.281 P-0-1806.x.3, CCD: Device Control (C-Res)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** Parameter "P-0-1806.x.3" displays the sercos: Device control word (S-0-1044) of the CCD slaves, which is transmitted from the CCD master to the CCD slaves in the MDT. Here, the SI is used as slave index (1 = local slave, 2 = slave 1, etc.).

This parameter is an image of the Device Control (C-Dev) of the CCD slaves. It is read-only and can be used for diagnostic purposes.

See also Functional Description "Cross-Communication (CCD)"

### P-0-1806.x.3 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.282 P-0-1806.x.4, CCD: Connection-Control #0 (C-Con)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter P-0-1806.x.4 displays the connection control word (C-Con) of connection #0 of the CCD slaves, which is transmitted from the CCD slaves to the CCD master in the AT. The CCD master uses connection #0 (S-0-1050.0.x) of the CCD slaves for classic MS-AT data. Here, the SI serves as slave index (1 = local slave, 2 = slave 1, etc.). The parameter is an image of C-Con of connection #0 in the CCD slave. It is read-only and can be used for diagnostic purposes.

See also Parameter Description "S-0-1050.0.8, SIII-Connection: Connection control (C-Con)"

See also Functional Description "Cross-Communication (CCD)"

**Structure**

Bit	Designation/function	Comment
0	<b>ProducerReady</b> 0: Producer does not generate any valid command values yet 1: Producer generates valid command values, slave can process the command values with toggle of bit 1	
1	<b>NewData bit</b> - Each change indicates that new process data are transferred. - In synchronous mode (S-0-1050.x.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.x.10). Bit 1 and bit 12 are identical.	
2	<b>CC DataFieldDelay</b> 1: CC producer data have a sercos cycle delay, because they were copied via the bus master. The consumer shall prefer taking the data of the port at which this bit has the value 0.	
3	<b>ProducerSynchronized</b> 0: The PLL of the producer is not synchronized with the clock of the ring 1: The PLL of the producer is synchronized with the clock of the ring	
6	<b>Real-time bit 1</b>	

Product-Specific Parameters

Bit	Designation/function	Comment
7	<b>Real-time bit 2</b>	
15-12	<b>Counter:</b> <ul style="list-style-type: none"> <li>- Each change indicates that new process data are transferred.</li> <li>- In synchronous mode (S-0-1050.x.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.x.10).</li> <li>- Bit 12 and bit 1 are identical.</li> </ul>	

Tab.5-257: P-0-1806.x.4, CCD: Connection-Control #0 (C-Con)

P-0-1806.x.4 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

<b>Input</b>	<b>min./max.</b>	<b>Default value</b>
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.283 P-0-1806.x.5, CCD: Connection-Control #1 (C-Con)

<b>Allocation</b>	<b>Contained in 16VRS:</b> «-» «-» «-» <b>Contained in 17VRS:</b> «-» «-» «-» «-» <b>Contained in 18VRS:</b> «-» «-» «-» «MPC» <b>Hardware</b> optional drives card <b>Funct. package(s):</b> "open loop", "closed loop" <b>Device parameter:</b> device-specific
-------------------	--

**Function** Parameter "P-0-1806.x.5" displays the connection control word (C-Con) of connection #1 of the CCD slaves, which is transmitted from the CCD master to the CCD slaves in the MDT. The CCD master uses connection #1 (S-0-1050.1.x) of the CCD slaves for classic MS-MDT data. Here, the SI serves as slave index (1 = local slave, 1 = slave 1, etc.). The parameter is an image of C-Con of connection #1 in the CCD slave. It is read-only and can be used for diagnostic purposes.

See also Functional Description "Cross-Communication (CCD)"

**Structure**

Bit	Designation/function	Comment
0	<b>ProducerReady</b> <ul style="list-style-type: none"> <li>0: Producer does not generate any valid command values yet</li> <li>1: Producer generates valid command values, slave can process the command values with toggle of bit 1</li> </ul>	
1	<b>NewData bit</b> <ul style="list-style-type: none"> <li>- Each change indicates that new process data are transferred.</li> <li>- In synchronous mode (S-0-1050.x.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.x.10).</li> <li>- Bit 1 and bit 12 are identical.</li> </ul>	

## Product-Specific Parameters

Bit	Designation/function	Comment
2	<b>CC DataFieldDelay</b> 1: CC producer data have a sercos cycle delay, because they were copied via the bus master. The consumer shall prefer taking the data of the port at which this bit has the value 0.	
3	<b>ProducerSynchronized</b> 0: The PLL of the producer is not synchronized with the clock of the ring 1: The PLL of the producer is synchronized with the clock of the ring	
6	<b>Real-time bit 1</b>	
7	<b>Real-time bit 2</b>	
15-12	<b>Counter:</b> - Each change indicates that new process data are transferred. - In synchronous mode (S-0-1050.x.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.x.10). - Bit 12 and bit 1 are identical.	The function is supported as of MPx-18VRS

Tab.5-258: P-0-1806.x.5, CCD: Connection-Control #1 (C-Con)

## P-0-1806.x.5 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			---	
MPC:	--- / ---			---	
MPE:	--- / ---			---	
MPM:	--- / ---			---	

## 5.11.284 P-0-1806.x.10, CCD: Resource-Status (S-Res)

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameters "P-0-1806.x.10, CCD: Drive status word, slave x" contain the status word delivered from CCD slave x to the CCD master (corresponds to the content of "S-0-0135, Drive status word" of CCD slave x).



"x" is the slave number → e.g. 1 = local slave; 2 = slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects when using parameters "P-0-1806.x.10":

- The internal PLC evaluates the drive status words (P-0-1806.x.10) in MLD-M system mode.
- In CCD system mode and with active field bus connection, the internal profile interpreter implements the drive status words.

Product-Specific Parameters

<b>P-0-1806.x.10 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.285 P-0-1806.x.11, CDD: Resource-Control (C-Res)

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** Parameters "P-0-1806.x.11" contain the control word that has been transferred from the CCD master to CCD slave x and ends up in S-0-0134, Master control word of the CCD slave.



"x" is the slave number → e.g. 1 = local slave; 2 = slave 1

See also Functional Description "Cross-Communication (CCD)"

**Use** When using the parameter, observe the following aspects:

- The internal PLC writes to the master control words (P-0-1806.x.11) in MLD-M system mode.
- In CCD system mode and with active field bus connection, the internal profile interpreter writes to the signal control words.
- In CCD basic mode and CCD system mode, direct writing to the parameters is allowed with a parallel interface and SERCOS master communication.

<b>P-0-1806.x.11 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

## 5.11.286 P-0-1807, CCD: Actual value data container 4, Slave 7 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1807 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.287 P-0-1807.x.1, CCD connection: Configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains the configuration data of a CC connection with participation of the CCD master.

This data consists of:

- Activate configuration
- Connection type
- Configuration source
- Configuration type
- Clock generation (producer)
- Monitoring mechanism (consumer)

**Structure**

Bit	Designation/function	Comment
2-0	<b>Monitoring mechanism (consumer)</b> 00: Synchronous operation 01: Asynchronous operation (with watchdog) 10: Asynchronous operation (without watchdog) 11: Reserved	MPx-16VRS only supports "00"
3	<b>Clock generation (producer)</b> 0: Synchronous 1: Asynchronous	
5-4	<b>Configuration type</b> 00: Configuration list with EIDNs (SE-6 relevant) 01: Container without assigned contents (SE-5 relevant) 10: Telegram type parameter FSP-Drive (S-0-0015 relevant) 11: Reserved	MPx-16VRS only supports "00" and "10"
13-12	<b>Configuration source</b> 00: Bus master 01: Not bus master 10: Not bus master 11: Not bus master	

Product-Specific Parameters

Bit	Designation/function	Comment
14	<b>Connection type</b> 0: Consumer 1: Producer	
15	<b>Configuration activation</b> 0: Slave does not need to evaluate/take into account configuration 1: Slave needs to evaluate/take into account configuration	

Tab.5-259: P-0-1807.x.1, CCD connection: Connection setup

P-0-1807.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.11.288 P-0-1807.x.2, CCD connection: Connection number

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter is used to unequivocally identify a connection. A bus master requires this parameter to determine the telegram offset, for example.

**Rules:**

1. Producer and consumer of one connection have the same connection number.
2. A slave cannot have the same connection numbers for its connections.
3. MS-AT and MS-MDT in a slave have different connection numbers.

P-0-1807.x.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0
MPC:	--- / ---	0
MPE:	--- / ---	0
MPM:	--- / ---	0

## 5.11.289 P-0-1807.x.3, CCD connection: Telegram assignment

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** The telegram assignment defines at which position (telegram offset) and in which telegram (MDT or AT, telegram number) the connection is. The telegram offset points to the connection control (C-Con) of this connection. The

## Product-Specific Parameters

parameter describes the CC connection with participation of the CCD master. Since the CCD master generates the telegram structure itself, this parameter is for display purposes only.

## Structure

Bit	Designation/function	Comment
10-0	Telegram offset in bytes	
11	Telegram type 0: AT 1: MDT	
15-12	Telegram number 0: MDT0 / AT0 1: MDT1 / AT1 2: MDT2 / AT2 3: MDT3 / AT3	

Tab.5-260: P-0-1807.x.3, CCD connection: Telegram assignment

## P-0-1807.x.3 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.290 P-0-1807.x.4, CCD connection: Max. length of connection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** With this parameter, the CCD master shows how many bytes it allows for this connection. The 2 bytes are included for the connection control C-Con.

## P-0-1807.x.4 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.291 P-0-1807.x.5, CCD connection: Current connection length

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

Product-Specific Parameters

**Function** With this parameter, the CCD master shows how many bytes are currently required for this connection. The 2 bytes are included for the connection control C-Con.

The data of this parameter are made available by the CCD master for all adjustable configuration types (P-0-1807.x.1, CCD connection: Configuration) and are always updated after "P-0-1807.x.6, CCD connection: Configuration list" has been written.

<b>P-0-1807.x.5 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.292 P-0-1807.x.6, CCD connection: Configuration list

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** The parameter describes the CC connection with participation of the CCD master.

This parameter contains the IDNs (4 bytes) which are cyclically transmitted in this connection.

The content only takes effect in the following configuration type:

00: Configuration with EIDNs (P-0-1807.x.1, CCD connection: Connection)

With this configuration type, the CCD master determines parameter "P-0-1807.x.5, CCD connection: Current length of connection" from the content of this parameter.

<b>P-0-1807.x.6 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		s. Text		
	MPC:	--- / ---		s. Text		
	MPE:	--- / ---		s. Text		
	MPM:	--- / ---		s. Text		

## 5.11.293 P-0-1807.x.7, CCD connection: Assigned connection capability

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** Parameter "P-0-1807.0.7" is used to assign a connection type to a connection.

**Use** Observe the following aspects for parameter setting:

- If the value of the parameter is "-1", there was no assignment and the default settings are applicable.

## Product-Specific Parameters

- If the value of the parameter is "0", a clock-synchronous consumer connection is set with a maximum of 12 bytes.
- If the value of the parameter is "1", a clock-synchronous producer connection is set with a maximum of 12 bytes.
- When the value is written, parameters "P-0-1807.x.1, CCD connection: Configuration" und "P-0-1807.x.4, CCD connection: Max. length of connection" are adjusted to match the setting.
- During CCD phase startup, the system checks whether the maximum number of configurable connections of this type is exceeded when all connections are selected. If yes, an error code is output during CCD phase startup.

## P-0-1807.x.7 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-1 / 1	---
MPC:	-1 / 1	---
MPE:	-1 / 1	---
MPM:	-1 / 1	---

## 5.11.294 P-0-1807.x.8, CCD connection: Connection control (C-Con)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware		optional drives card		
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		device-specific		

**Function** This parameter contains the image of the connection control (C-Con) of the connection. This applies to producer and consumer connections.

**Structure**

Bit	Designation/function	Comment
0	<b>ProducerReady</b> 0: Producer does not generate any valid command values yet 1: Producer generates valid command values Slave can apply command values by toggling bit 1	
1	<b>NewData bit</b> - Each change indicates that new process data are transferred. - In synchronous mode (S-0-1050.x.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.x.10). - Bit 1 and bit 12 are identical.	
2	<b>CC DataFieldDelay</b> 1: CC producer data have a sercos cycle delay, because they were copied via the bus master. The consumer shall prefer taking the data of the port at which this bit has the value 0.	

Product-Specific Parameters

Bit	Designation/function	Comment
3	<b>ProducerSynchronized</b>  0: The PLL of the producer is not synchronized with the clock of the ring  1: The PLL of the producer is synchronized with the clock of the ring	
6	<b>Real-time bit 1</b>	
7	<b>Real-time bit 2</b>	
15-12	<b>Counter:</b>  - Each change indicates that new process data are transferred.  - In synchronous mode (S-0-1050.x.1 bit 1/0 = 00), the counter is incremented by 1 in every producer cycle (S-0-1050.x.10).  - Bit 12 and bit 1 are identical.	The function is supported as of MPx-18VRS

Tab.5-261: P-0-1807.x.8, CCD connection: Connection control (C-Con)

P-0-1807.x.8 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.295 P-0-1807.x.9, CCD connection: State

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter displays the current status of each single connection.

**Structure** The displayed value (state) of the connection state machine depends on the connection type (producer, consumer):

Value	Description	Comment
0	<b>init</b>	State automatically reached on restart. Connection error bit is deleted from S-Dev.
1	<b>prepare</b>	State of an active connection if the connection check in the command during the CCD phase startup was without errors.
2	<b>ready</b>	Connection has been started - ProducerReady is sent with 1 - NewData does not yet toggle. Currently, the state cannot be detected in IndraDrive because the transfer is achieved immediately after "producing".

## Product-Specific Parameters

Value	Description	Comment
3	producing	NewData toggles according to specification - valid process data is transferred.
4	stopping	Stop bit is set - state of remaining bits in C-Con and state of process data are as desired. Currently, the state is not implemented in the IndraDrive.

## Structure

Tab.5-262: P-0-1807.x.9, Value Code for Producer Connections

Value	Description	Comment
0	init	State automatically reached on restart. Connection error bit is deleted from S-Dev.
1	prepare	State of an active connection if the connection check took place during the CCD phase startup.
2	waiting	Waiting for NewData; process data is not retrieved.
3	consuming	Process data is retrieved; connection monitoring is active.
4	stopped	Process data is not retrieved. Connection monitoring is not active. Currently, the state is not implemented in the IndraDrive.
5	warning	Process data is not retrieved. Connection monitoring is active.
7	error	Process data is not retrieved. Connection error bit is set in S-Dev. The state is exited by a CCD phase startup.

Tab.5-263: P-0-1807.x.9, Value Code for Consumer Connections

## P-0-1807.x.9 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.296 P-0-1807.x.10, CCD connection: Producer cycle time

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter indicates the cycle time within which the producer updates the data of the cyclic connection. In addition, the NewData bit in the connection control is toggled. The consumer of the connection uses the time as a monitoring time to detect failures. The number of failures is displayed in "P-0-1807.x.12, CCD connection: Error counter data losses".

The parameter describes the CC connection with participation of the CCD master.

## P-0-1807.x.10 - Attributes

Function:	Par	Editable:	CCD_P2	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	us	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	1000,000
MPC:	--- / ---	1000,000
MPE:	--- / ---	1000,000
MPM:	--- / ---	1000,000

### 5.11.297 P-0-1807.x.11, CCD connection: Allowed losses of producer data

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter indicates the number of allowed losses of producer data, before a connection is considered to be broken, the consumer does not process data anymore and sets the Err-Con bit for the bus master in the device status (S-Dev, S-IF).

The parameter describes the CC connection with participation of the CCD master.

P-0-1807.x.11 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	2
MPC:	--- / ---	2
MPE:	--- / ---	2
MPM:	--- / ---	2

### 5.11.298 P-0-1807.x.12, CCD connection: Error counter data losses

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter indicates how many losses of producer data the consumer has already detected. This counter is without overflow and ends with 65535. The counter will be reset through the positive edge of ProducerReady in the connection control (C-Con).

P-0-1807.x.12 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.299 P-0-1807.x.20, CCD connection: IDN allocation of real-time bits

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

## Product-Specific Parameters

**Function** This parameter contains the IDN assignment (4Byte) of the real-time bits in the connection control (C-Con). The list contains a maximum of 2 IDNs. The bit assignment takes place in parameter "P-0-1807.x.21, CCD connection: Bit allocation of real-time bits".

The parameter describes the CC connection with participation of the CCD master.

<b>P-0-1807.x.20 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.300 P-0-1807.x.21, CCD connection: Bit number allocation of real-time bits

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter contains the bit assignment of the real-time bits parameterized in "S01807.x.20, CCD connection: IDN allocation of real-time bit". The list contains a maximum of 2 bit offsets with values from 0... 31.

The parameter describes the CC connection with participation of the CCD master.

<b>P-0-1807.x.21 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.11.301 P-0-1808, CCD: Actual value data container 4, Slave 8 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** See also "P-0-1801, CCD: Actual value data container 4, Slave 1 4Byte"  
See also Functional Description "Cross Communication (CCD)"

<b>P-0-1808 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.302 P-0-1808.x.1, CCD: Diagnostic message number

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is used to display and evaluate the diagnostic message number of the CCD slaves x in the CCD master.



"x" is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** The following aspects have to be observed for use:

- With active CCD error reaction (P-0-1800.0.1, bit 8 = 1) and in MLDM mode, the CCD master automatically configures "S-0-0390" in the AT of slave x and copies the content to P-0-1808.x.1.
- A special handling for P-0-1808.x.1 is implemented in the master to interpret the diagnostic message of a slave and, if necessary, trigger a reaction in the master.

### P-0-1808.x.1 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.303 P-0-1808.x.2, CCD: Signal status word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The parameter in the CCD master contains the bits corresponding to the content of the signal status word (S-0-0144) in the CCD slave. Parameterization is done via:

- P-0-1804.x.1, CCD: Configuration list signal status word
- P-0-1804.x.3, CCD: Assignment list signal status word



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** The following must be observed during use of this parameter:

- The signal status word of slave x is automatically configured and interpreted for field buses only in MLD system mode and CCD system mode.
- In CCD basic mode, the signal status word of slave x is not served.

### P-0-1808.x.2 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.304 P-0-1808.x.3, CCD: Signal control word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The parameter in the CCD master contains the bits written to the signal control word (S-0-0145) in CCD slave x via the CCD bus.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** The following must be observed during use of this parameter:

- In MLD-M system mode, the internal PLC writes to the signal control words.
- In CCD system mode and with active field bus connection, the internal profile interpreter writes to the signal control words.
- In CCD basic mode, the signal control word of slave x is not served.
  - Parameterization is done via:
    - P-0-1804.x.2, CCD: Configuration list signal control word
    - P-0-1804.x.4, CCD: Assignment list signal control word

P-0-1808.x.3 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.305 P-0-1808.x.10, CCD: Active actual position value

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameters "P-0-1808.x.10" display the active actual position values of the CCD slaves which the CCD slaves transfer to the CCD master in the motion channel (AT) of the MLD-M.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

Product-Specific Parameters

**Use** Observe the following aspects for using the parameter:

- The parameter is only served while the MLD-M is active, i.e. in MLD system mode (P-0-1800.0.1).
- In the event of an error, the parameter can be used for diagnostic purposes.

<b>P-0-1808.x.10 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>	<b>Default value</b>		
		MPB:	---	---		
		MPC:	---	---		
		MPE:	---	---		
		MPM:	---	---		

### 5.11.306 P-0-1808.x.11, CCD: Actual velocity value

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameters "P-0-1808.x.11" display the actual velocity values of the CCD slaves which the CCD slaves transfer to the CCD master in the motion channel (AT) of the MLD-M.

x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for using the parameter:

- The parameter is only served while the MLD-M is active, i.e. in MLD system mode (P-0-1800.0.1).
- In the event of an error, the parameter can be used for diagnostic purposes.

<b>P-0-1808.x.11 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>	<b>Default value</b>		
		MPB:	---	---		
		MPC:	---	---		
		MPE:	---	---		
		MPM:	---	---		

### 5.11.307 P-0-1808.x.12, CCD: Actual torque/force value

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameters "P-0-1808.x.12" display the actual torque/force values of the CCD slaves which the CCD slaves transfer to the CCD master in the motion channel (AT) of the MLD-M.

## Product-Specific Parameters



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for using the parameter:

- The parameter is only served while the MLD-M is active, i.e. in MLD system mode (P-0-1800.0.1).

<b>P-0-1808.x.12 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0086	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0093 / S-0-0094
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.308 P-0-1808.x.13, CCD: Status word synchronous operation modes

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
<b>Funct. package(s):</b>		"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** The parameters display the status word of the synchronous operation mode of CCD slave x in the CCD master, which CCD slave x transfers in the motion channel (AT) of the MLD-M.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

**Use** The following aspects have to be observed for use:

- The parameter is only served while MLD-M mode is active, i.e. with active MLD-M (P-0-1800.0.1).

<b>P-0-1808.x.13 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.309 P-0-1808.x.20, CCD: Command value data container 1 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	optional drives card		
<b>Funct. package(s):</b>		"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.20" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

## Product-Specific Parameters

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.20 -> S-0-0036).

**Example:**

The PLC writes to "P-0-1808.2.20" -> Master files this parameter to the MDT for slave 1 as "S-0-0282".



Parameters "P-0-1808.x.30" to "P-0-1808.x.34" are to be used for transmitting 2-byte data.

### P-0-1808.x.20 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			---	---	
<b>MPE:</b>			---	---	
<b>MPM:</b>			---	---	

## 5.11.310 P-0-1808.x.21, CCD: Command value data container 2, 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.21" are used for the real-time channel.



x is the slave number -> e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.21 -> S-0-0036).

**Example:**

The PLC writes to "P-0-1808.2.21" -> Master files this parameter to the MDT for slave 1 as "S-0-0282".



Parameters "P-0-1808.x.30" to "P-0-1808.x.34" are to be used for transmitting 2-byte data.

### P-0-1808.x.21 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.311 P-0-1808.x.22, CCD: Command value data container 3, 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.22" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.22 → S-0-0036).

**Example:**

The PLC writes to "P-0-1808.2.22" → Master files this parameter to the MDT for slave 1 as "S-0-0282".



Parameters "P-0-1808.x.30" to "P-0-1808.x.34" are to be used for transmitting 2-byte data.

## P-0-1808.x.22 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.312 P-0-1808.x.23, CCD: Command value data container 4, 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.23" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

## Product-Specific Parameters

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.23 -> S-0-0036).

**Example:**

The PLC writes to "P-0-1808.2.23" -> Master files this parameter to the MDT for slave 1 as "S-0-0282".



Parameters "P-0-1808.x.30" to "P-0-1808.x.34" are to be used for transmitting 2-byte data.

### P-0-1808.x.23 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		---	
<b>MPC:</b>		--- / ---		---	
<b>MPE:</b>		--- / ---		---	
<b>MPM:</b>		--- / ---		---	

## 5.11.313 P-0-1808.x.24, CCD: Command value data container 5, 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.24" are used for the real-time channel.



x is the slave number -> e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.24 -> S-0-0036).

**Example:**

The PLC writes to "P-0-1808.2.24" -> Master files this parameter to the MDT for slave 1 as "S-0-0282".



Parameters "P-0-1808.x.30" to "P-0-1808.x.34" are to be used for transmitting 2-byte data.

### P-0-1808.x.24 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.314 P-0-1808.x.30, CCD: Command value data container 1, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.30" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.30 → S-0-0080).

**Example:**

The PLC writes to "P-0-1808.2.30" → Master files this parameter to the MDT for slave 1 as "S-0-0080".



Parameters "P-0-1808.x.20" to "P-0-1808.x.24" are to be used for transmitting 4-byte data.

## P-0-1808.x.30 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.315 P-0-1808.x.31, CCD: Command value data container 2, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.31" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

## Product-Specific Parameters

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.31 -> S-0-0080).

### Example:

The PLC writes to "P-0-1808.2.31" -> Master files this parameter to the MDT for slave 1 as "S-0-0080".



Parameters "P-0-1808.x.20" to "P-0-1808.x.24" are to be used for transmitting 4-byte data.

#### P-0-1808.x.31 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.11.316 P-0-1808.x.32, CCD: Command value data container 3, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.32" are used for the real-time channel.



x is the slave number -> e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.32 -> S-0-0080).

### Example:

The PLC writes to "P-0-1808.2.32" -> Master files this parameter to the MDT for slave 1 as "S-0-0080".



Parameters "P-0-1808.x.20" to "P-0-1808.x.24" are to be used for transmitting 4-byte data.

#### P-0-1808.x.32 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.317 P-0-1808.x.33, CCD: Command value data container 4, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.33" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.33 → S-0-0080).

**Example:**

The PLC writes to "P-0-1808.2.33" → Master files this parameter to the MDT for slave 1 as "S-0-0080".



Parameters "P-0-1808.x.20" to "P-0-1808.x.24" are to be used for transmitting 4-byte data.

## P-0-1808.x.33 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.318 P-0-1808.x.34, CCD: Command value data container 5, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.34" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

## Product-Specific Parameters

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data to the CCD slave in the command value telegram (e.g. P-0-1808.x.34 → S-0-0080).

**Example:**

The PLC writes to "P-0-1808.2.34" → Master files this parameter to the MDT for slave 1 as "S-0-0080".



Parameters "P-0-1808.x.20" to "P-0-1808.x.24" are to be used for transmitting 4-byte data.

### P-0-1808.x.34 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		---	
<b>MPC:</b>		--- / ---		---	
<b>MPE:</b>		--- / ---		---	
<b>MPM:</b>		--- / ---		---	

## 5.11.319 P-0-1808.x.40, CCD: Actual value data container 1, 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.40" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.40 ← S-0-0051).

**Example:**

Slave 1 files "S-0-0040" to the AT. The master copies the content of the AT to "P-0-1808.2.40". In the master, "P-0-1808.2.40" is used for internal processing.



Parameters "P-0-1808.x.50" to "P-0-1808.x.55" are to be used for transmitting 2-byte data.

### P-0-1808.x.40 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.320 P-0-1808.x.41, CCD: Actual value data container 2, 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.41" are used for the real-time channel.				



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.41 ← S-0-0051).

**Example:**

Slave 1 files "S-0-0040" to the AT. The master copies the content of the AT to "P-0-1808.2.41". In the master, "P-0-1808.2.41" is used for internal processing



Parameters "P-0-1808.x.50" to "P-0-1808.x.55" are to be used for transmitting 2-byte data.

**P-0-1808.x.41 - Attributes**

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.321 P-0-1808.x.42, CCD: Actual value data container 3, 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

## Product-Specific Parameters

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.42 <- S-0-0051).

### Example:

Slave 1 files "S-0-0040" to the AT. The master copies the content of the AT to "P-0-1808.2.42". In the master, "P-0-1808.2.42" is used for internal processing



Parameters "P-0-1808.x.50" to "P-0-1808.x.55" are to be used for transmitting 2-byte data.

### P-0-1808.x.42 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.322 P-0-1808.x.43, CCD: Actual value data container 4, 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.43" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.43 <- S-0-0051).

### Example:

Slave 1 files "S-0-0040" to the AT. The master copies the content of the AT to "P-0-1808.2.43". In the master, "P-0-1808.2.43" is used for internal processing



Parameters "P-0-1808.x.50" to "P-0-1808.x.55" are to be used for transmitting 2-byte data.

## Product-Specific Parameters

<b>P-0-1808.x.43 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.323 P-0-1808.x.44, CCD: Actual value data container 5, 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.44" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.44 <- S-0-0051).

**Example:**

Slave 1 files "S-0-0040" to the AT. The master copies the content of the AT to "P-0-1808.2.44". In the master, "P-0-1808.2.44" is used for internal processing



Parameters "P-0-1808.x.50" to "P-0-1808.x.55" are to be used for transmitting 2-byte data.

<b>P-0-1808.x.44 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.324 P-0-1808.x.45, CCD: Actual value data container 6, 4Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function**

## Product-Specific Parameters

In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.41" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 4-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.41 ← S-0-0051).

### Example:

Slave 1 files "S-0-0040" to the AT. The master copies the content of the AT to "P-0-1808.2.41". In the master, "P-0-1808.2.41" is used for internal processing



Parameters "P-0-1808.x.50" to "P-0-1808.x.55" are to be used for transmitting 2-byte data.

### P-0-1808.x.45 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>				<b>min./max.</b>	<b>Default value</b>
<b>MPB:</b>				--- / ---	---
<b>MPC:</b>				--- / ---	---
<b>MPE:</b>				--- / ---	---
<b>MPM:</b>				--- / ---	---

## 5.11.325 P-0-1808.x.50, CCD: Actual value data container 1, 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.50" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.50 ← S-0-0084).

### Example:

Slave 1 files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1808.2.50". In the master, "P-0-1808.2.50" is used for internal processing

## Product-Specific Parameters



Parameters "P-0-1808.x.40" to "P-0-1808.x.45" are to be used for transmitting 4-byte data.

## P-0-1808.x.50 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input			min./max.	Default value	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.11.326 P-0-1808.x.51, CCD: Actual value data container 2, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.51" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.51 ← S-0-0084).

**Example:**

Slave 1 files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1808.2.51". In the master, "P-0-1808.2.51" is used for internal processing



Parameters "P-0-1808.x.40" to "P-0-1808.x.45" are to be used for transmitting 4-byte data.

## P-0-1808.x.51 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input			min./max.	Default value	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.11.327 P-0-1808.x.52, CCD: Actual value data container 3, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** device-specific

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.52" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.52 <- S-0-0084).

**Example:**

Slave 1 files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1808.2.52". In the master, "P-0-1808.2.52" is used for internal processing



Parameters "P-0-1808.x.40" to "P-0-1808.x.45" are to be used for transmitting 4-byte data.

### P-0-1808.x.52 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	---	
<b>MPC:</b>			--- / ---	---	
<b>MPE:</b>			--- / ---	---	
<b>MPM:</b>			--- / ---	---	

## 5.11.328 P-0-1808.x.53, CCD: Actual value data container 4, 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.53" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.53 <- S-0-0084).

**Example:**

## Product-Specific Parameters

Slave 1 files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1808.2.53". In the master, "P-0-1808.2.53" is used for internal processing



Parameters "P-0-1808.x.40" to "P-0-1808.x.45" are to be used for transmitting 4-byte data.

## P-0-1808.x.53 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.329 P-0-1808.x.54, CCD: Actual value data container 5, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.54" are used for the real-time channel.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.54 <- S-0-0084).

**Example:**

Slave 1 files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1808.2.54". In the master, "P-0-1808.2.54" is used for internal processing



Parameters "P-0-1808.x.40" to "P-0-1808.x.45" are to be used for transmitting 4-byte data.

## P-0-1808.x.54 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.330 P-0-1808.x.55, CCD: Actual value data container 6, 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	In MLD system mode (P-0-1800.0.1), parameters "P-0-1808.x.55" are used for the real-time channel.				



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1.

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2-byte data from the CCD slave in the actual value telegram (e.g. P-0-1808.x.55 <- S-0-0084).

#### Example:

Slave 1 files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1808.2.55". In the master, "P-0-1808.2.55" is used for internal processing



Parameters "P-0-1808.x.40" to "P-0-1808.x.45" are to be used for transmitting 4-byte data.

#### P-0-1808.x.55 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			---	
MPC:	--- / ---			---	
MPE:	--- / ---			---	
MPM:	--- / ---			---	

### 5.11.331 P-0-1809, CCD: Actual value data container 4, Slave 9 4Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific				

See also Functional Description "Cross Communication (CCD)"

#### P-0-1809 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			---	
MPC:	--- / ---			---	

## Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.11.332 P-0-1809.0.1, CCD: SLc, diagnostic information

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter serves to support the SLc03 without activated PLC in IndraDrive.

When the PLC is activated in IndraDrive, the input and output data reside in the I/O image of the PLC.

The parameter is only supported while the PLC in IndraDrive is inactive. In phase 4, the parameter can be used to read the diagnostic information of the SLc03.

The length of the data can be set in the SLc using parameter "P-0-3690.1.1".

See also Functional Description "Cross-Communication (CCD)"

P-0-1809.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.333 P-0-1809.0.2, CCD: SLc, states of safety inputs

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter serves to support the SLc03 without activated PLC in IndraDrive.

When the PLC is activated in IndraDrive, the input and output data reside in the I/O image of the PLC.

The parameter is only supported while the PLC in IndraDrive is inactive. In phase 4, the parameter can be used to read the status of the safety inputs of the SLc03.

The length of the data can be set in the SLc using parameter P-0-3690.2.1.

See also Functional Description "Cross-Communication (CCD)"

P-0-1809.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.334 P-0-1809.0.3, CCD: SLC, states of safety outputs

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This parameter serves to support the SLC03 without activated PLC in IndraDrive.					
	When the PLC is activated in IndraDrive, the input and output data reside in the I/O image of the PLC.					
	The parameter is only supported while the PLC in IndraDrive is inactive. In phase 4, the parameter can be used to read the status of the safety outputs of the SLC03.					
	The length of the data can be set in the SLC using parameter "P-0-3690.3.1".					
	See also Functional Description "Cross-Communication (CCD)"					
P-0-1809.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.335 P-0-1809.0.4, CCD: SLC, group status and control words

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This parameter serves to support the SLC03 without activated PLC in IndraDrive.					
	When the PLC is activated in IndraDrive, the input and output data reside in the I/O image of the PLC.					
	The parameter is only supported while the PLC in IndraDrive is inactive. In phase 4, the parameter can be used to read the group status and the control word of the SLC03.					
	The length of the data can be set in the SLC using parameter "P-0-3690.4.1" and "P-0-3690.5.1".					
	See also Functional Description "Cross-Communication (CCD)"					
P-0-1809.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Product-Specific Parameters

## 5.11.336 P-0-1809.0.6, CCD: SLc user data (inputs)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter serves to support the SLc03 without activated PLC in IndraDrive.

When the PLC is activated in IndraDrive, the input and output data reside in the I/O image of the PLC.

The parameter is only supported while the PLC in IndraDrive is inactive. In phase 4, the parameter can be used to read the user data (inputs) of the SLc03.

The length of the data can be set in the SLc using parameter "P-0-3690.6.1".

See also Functional Description "Cross-Communication (CCD)"

P-0-1809.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.337 P-0-1809.0.10, CCD: User data of SLc (outputs)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter serves to support the SLc03 without activated PLC in IndraDrive.

When the PLC is activated in IndraDrive, the input and output data reside in the I/O image of the PLC.

The parameter is only supported while the PLC in IndraDrive is inactive. In phase 4, the parameter can be used to specify the user data (outputs) of the SLc03.

The length of the data can be set in the SLc using parameter "P-0-3690.7.1".

See also Functional Description "Cross-Communication (CCD)"

P-0-1809.0.10 - Attributes	Function:	Par	Editable:	++	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.338 P-0-1810, CCD: Status word synchronous operation modes, master

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See Parameter Description "P-0-1811, CCD: Status Word Synchronous Operating Modes, Slave 1"					
	See also Functional Description "Cross-Communication (CCD)"					
P-0-1810 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.339 P-0-1810.0.1, CCD: Version

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This parameter displays the version of the CCD master.					
	See also Functional Description "Cross-Communication (CCD)"					
P-0-1810.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.340 P-0-1810.0.2, CCD: Status word

Allocation

Contained in 16VRS:	«-»	«-»	«-»	
Contained in 17VRS:	«-»	«-»	«-»	«-»
Contained in 18VRS:	«-»	«-»	«-»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

Function Structure

This parameter provides information about the CCD status.

Bit	Designation/function	Comment
3-0	<b>Target phase</b> sercos phase to which to switch	
7-4	<b>Actual phase</b> Currently active sercos phase	

Product-Specific Parameters

Bit	Designation/function	Comment
8	<b>Phase switch active</b> There is an attempt to switch to the target phase	
9	<b>Phase switch aborted with error</b> An error has occurred during switching to the target phase.	
10	<b>Parameter channel not available</b> At present, the parameter channel is not available because the actual phase is < 2 or phase switch is active.	

Tab.5-264:    *CCD: Status Word*


See also Functional Description "Cross-Communication (CCD)"

P-0-1810.0.2 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

5.11.341 P-0-1810.0.3, CCD: Timing settings

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
		Device parameter:	device-specific		

**Function**    This parameter contains the cycle times and timing settings used for cross communication (CCD), which are automatically determined or configured internally in the CCD master.



Parameter "P-0-1810.0.3" is for diagnostic purposes only. The cycle time is set via "S-0-1001".

See also Functional Description "Cross-Communication (CCD)"  
See also Parameter Description "S-0-1002, SERCOS III: Communication Cycle time (tScyc)"

**Structure**    The list parameter has the following content:

Product-Specific Parameters

52	
52	
2000,000	NC cycle time
2000,000	sercos cycle time
1958,900	AT start time
958,900	Feedback acquisition time
20,400	Command values valid time
0,000	MDT start time
500,000	Master X-clock results from P-0-0556
6,395	Ring delay P1
0,000	Ring delay P2
481,850	Start of IP window
1481,850	End of IP window
4,640	Sync. jitter
0,000	Interframe Gap

DP000011v01\_en.fh

Fig.5-265:

<b>P-0-1810.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	us	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.342 P-0-1810.0.4, CCD: FPGA version

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		


**Function** This parameter displays the version of the sercos master FPGA.  
See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1810.0.4 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.343 P-0-1810.0.10, CCD: Diagnostic message text

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		

## Product-Specific Parameters

	<b>Funct. package(s):</b> "open loop", "closed loop" <b>Device parameter:</b> device-specific
<b>Function</b>	<p>Parameter "P-0-1610.0.10" displays the status of the CCD master, i.e., of the CCD communication.</p> <hr/> <p> The status is displayed in plaintext (ASCII characters).</p> <hr/> <p>See also Functional Description "Cross-Communication (CCD)"  See also Functional Description "Diagnostic System"</p>
<b>Use</b>	<p>In combination with the diagnostic message number (S-0-0390), this extended diagnostic message text is primarily helpful for analyzing the CCD axis system during commissioning, i.e., during configuration.</p> <p>The numbers following the slave, drive or I/O have the following significance:</p> <ul style="list-style-type: none"> <li>• <b>Drive 0 or slave 0:</b> Local axis or virtual slave</li> <li>• <b>Slave 1 to slave x:</b> Real SERCOS slaves</li> <li>• <b>Drive 1 to drive x:</b> Remote SERCOS axes</li> <li>• <b>I/O 1 to I/O x:</b> Remote SERCOS I/Os</li> </ul> <p><b>The following messages can be displayed:</b></p> <ul style="list-style-type: none"> <li>• Run-up not yet started...</li> <li>• Initialization started...</li> <li>• Telegram configuration drive started ...</li> <li>• Telegram configuration I/O started ...</li> <li>• Offset calculation started ...</li> <li>• Timing calculation started ...</li> <li>• Initialization successfully completed!</li> <li>• Number of slaves configured &gt; number of slaves found!</li> </ul> <p>The number of CCD slaves configured in "P-0-1801.0.10" and "P-0-1801.0.11" is higher than the number of CCD slaves connected to the CCD master or found during scanning.</p> <ul style="list-style-type: none"> <li>• <b>Configured slave was not recognized in P-0-1603!</b>  A slave configured in "P-0-1801.0.10" or "P-0-1801.0.11" was not found in parameter "P-0-1801.0.3, CCD: Actual topology addresses".</li> <li>• <b>Configured slave was not recognized in P-0-1801.0.2!</b>  A slave configured in "P-0-1801.0.10" or "P-0-1801.0.11" was not found in parameter "P-0-1801.0.2, CCD: Command topology addresses".</li> <li>• <b>Error during PLC initialization in MLDM-Mode!</b>  During switchover from phase 2 to phase 4, an error occurred while initialization of the PLC was in progress, e.g., an internal write task to a remote axis via the service channel failed. Maybe the flash or control section is defective. Contact the service team!</li> <li>• <b>Error: NC cycle time is not supported!</b>  The NC cycle time is not supported. See documentation for allowed combinations of CCD mode, performance and CCD cycle time.</li> <li>• <b>Error: Config. of signal status/control word (P-0-1804.1.1/P-0-1804.1.2) slave(0)</b>  Non-allowed IDNs are entered in the configuration for the signal control/status word of the virtual slave (elements 0-15, P-0-1804.1.1/P-0-1804.1.2).</li> </ul>

Product-Specific Parameters

- **Error: Timing calculation**  
An error occurred during calculation of SERCOS timing.
- **Error: CC cycle time is not supported!**  
A check of the parameterized CC connections showed that the parameterized cycle time is not allowed.
- **Error: Config. ext. Connection !**  
An error occurred while the connection table was set up in the CCD master. The parameterization of the CC connections in the CCD slaves must be checked for non-allowed values. These may be caused by an invalid connection type of an exceeded maximum length.
- **Error: Length/Type of Master CC Connection not allowed**  
A wrong type or unallowed length is entered in the parameterization of a CC connection with participation of the CCD master. See "P-0-1807.x.1" or "P-0-1807.x.6".
- **Error: IDN in Master CC Connection not allowed**  
An unallowed parameter for transmission is entered in the parameterization of a CC connection with participation of the CCD master. See "P-0-1807.x.6".
- **Error: Configuration real-time bits Master CC**  
An unallowed parameter for the real-time bits is entered in the parameterization of a CC connection with participation of the CCD master. See "P-0-1807.x.20" or "P-0-1807.x.21".
- **Error: Length of P-0-1801.0.3 and P-0-1801.0.3 not equal**  
The lengths of the command and actual topologies specified in "P-0-1801.0.3" and "P-0-1801.0.2" must be equal.
- **Error: Values in P-0-1801.0.3 and P-0-1801.0.2 not equal**  
Command and actual topologies are different.
- **The CCD motion cycle time is not allowed for motion task**  
(See Section Task System in Chapter "Basic Functions of Rexroth IndraMotion MLD")
- **Error: Address of projected drive and I/O must be unique**  
Duplicate addresses are not allowed for the projected drives and I/Os in "P-0-1801.0.10" and "P-0-1801.0.11".
- **Number of CCD-Slaves not allowed at this mode or cycle time**  
The number of slaves is not allowed in this mode and in this cycle time. For allowed combinations, please refer to the documentation.
- **MLDM-Mode not allowed in advanced performance**  
MLD-M is not allowed with Advanced performance.
- **Error when reading T4min-Time (S-0-1005)**  
An error occurred during reading of the T4 min time S-0-1005 of a slave of drive type.
- **Error when writing S/P-X-XXXX Slave x (Code 0x....)**  
An error with SERCOS code 0xXXXX occurred during writing parameter S/P-X-XXXX to slave x via the service channel.
- **Error when reading S/P-X-XXXX Slave x (Code 0x....)** An error with SERCOS code 0xXXXX occurred during reading parameter S/P-X-XXXX from slave x via the service channel.

## Product-Specific Parameters

- **Error at command execution of S/P-0-XXXX Slave x**  
An error occurred during execution of command S/P-0-XXXX on slave x. More detailed information can be found in the slave diagnostics.
- **Timeout for command acknowledgment of S/P-0-XXXX Slave x**  
Command S/P-0-XXXX that was started on slave x was not completed with or without error within 25 s.
- **Switching to phase x successfully carried out**
- **Error when switching to phase x (Code 0x...)**  
An error with code 0xxxxxxx was signaled during SERCOS phase transition (soft phase switch). It was not possible to switch to SERCOS phase X.
- **Error: Type of SERCOS-I/O x unknown**  
The type of SERCOS I/O is not allowed. It is only allowed to operate SERCOS I/Os for which a defined length and SCP version 1.1 are entered in parameter S01000 = 0x0101.
- **Error: Length of SERCOS-I/O x not allowed**  
Error: The length of the SERCOS I/O data exceeds the allowed length of 48 bytes.
- **Error: Drive x in P-0-1801.0.10 is not an allowed drive type**  
The drive projected in P-0-1801.0.10 is not supported by the CCD master (no IndraDrive with expected parameters).
- **Error: I/O[%d] in P-0-1801.0.11 is not an allowed I/O type**  
The I/O configured in P-0-1801.0.11 is not supported by the CCD master; the only IO slave supported without activated PLC is the SLC03.
- **Data length for I/O x Output exceeded**  
The maximum length of the output data of an I/O has been exceeded.
- **Data length for I/O x Input exceeded**  
The maximum length of the input data of an I/O has been exceeded.
- **Data length for MDT drive x exceeded, P-0-1803.x.11 / P-0-1805.x.3**  
The maximum length of the MDT data of a drive has been exceeded. Correction required in "P-0-1803.x.11" or "P-0-1805.x.3".
- **Data length for AT drive x exceeded, P-0-1803.x.12 / P-0-1805.x.4**  
The maximum length of the AT data of a drive has been exceeded. Correction required in "P-0-1803.x.12" or "P-0-1805.x.4".
- **Error: Configured IDN %s I/O[%d] Output**  
The configured IDN for the output data of the I/O is not allowed.
- **Error: Configured IDN %s I/O[%d] Input**  
The configured IDN for the input data of the I/O is not allowed.
- **Number of IDN for MDT exceeded drive x**  
The number of IDNs configured for a drive is too high. Correction required in "P-0-1803.x.11" or "P-0-1805.x.1/3".
- **Number of IDN for AT exceeded drive x**  
The number of IDNs configured for a drive is too high. Correction required in "P-0-1803.x.12" or "P-0-1805.x.2/4".
- **Error: Config. IDN %s for MDT drive x, P-0-1805.x.1/3**

## Product-Specific Parameters

The configured IDN for the MDT data of the drive is not allowed. Correction required in "P-0-1803.x.11" or "P-0-1805.x.1/3".

- **Error: Config. IDN %s for AT drive x, P-0-1805.x.2/4**

The configured IDN for the AT data of the drive is not allowed. Correction required in "P-0-1803.x.12" or "P-0-1805.x.2/4".

- **Different number of IDN for MDT drive x, P-0-1805.x.1/3**

The number of IDNs configured in "P-0-1805.x.1" for the MDT data is different from that configured in "P-0-1805.x.3".

- **Different number of IDN for AT drive x, P-0-1805.x.2/4**

The number of IDNs configured in "P-0-1805.x.2" for the AT data is different from that configured in "P-0-1805.x.4".

- **IDN mismatch %s for MDT drive[%d], P-0-1805.x.1/3**

The IDNs in a master->slave MDT connection do not match each other, e.g. S-0-0084 -> S-0-0036 (different length). Correction required in "P-0-1805.x.1" or "P-0-1805.x.3".

- **IDN mismatch %s for AT drive[%d], P-0-1805.x.2/4**

The IDNs in a master<-slave AT connection do not match each other, e.g. S-0-0036 <- S-0-0084 (different length). Correction required in "P-0-1805.x.2" or "P-0-1805.x.4".

- **IDN %s is auto.config. for MDT drive[%d], P-0-1805.x.3**

The IDN configured for the MDT is used for internal purposes and cannot be assigned by the user. Correction required in "P-0-1805.0.3".

- **Error: CC binary configuration (code 0x%x)**

The binary configuration of the CC connections is incorrect.

See also Application Manual "IndraMotion MLD"

### P-0-1810.0.10 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
<b>MPB:</b>	<b>min./max.</b>		<b>Default value</b>		
	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.344 P-0-1810.0.11, CCD: Diagnosis code

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter displays a diagnosis code for error "F4140 CDD communications error" which does not allow a more detailed diagnosis of the error cause.

- 0x00000000 = no error
- 0x00000001 = unallowed phase return (P-0-1605 was set to a value unequal to 4 without taking the CCD master into account)
- 0x00000002 = a communication error has occurred in a CCD slave
- 0x00000004 = the NC cycle time in the CCD master was changed in phase 4

## Product-Specific Parameters

- 0x00000008 = the ring buffer for synchronization with non-synchronous master communication has overflown
- 0x00000010 = the configuration of the IO driver was changed in phase 4
- 0x0001xxxx = Failure of Bus-Slave-Valid in S-Dev of Slave x; slave does not enter any data in AT (bit 0 = slave 1, bit 1 = slave 2, etc.)
- 0x00020020 = no link at port 1 and port 2
- 0x00020021 = double AT failure
- 0x00022001 = no valid topology detected (line P1, line P2 or dual ring)

See also Functional Description "Cross-Communication (CCD)"

## P-0-1810.0.11 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.345 P-0-1810.0.12, CCD: Error counter Port-1

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** These list parameters display the telegram errors of the sercos FPGAs for the particular port according to sercos.

Element	Error counter
0	Counter for received ethernet frames with FCS error
1	Counter for received ethernet frames with an alignment error
2	Counter for discarded receive ethernet frames based on missing rx buffer ressources
3	Counter for discarded forwarding ethernet frames based on missing collision buffer ressources
4	Counter for ethernet frames which violate the IP channel window

The counters are running through. Counter levels remain preserved in case of phase return.

See also Functional Description "Cross-Communication"

## P-0-1810.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.346 P-0-1810.0.13, CCD: Error counter Port-2

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** These list parameters display the telegram errors of the sercos FPGAs for the particular port according to sercos.

Element	Error counter	Comment
0	Counter for received ethernet frames with FCS error	
1	Counter for received ethernet frames with an alignment error	
2	Counter for discarded receive ethernet frames based on missing rx buffer ressources	
3	Counter for discarded forwarding ethernet frames based on missing collision buffer ressources	
4	Counter for ethernet frames which violate the IP channel window	

Tab.5-266: Error counter

The counters are running through. Counter levels remain preserved in case of phase return.

See also Functional Description "Cross-Communication"

### P-0-1810.0.13 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.347 P-0-1810.0.15, CCD: AT error counter

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter displays an error counter for ATs. This parameter serves to monitor ATs in which the value entered in parameter "S-0-1012, sercos: Length of ATs" of the CCD slaves is greater than 0. The error counters count all invalid drive telegrams (ATs) in phases 3 and 4 and has its upper limit at 65535.



If the transmission is subject to strong interferences, the value 65535 is reached after a while.

See also Functional Description "Cross-Communication"

## Product-Specific Parameters

**Use** Interpreting the parameter content

Observe the following points while interpreting the error counter:

- The error counter is incremented once per communication cycle.
- The counter is only incremented as well, if the corresponding AT fails both on Port 1 and on Port 2.
- The error counter is cleared on transition from phase 2 to phase 3.

**P-0-1810.0.15 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

**5.11.348 P-0-1810.0.16, CCD: Axis error**

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter contains the class 1 diagnostics error bits of the CCD nodes.

Bit No.	Description	Comment
0	Class 1 diagnostics bit of the master	
1	Class 1 diagnostics bit of slave 1	
2	Class 1 diagnostics bit of slave 2	
3	Class 1 diagnostics bit of slave 3	
4	Class 1 diagnostics bit of slave 4	
5	Class 1 diagnostics bit of slave 5	
6	Class 1 diagnostics bit of slave 6	
7	Class 1 diagnostics bit of slave 7	
8	Class 1 diagnostics bit of slave 8	
9	Class 1 diagnostics bit of slave 9	

Tab.5-267: Class 1 Diagnostics Error Bits

**P-0-1810.0.16 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.349 P-0-1811, CCD: Status word synchronous operation modes, slave 1

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter displays the status word of the synchronous operating mode of CCD slave x in the CCD master which is transmitted by CCD slave x in the motion channel (AT) of MLD-M.



The character "x" is the slave number → e.g. slave "1"!

See also Functional Description "Cross Communication (CCD)"

**Use** The following has to be observed for usage:

- Data are only transmitted to this parameter with active MLD-M, i.e. in the MLD system mode (cf. P-0-1600).

P-0-1811 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.350 P-0-1812, CCD: Status word synchronous operation modes, slave 2

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** See also "P-0-1811, CCD: Status Word Synchronous Operating Modes, Slave 1"

See also Functional Description "Cross-Communication (CCD)"

P-0-1812 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.351 P-0-1813, CCD: Status word synchronous operation modes, slave 3

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

## Product-Specific Parameters

**Function** See also "P-0-1811, CCD: Status Word Synchronous Operating Modes, Slave 1"

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1813 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.352 P-0-1814, CCD: Status word synchronous operation modes, slave 4

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		device-specific			

**Function** See also "P-0-1811, CCD: Status Word Synchronous Operating Modes, Slave 1"

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1814 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.353 P-0-1815, CCD: Status word synchronous operation modes, slave 5

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		device-specific			

**Function** See also "P-0-1811, CCD: Status Word Synchronous Operating Modes, Slave 1"

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1815 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.354 P-0-1815.x.1, CCD: Master communication, synchronization input value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is effective in conjunction with the synchronization with non-synchronous master communication function.

A ring buffer is used to achieve decoupling of the master communication command values for the slaves from the transmission. The command values are not directly transmitted to the slaves but with an adjustable delay of parameter "P-0-1816.0.5". What is achieved with this delay is the fact that a command value which is not synchronously transmitted for processing in the slaves immediately causes a telegram failure because processing in the slaves is implemented with delayed values.

Parameters P-0-1815.x.1 can be put into the cyclic master communication command value telegram in order to transmit the command values for the local axis of the CCD master and the CCD slaves from the control in CCD system mode. These command values are caught by the CCD master and filed in the ring buffer. The control still has to put an application counter (P-0-1816.0.1) into the telegram in addition to the command values. This application counter serves to provide the command values with a time mark.



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

### P-0-1815.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.355 P-0-1815.x.2, CCD: Master communication, synchronization output value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is effective in conjunction with the synchronization with non-synchronous master communication function.

A ring buffer is used to achieve decoupling of the master communication command values for the slaves from the transmission. The command values are not directly transmitted to the slaves but with an adjustable delay of parameter "P-0-1816.0.5". What is achieved with this delay is the fact that a command value which is not synchronously transmitted for processing in the slaves immediately causes a telegram failure because processing in the slaves is implemented with delayed values.

## Product-Specific Parameters

Parameters P-0-1815.x.2 are used to transmit the command values for the local axis and the CCD slaves that are contained in the ring buffer. To achieve this, parameters P-0-1815.x.2 must be entered in the CCD mapping parameters P-0-1805.x.1, CCD: Configuration list master cmd values. The target parameter of the slaves must be entered in parameter P-0-1805.x.3, CCD: Configuration list slave cmd values (e.g. S-0-0047).



x is the slave number → e.g. 1 = local slave; 2 = CCD slave 1!

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1815.x.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.356 P-0-1816, CCD: Status word synchronous operation modes, slave 6

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also "P-0-1811, CCD: Status Word Synchronous Operating Modes, Slave 1"

See also Functional Description "Cross-Communication (CCD)"

<b>P-0-1816 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.357 P-0-1816.0.1, CCD: Master communication, synchronization counter

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter is effective in conjunction with the synchronization with non-synchronous master communication function.

A ring buffer is used to achieve decoupling of the master communication command values for the slaves from the transmission. The command values are not directly transmitted to the slaves but with an adjustable delay of parameter "P-0-1816.0.5". What is achieved with this delay is the fact that a command value which is not synchronously transmitted for processing in the slaves immediately causes a telegram failure because processing in the slaves is implemented with delayed values.

## Product-Specific Parameters

Parameter P-0-1816.0.1 serves to assign the command values temporally and must be transmitted from the control (application) to the slave command values once in each command value cycle. Using this application counter, the CCD master can achieve a temporal assignment of the command values for the CCD slaves and the local axis.

See also Functional Description "Cross-Communication (CCD)"

### P-0-1816.0.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.358 P-0-1816.0.2, CCD: Master communication, synchronization P-gain

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is effective in conjunction with the synchronization with non-synchronous master communication function.

The difference between the command and actual distances of the input and output values of the ring buffer is used to calculate a correction value for the internal timing of the CCD master and therefore compensate the difference. As a result, the CCD timing can be adjusted to the master communication timing.

This correction value is inversely proportional to the time in which there was no difference between command and actual distances. This correction value is multiplied by parameter P-0-1816.0.2 CCD.

As a result, an individual amplification of the value determined by the CCD master can be set. The default value of this parameter was calculated in numerous tests and should ensure optimal control behavior.

See also Functional Description "Cross-Communication (CCD)"

### P-0-1816.0.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,00 / 100,00	3,00
MPC:	0,00 / 100,00	3,00
MPE:	0,00 / 100,00	3,00
MPM:	0,00 / 100,00	3,00

## 5.11.359 P-0-1816.0.3, CCD: Master communication, synchronization I-gain

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is effective in conjunction with the synchronization with non-synchronous master communication function.

## Product-Specific Parameters

The difference between the command and actual distances of the input and output values of the ring buffer is used to calculate a correction value for the internal timing of the CCD master and therefore compensate the difference. As a result, the CCD timing can be adjusted to the master communication timing.

This correction value is inversely proportional to the time in which there was no difference between command and actual distances. This correction value is scaled and added up by means of parameter "P-0-1816.0.3".

As a result, any difference from the time is scaled to an increasingly higher degree. The default value of this parameter was calculated in numerous tests and should ensure optimal control behavior.

See also Functional Description "Cross-Communication (CCD)"

## P-0-1816.0.3 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0,00 / 100,00	0,03
MPC:	0,00 / 100,00	0,03
MPE:	0,00 / 100,00	0,03
MPM:	0,00 / 100,00	0,03

## 5.11.360 P-0-1816.0.4, CCD: Master communication, synchronization error window

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is effective in conjunction with the synchronization with non-synchronous master communication function.

A ring buffer is used to achieve decoupling of the master communication command values for the slaves from the transmission. The command values are not directly transmitted to the slaves but with an adjustable delay of parameter "P-0-1816.0.5" (command interval of input/output value). If values exceed or fall below this command interval, there may be a jitter or a drift of master communication transmission to the CCD system.

In case of a jitter, this difference is probably compensated after a few cycles. In case of a drift, the actual interval will be increasingly farther away from the command interval after some time. This state must be counteracted by the CCD master.

Using its timing, the CCD master counteracts this drift subject to various influence factors.

The error window of parameter "P-0-1816.0.4" specifies how long a deviation from the command interval of input/output values can be present until the CCD master counteracts by changing its timing.

The error window is parameterized in CCD cycles. In CCD system mode, the CCD cycle corresponds to the master communication cycle.

See also Functional Description "Cross-Communication (CCD)"

## P-0-1816.0.4 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	0 / 10000	25
MPC:	0 / 10000	25
MPE:	0 / 10000	25
MPM:	0 / 10000	25

## 5.11.361 P-0-1816.0.5, CCD: Master communication, synchronization delay

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is effective in conjunction with the synchronization with non-synchronous master communication function.

A ring buffer is used to achieve decoupling of the master communication command values for the slaves from the transmission. The command values are not directly transmitted to the slaves but with an adjustable delay of parameter "P-0-1816.0.5". What is achieved with this delay is the fact that a command value which is not synchronously transmitted for processing in the slaves immediately causes a telegram failure because processing in the slaves is implemented with delayed values.

The delay is parameterized in CCD cycles. In CCD system mode, the CCD cycle corresponds to the master communication cycle.

See also Functional Description "Cross-Communication (CCD)"

P-0-1816.0.5 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 10	4
MPC:	1 / 10	4
MPE:	1 / 10	4
MPM:	1 / 10	4

## 5.11.362 P-0-1817, CCD: Status word synchronous operation modes, slave 7

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** See also "P-0-1811, CCD: Status Word Synchronous Operating Modes, Slave 1"

See also Functional Description "Cross-Communication (CCD)"

P-0-1817 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.11.363 P-0-1818, CCD: Status word synchronous operation modes, slave 8

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1811, CCD: status word synchronous operating modes, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1818 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
MPM:		--- / ---		---		

## 5.11.364 P-0-1819, CCD: Status word synchronous operation modes, slave 9

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«MPC»		
	Contained in 18VRS:	«-»	«-»	«-»		
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1811, CCD: status word synchronous operating modes, slave 1"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1819 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.365 P-0-1820, CCD: Command value data container 1, Master 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1820 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.366 P-0-1820.0.1, CCD: Master axes configuration list

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** The configuration list defines the master axes to be prepared by listing the logic axis number of the desired source axes.

The logic axis numbers of the real IndraDrive axes are defined by parameter "P-0-1801.0.10". The logic axis numbers of the measuring encoder axis (RMA\_1), the virtual axis (VMA\_1) and the group axis (MA\_LINK\_1) are constant. The maximum number of entries that can be made is 3. The order in the list numbers the master axes from 1 to 3. This numbering is used to assign the parameters to the adjustment of the master axes.

See also Functional Description "Cross-Communication (CCD)"

P-0-1820.0.1 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.367 P-0-1820.0.2, CCD: Source of measuring encoder position feedback value

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** If a measuring encoder axis RMA\_1 is entered in the master axis configuration list, the axis to which the measuring encoder is connected must be specified. To achieve this, the logic axis number of the IndraDrive axis from which the actual position value of the measuring encoder (P-0-0052) is to be retrieved must be specified in this parameter.

See also Functional Description "Cross-Communication (CCD)"

P-0-1820.0.2 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 10	1
MPC:	1 / 10	1
MPE:	1 / 10	1
MPM:	1 / 10	1

## Product-Specific Parameters

## 5.11.368 P-0-1820.0.3, CCD: Actual position value of measuring encoder

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** If a measuring encoder axis RMA\_1 is entered in the master axis configuration list, the actual position value of the measuring encoder is retrieved from the axis specified in Parameter P-0-1820.0.2 and filed in this parameter.

See also Functional Description "Cross-Communication (CCD)"

P-0-1820.0.3 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	Incr	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.369 P-0-1820.0.4, CCD: Axis position selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This bit list is used to specify for each real IndraDrive axis whether the only parameter configured in the drive telegram is parameter "S-0-0386, Active position feedback value" or whether parameter "P-0-0434, Position command value of controller" is configured as well.

If a bit is 0, the associated IndraDrive axis only retrieves the "S-0-0386, Active position feedback value". If a bit is 1, the "P-0-0434, Position command value of controller" is additionally retrieved.

Bit 0 refers to the axis with logic axis number 1; bit n refers to the axis with the logic axis number n+1.

It is reasonable to retrieve the position command value in addition to the noisy actual position value and use it as a source for a master axis only for IndraDrive axes which are intended to serve as a master axis.

See also Functional Description "Cross-Communication (CCD)"

P-0-1820.0.4 - Attributes	Function:	Par	Editable:	CCD_P2	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.11.370 P-0-1821, CCD: Command value data container 1, Slave 1 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»

## Product-Specific Parameters

<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	device-specific			

**Function** In MLD system mode (cf. P-0-1600), parameters "P-0-182x" are used for the real-time channel.



"x" is the slave number → e.g. slave "1"

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2 bytes data to the CCD slave in the command value telegram (e.g., P-0-1821 → S-0-0080).

**Example:**

Slave 1 files "S-0-0084" to the AT → Master copies to "P-0-1821" and files "P-0-1821" to the MDT for slave 1 as "S-0-0080".



Parameters "P-0-1730" to "P-0-1809" are to be used for transmitting 4-byte data.

### P-0-1821 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.371 P-0-1821.x.1, CCD: Position command value for master axis n

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** If it is intended to use the axis position of an IndraDrive axis for master axis adjustment, the position command value of this axis can be used as an alternative to the active actual position value. In this case, this axis cyclically transmits the value of parameter P-0-0434, Position command value of controller, to the control. In the control, the value is stored in one of parameters P-0-1821.x.1. Structure index x corresponds to the master axis for the adjustment of which the position command value is to be used (1, 2 or 3).

### P-0-1821.x.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## Product-Specific Parameters

## 5.11.372 P-0-1821.x.2, CCD: Master axis n, filter type

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** For adjusting a configured master axis, the value of the source parameter is filtered to the format of the master axis after completed conversion. The following filters can be selected:

Value	filter type	Comment
0	Filter deactivated	
1	1st order low-pass filter with velocity feedforward	
2	2nd order low-pass filter with velocity feedforward	
3	3rd order low-pass filter with velocity and acceleration feedforward	

Tab.5-268: Master Axis Filter Types

All filters are designed such that, with constant velocity, the signal is not delayed by the filtering. Where filter 3 is concerned, the output signal is not delayed, not even during acceleration.

The structure index specifies whether the parameter is intended for the master axis (1, 2 or 3).

P-0-1821.x.2 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		Input	min./max.		Default value	
		MPB:	--- / ---		---	
		MPC:	0 / 3		0	
		MPE:	--- / ---		0	
		MPM:	--- / ---		0	

## 5.11.373 P-0-1821.x.3, CCD: Master axis n, filter corner frequency

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** For master axis adjustment, the cutoff frequency of the filter must be specified in addition to the filter type. The filter cutoff frequency is the frequency at which the signal is reduced by 3 dB. The maximum possible filter cutoff frequency depends on the CCD cycle time. The maximum value can be calculated as follows:

Maximum filter cutoff frequency =  $1 / (2 * \text{CCD cycle time})$

If it is higher, the value specified is limited to the maximum possible value. In this case, the minimum possible filter effect is active.

The structure index specifies whether the parameter is intended for the master axis (1, 2 or 3).

Product-Specific Parameters

P-0-1821.x.3 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	Hz	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>	0 / 65535			25	
<b>MPC:</b>	0 / 65535			25	
<b>MPE:</b>	--- / ---			25	
<b>MPM:</b>	--- / ---			25	

## 5.11.374 P-0-1821.x.4, CCD: Master axis n, number of extrapolation steps

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function**

To compensate the time requirements of fine interpolation and the transmission times between CCD master and slaves, the master axis position of a master axis is extrapolated after it has been adjusted. This parameter defines for each master axis n the number of CCD cycles by which the established master axis position is extrapolated. The velocity of the master axis is used for extrapolation. For this reason, there will be extrapolation errors during acceleration and deceleration.

The structure index specifies whether the parameter is intended for the master axis (1, 2 or 3).

P-0-1821.x.4 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>	0 / 4			0	
<b>MPC:</b>	0 / 4			0	
<b>MPE:</b>	--- / ---			0	
<b>MPM:</b>	--- / ---			0	

## 5.11.375 P-0-1821.x.5, CCD: Master axis n, master axis position

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function**

This parameter shows the adjusted master axis position.

The structure index specifies whether the parameter is intended for the master axis (1, 2 or 3).

P-0-1821.x.5 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
<b>MPB:</b>	--- / ---			---	
<b>MPC:</b>	--- / ---			---	
<b>MPE:</b>	--- / ---			---	
<b>MPM:</b>	--- / ---			---	

## Product-Specific Parameters


## 5.11.376 P-0-1822, CCD: Command value data container 1, Slave 2 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1822 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.377 P-0-1822.0.1, CCD: Default master axis selection for the IndraDrive axes

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	This parameter is used to select one of the 3 possible master axes for the IndraDrive axes. The master axis position selected is transmitted to the particular IndraDrive axis until the first command is triggered. Starting with bits 0 and 1 for logic axis 1, two bits are available for each of the following logic axes. This allows specifying values of 0 to 3 in each case. Values 1, 2 and 3 refer to the order in the configuration list for the master axes.			

---

 On initialization, the assignments made in this parameter are applied to parameter "P-0-1822.0.2, CCD: Master axis selection for the IndraDrive axes". They are only active until "P-0-1822.0.2" is changed either directly or by a command of a PLC function block.

## Structure

Bit	Designation/function	Comment
1/0	<b>Default master axis for axis 1</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
3/2	<b>Default master axis for axis 2</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	

Product-Specific Parameters

Bit	Designation/function	Comment
5/4	<b>Default master axis for axis 3</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
7/6	<b>Default master axis for axis 4</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
9/8	<b>Default master axis for axis 5</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
11/10	<b>Default master axis for axis 6</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
13/12	<b>Default master axis for axis 7</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
15/14	<b>Default master axis for axis 8</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
17/16	<b>Default master axis for axis 9</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	

## Product-Specific Parameters

Bit	Designation/function	Comment
19/18	Default master axis for axis 10 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
31... 20	Reserved	

Tab.5-269: Selecting the Default Master Axes

**Use** The assignment of the master axis to the slave axis made in this parameter is only required if bit "In Synchronization" is to be established in the slave axis before synchronization mode is activated with the correct master axis position.

## P-0-1822.0.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	0x55555	
<b>MPC:</b>			--- / ---	0x55555	
<b>MPE:</b>			--- / ---	0x55555	
<b>MPM:</b>			--- / ---	0x55555	

## 5.11.378 P-0-1822.0.2, CCD: Master axis selection for the IndraDrive axes

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** This parameter is used to select one of the 3 possible master axes for each of the IndraDrive axes. The master axis position selected (P-0-1821.x.5, CCD: Master axis n, master axis position ) is transferred to the master axis position of the particular IndraDrive axis (P-0-1823.x.2, CCD: Master axis position for axis n).

Starting with bits 0 and 1 for logic axis 1, two bits are available for each of the following logic axes. This allows specifying values of 0 to 3 in each case. Values 1, 2 and 3 refer to the order in the configuration list for the master axes.

Product-Specific Parameters

Structure

Bit	Designation/function	Comment
1/0	<b>Master axis for axis 1</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
3/2	<b>Master axis for axis 2</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
5/4	<b>Master axis for axis 3</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
7/6	<b>Master axis for axis 4</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
9/8	<b>Master axis for axis 5</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
11/10	<b>Master axis for axis 6</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
13/12	<b>Master axis for axis 7</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
15/14	<b>Master axis for axis 8</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	

## Product-Specific Parameters

Bit	Designation/function	Comment
17/16	<b>Master axis for axis 9</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
19/18	<b>Master axis for axis 10</b> 00: Local master axis 01: Master axis 1 10: Master axis 2 11: Master axis 3	
31... 20	Reserved	

Tab.5-270: Selecting the Master Axes

**Use** This parameter is changed when a command for a synchronous motion function block is triggered. Using the master axis configuration list, the master axis number is determined from the logic axis number of the master axis and set for the slave axis specified.

## P-0-1822.0.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.379 P-0-1823, CCD: Command value data container 1, Slave 3 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-» «MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-» «-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1823 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.11.380 P-0-1823.x.1, CCD: Default synchronization mode for axis n

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter defines a default synchronous operation mode for the IndraDrive axes. This is achieved by entering a characteristic number.

The following settings can be selected:

- Phase synchronization (0)
- Cam (1)
- MotionProfile (2)
- Velocity synchronization (3)

During initialization, the synchronization mode selected in parameter "P-0-1823.x.1" is set for the slave axis in parameter "P-0-0088, Control word synchronization modes". The setting made in this parameter is only required if bit "In Synchronization" is to be established in the slave axis before synchronization mode is activated with the correct operation mode.

The structure index specifies the logic axis n for which the parameter takes effect.

<b>P-0-1823.x.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CCD_P2	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		0		
	MPC:	--- / ---		0		
	MPE:	--- / ---		0		
	MPM:	--- / ---		0		

## 5.11.381 P-0-1823.x.2, CCD: Master axis position for axis n

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPC»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter is used to store for each IndraDrive axis the position of the master axis which is assigned to this IndraDrive axis by default or by triggering a command. The assignment is found in parameter "P-0-1802.0.2, CCD: Master axis selection for the IndraDrive axes".

The structure index specifies the logic axis n for which the respective parameter takes effect.

<b>P-0-1823.x.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Incr	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## Product-Specific Parameters

## 5.11.382 P-0-1824, CCD: Command value data container 1, Slave 4 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1824 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.383 P-0-1825, CCD: Command value data container 1, Slave 5 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«MPC»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1825 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.384 P-0-1826, CCD: Command value data container 1, Slave 6 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1826 - Attributes	Function:	Par	Editable:	++
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	2Byte
		Format:	DEC_MV	
		Decim. pl.:	0	
		Set-depend.:	--	

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.385 P-0-1827, CCD: Command value data container 1, Slave 7 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>		«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>		«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>		«-»	«-»	«-»	«-»
	<b>Hardware</b>		optional drives card			
	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		device-specific			
<b>Function</b>	See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
<b>P-0-1827 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

### 5.11.386 P-0-1828, CCD: Command value data container 1, Slave 8 2Byte

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
<b>Function</b>	See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"				
	See also Functional Description "Cross Communication (CCD)"				
<b>P-0-1828 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b> 2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b> DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b> --
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
	<b>MPB:</b>	--- / ---		---	
	<b>MPC:</b>	--- / ---		---	
	<b>MPE:</b>	--- / ---		---	
	<b>MPM:</b>	--- / ---		---	

### 5.11.387 P-0-1829, CCD: Command value data container 1, Slave 9 2Byte

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
<b>Function</b>	See also Parameter Description "P-0-1821, CCD: Command value data container 1, Slave 1 2Byte"				
	See also Functional Description "Cross Communication (CCD)"				

## Product-Specific Parameters

<b>P-0-1829 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.11.388 P-0-1830, CCD: Command value data container 2, Master 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	motion logic			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1830 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		---		
<b>MPC:</b>		--- / ---		---		
<b>MPE:</b>		--- / ---		---		
<b>MPM:</b>		--- / ---		---		

## 5.11.389 P-0-1831, CCD: Command value data container 2, Slave 1 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** In MLD system mode (cf. P-0-1600), parameters "P-0-183x" are used for the real-time channel.



"x" is the slave number → e.g. slave "1"

See also Functional Description "Cross-Communication (CCD)"

**Use** Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2 bytes data to the CCD slave in the command value telegram (e.g., P-0-1831 → S-0-0080).

**Example:**

Slave 1 files "S-0-0084" to the AT → Master copies to "P-0-1831" and files "P-0-1831" to the MDT for slave 1 as "S-0-0080".



Parameters "P-0-1730" to "P-0-1809" are to be used for transmitting 4-byte data.

Product-Specific Parameters

<b>P-0-1831 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.390 P-0-1832, CCD: Command value data container 2, Slave 2 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1832 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.11.391 P-0-1833, CCD: Command value data container 2, Slave 3 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1833 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.392 P-0-1834, CCD: Command value data container 2, Slave 4 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				

## Product-Specific Parameters

**Function** See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1834 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.393 P-0-1835, CCD: Command value data container 2, Slave 5 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1835 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.394 P-0-1836, CCD: Command value data container 2, Slave 6 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1836 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

Product-Specific Parameters

## 5.11.395 P-0-1837, CCD: Command value data container 2, Slave 7 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1837 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.396 P-0-1838, CCD: Command value data container 2, Slave 8 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1838 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.397 P-0-1839, CCD: Command value data container 2, Slave 9 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1831, CCD: Command value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1839 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

### 5.11.398 P-0-1840, CCD: Command value data container 3, Master 2Byte

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.398 P-0-1840, CCD: Command value data container 3, Master 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1841, CCD: Command value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1840 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.399 P-0-1841, CCD: Command value data container 3, Slave 1 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** In MLD system mode (cf. P-0-1600), parameters "P-0-184x" are used for the real-time channel.

"x" is the slave number → e.g., slave "1"

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2 bytes data to the CCD slave in the command value telegram (e.g., P-0-1841 → S-0-0080).

**Example:**

Slave 1 files "S-0-0084" to the AT → Master copies to "P-0-1841" and files "P-0-1841" to the MDT for slave 1 as "S-0-0080".

Parameters "P-0-1730" to "P-0-1809" are to be used for transmitting 4-byte data.

## P-0-1841 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC MV

Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.400 P-0-1842, CCD: Command value data container 3, Slave 2 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1841, CCD: Command value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1842 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.401 P-0-1843, CCD: Command value data container 3, Slave 3 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1841, CCD: Command value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1843 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.402 P-0-1844, CCD: Command value data container 3, Slave 4 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1841, CCD: Command value data container 3. Slave 1 2Byte"				

## Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

## P-0-1844 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.403 P-0-1845, CCD: Command value data container 3, Slave 5 2Byte

## Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«-»
Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

## Function

See also Parameter Description "P-0-1841, CCD: Command value data container 3, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1845 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.404 P-0-1846, CCD: Command value data container 3, Slave 6 2Byte

## Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«-»
Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	device-specific		

## Function

See also Parameter Description "P-0-1841, CCD: Command value data container 3, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

## P-0-1846 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.11.405 P-0-1847, CCD: Command value data container 3, Slave 7 2Byte

## Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«-»
Contained in 18VRS:	«-»	«-»	«-»
Hardware	optional drives card		

Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"	
	<b>Device parameter:</b>		device-specific	
<b>Function</b>	See also Parameter Description "P-0-1841, CCD: Command value data container 3, Slave 1 2Byte"			
	See also Functional Description "Cross Communication (CCD)"			
<b>P-0-1847 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
			<b>Format:</b>	DEC_MV
			<b>Decim. pl.:</b>	0
			<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	--- / ---		---
	<b>MPC:</b>	--- / ---		---
	<b>MPE:</b>	--- / ---		---
	<b>MPM:</b>	--- / ---		---

### 5.11.406 P-0-1848, CCD: Command value data container 3, Slave 8 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1841, CCD: Command value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1848 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.407 P-0-1849, CCD: Command value data container 3, Slave 9 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1841, CCD: Command value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1849 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Product-Specific Parameters


## 5.11.408 P-0-1850, CCD: Command value data container 4, Master 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1850 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.409 P-0-1851, CCD: Command value data container 4, Slave 1 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	In MLD system mode (cf. P-0-1600), parameters "P-0-185x" are used for the real-time channel.			

---

 "x" is the slave number → e.g., slave "1"

---

See also Functional Description "Cross-Communication (CCD)"


Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2 bytes data to the CCD slave in the command value telegram (e.g., P-0-1851 → S-0-0080).

**Example:**

Slave 1 files "S-0-0084" to the AT → Master copies to "P-0-1851" and files "P-0-1851" to the MDT for slave 1 as "S-0-0080".

---

 Parameters "P-0-1730" to "P-0-1809" are to be used for transmitting 4-byte data.

---

P-0-1851 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
MPB:			--- / ---	---		
MPC:			--- / ---	---		

Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.11.410 P-0-1852, CCD: Command value data container 4, Slave 2 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1852 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.411 P-0-1853, CCD: Command value data container 4, Slave 3 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1853 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.412 P-0-1854, CCD: Command value data container 4, Slave 4 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1854 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC MV

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.413 P-0-1855, CCD: Command value data container 4, Slave 5 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1855 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.414 P-0-1856, CCD: Command value data container 4, Slave 6 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1856 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.415 P-0-1857, CCD: Command value data container 4, Slave 7 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"				

Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1857 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

#### 5.11.416 P-0-1858, CCD: Command value data container 4, Slave 8 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1858 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

#### 5.11.417 P-0-1859, CCD: Command value data container 4, Slave 9 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1851, CCD: Command value data container 4, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1859 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

#### 5.11.418 P-0-1860, CCD: Actual value data container 1, Master 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«MPB»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	--			

## Product-Specific Parameters

	<b>Funct. package(s):</b>		motion logic		
	<b>Device parameter:</b>		device-specific		
<b>Function</b>	See also Parameter Description "P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte"				
	See also Functional Description "Cross Communication (CCD)"				
<b>P-0-1860 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b> 2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b> DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b> 0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b> --
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
	<b>MPB:</b>	--- / ---		---	
	<b>MPC:</b>	--- / ---		---	
	<b>MPE:</b>	--- / ---		---	
	<b>MPM:</b>	--- / ---		---	

## 5.11.419 P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	device-specific		

**Function** In MLD system mode (cf. P-0-1600), parameters "P-0-186x" are used for the real-time channel.



"x" is the slave number → e.g., slave "1"

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2 bytes data from the CCD slave in the actual value telegram (e.g., P-0-1861 <- S-0-0084).

**Example:**

The slave files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1861". In the master, "P-0-1861" is used for internal processing



Parameters "P-0-1730" to "P-0-1809" are to be used for transmitting 4-byte data.

<b>P-0-1861 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
			<b>Format:</b>	DEC_MV
			<b>Decim. pl.:</b>	0
			<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	--- / ---		---
	<b>MPC:</b>	--- / ---		---
	<b>MPE:</b>	--- / ---		---
	<b>MPM:</b>	--- / ---		---

## 5.11.420 P-0-1862, CCD: Actual value data container 1, Slave 2 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»

Product-Specific Parameters

	Contained in 18VRS:			
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1862 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	2Byte
			Format:	DEC_MV
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

## 5.11.421 P-0-1863, CCD: Actual value data container 1, Slave 3 2Byte

Allocation	Contained in 16VRS:			
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1661, CCD: Actual value data container 1, Slave 1 2Byte"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1863 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	2Byte
			Format:	DEC_MV
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

## 5.11.422 P-0-1864, CCD: Actual value data container 1, Slave 4 2Byte

Allocation	Contained in 16VRS:			
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1864 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	2Byte
			Format:	DEC_MV
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.	Default value	
	MPB:	--- / ---	---	
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

## Product-Specific Parameters

## 5.11.423 P-0-1865, CCD: Actual value data container 1, Slave 5 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1865 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	2Byte
		Format:	DEC_MV	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.424 P-0-1866, CCD: Actual value data container 1, Slave 6 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		
Function	See also Parameter Description "P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte"			
	See also Functional Description "Cross Communication (CCD)"			
P-0-1866 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	AT + MDT	Comb. check:	--
			Data length:	2Byte
		Format:	DEC_MV	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.11.425 P-0-1867, CCD: Actual value data container 1, Slave 7 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1867 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.11.426 P-0-1868, CCD: Actual value data container 1, Slave 8 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1868 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.427 P-0-1869, CCD: Actual value data container 1, Slave 9 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1861, CCD: Actual value data container 1, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1869 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.428 P-0-1870, CCD: Actual value data container 2, Master 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	--			
	Funct. package(s):	motion logic			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"				
	See also Functional Description "Cross Communication (CCD)"				

## Product-Specific Parameters

<b>P-0-1870 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.429 P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-» «MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-» «-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** In MLD system mode (cf. P-0-1600), parameters "P-0-187x" are used for the real-time channel.



"x" is the slave number → e.g., slave "1"

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2 bytes data from the CCD slave in the actual value telegram (e.g., P-0-1871 <- S-0-0084).

**Example:**

The slave files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1871". In the master, "P-0-1871" is used for internal processing



Parameters "P-0-1730" to "P-0-1809" are to be used for transmitting 4-byte data.

<b>P-0-1871 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.430 P-0-1872, CCD: Actual value data container 2, Slave 2 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-» «MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-» «-»
	<b>Hardware</b>	optional drives card		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

Product-Specific Parameters

<b>P-0-1872 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

### 5.11.431 P-0-1873, CCD: Actual value data container 2, Slave 3 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1873 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.11.432 P-0-1874, CCD: Actual value data container 2, Slave 4 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
Device parameter:		device-specific				
Function	See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1874 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

### 5.11.433 P-0-1875, CCD: Actual value data container 2, Slave 5 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
Device parameter:		device-specific			

## Product-Specific Parameters

**Function** See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1875 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.434 P-0-1876, CCD: Actual value data container 2, Slave 6 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		device-specific			

**Function** See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1876 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.11.435 P-0-1877, CCD: Actual value data container 2, Slave 7 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
<b>Funct. package(s):</b>		"open loop", "closed loop"			
<b>Device parameter:</b>		device-specific			

**Function** See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1877 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

Product-Specific Parameters

## 5.11.436 P-0-1878, CCD: Actual value data container 2, Slave 8 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1878 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.437 P-0-1879, CCD: Actual value data container 2, Slave 9 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1871, CCD: Actual value data container 2, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1879 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.11.438 P-0-1880, CCD: Actual value data container 3, Master 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1871, CCD: Actual value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1880 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			
<b>Function</b>	In MLD system mode (cf. P-0-1600), parameters "P-0-188x" are used for the real-time channel.				

"x" is the slave number → e.g., slave "1"

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2 bytes data from the CCD slave in the actual value telegram (e.g., P-0-1881 <- S-0-0084).

The slave files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1881". In the master, "P-0-1881" is used for internal processing

Parameters "P-0-1730" to "P-0-1809" are to be used for transmitting 4-byte data.

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

See also Functional Description "Cross Communication (CCD)"

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC MV

Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

### 5.11.441 P-0-1883, CCD: Actual value data container 3, Slave 3 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1881, CCD: Actual value data container 3, Slave 1 2Byte"				
	See also Functional Description "Cross Communication (CCD)"				
P-0-1883 - Attributes	Function:	Par	Editable:	--	Data length: 2Byte
	Memory:	--	Validity ch.:	--	Format: DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.: 0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:
				--	--
	Input	min./max.		Default value	
	MPB:	--- / ---		---	
	MPC:	--- / ---		---	
	MPE:	--- / ---		---	
	MPM:	--- / ---		---	

### 5.11.442 P-0-1884, CCD: Actual value data container 3, Slave 4 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1881, CCD: Actual value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1884 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.443 P-0-1885, CCD: Actual value data container 3, Slave 5 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1881, CCD: Actual value data container 3. Slave 1 2Byte"				

## Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1885 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.444 P-0-1886, CCD: Actual value data container 3, Slave 6 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also Parameter Description "P-0-1881, CCD: Actual value data container 3, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1886 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.445 P-0-1887, CCD: Actual value data container 3, Slave 7 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** See also Parameter Description "P-0-1881, CCD: Actual value data container 3, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1887 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.11.446 P-0-1888, CCD: Actual value data container 3, Slave 8 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			

Product-Specific Parameters

	<b>Funct. package(s):</b>		"open loop", "closed loop"			
	<b>Device parameter:</b>		device-specific			
<b>Function</b>	See also Parameter Description "P-0-1881, CCD: Actual value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
<b>P-0-1888 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	--- / ---			---	
	<b>MPC:</b>	--- / ---			---	
	<b>MPE:</b>	--- / ---			---	
	<b>MPM:</b>	--- / ---			---	

### 5.11.447 P-0-1889, CCD: Actual value data container 3, Slave 9 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1881, CCD: Actual value data container 3, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1889 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.448 P-0-1890, CCD: Actual value data container 4, Master 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«MPB»	«-»	«-»	
	Contained in 18VRS:		«-»	«-»	«-»	
	Hardware		--			
	Funct. package(s):		motion logic			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1890 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Product-Specific Parameters

## 5.11.449 P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	In MLD system mode (cf. P-0-1600), parameters "P-0-189x" are used for the real-time channel.				



"x" is the slave number → e.g., slave "1"

See also Functional Description "Cross-Communication (CCD)"

Observe the following aspects for use:

- In CCD system mode and CCD basic mode, the parameters can be used as copy containers.
- The data container can be used for transmission of 2 bytes data from the CCD slave in the actual value telegram (e.g., P-0-1891 <- S-0-0084).

**Example:**

The slave files "S-0-0084" to the AT. The master copies the content of the AT to "P-0-1891". In the master, "P-0-1891" is used for internal processing



Parameters "P-0-1730" to "P-0-1809" are to be used for transmitting 4-byte data.

**P-0-1891 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input			min./max.	Default value	
MPB:			--- / ---	---	
MPC:			--- / ---	---	
MPE:			--- / ---	---	
MPM:			--- / ---	---	

## 5.11.450 P-0-1892, CCD: Actual value data container 4, Slave 2 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

Function See also Parameter Description "P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

**P-0-1892 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input			min./max.	Default value	
MPB:			--- / ---	---	
MPC:			--- / ---	---	

Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

### 5.11.451 P-0-1893, CCD: Actual value data container 4, Slave 3 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1893 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.11.452 P-0-1894, CCD: Actual value data container 4, Slave 4 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1894 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.11.453 P-0-1895, CCD: Actual value data container 4, Slave 5 2Byte

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«MPC»
	Contained in 18VRS:		«-»	«-»	«-»	«-»
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function	See also Parameter Description "P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1895 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC MV

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.11.454 P-0-1896, CCD: Actual value data container 4, Slave 6 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1896 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.455 P-0-1897, CCD: Actual value data container 4, Slave 7 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	See also Parameter Description "P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte"					
	See also Functional Description "Cross Communication (CCD)"					
P-0-1897 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.11.456 P-0-1898, CCD: Actual value data container 4, Slave 8 2Byte

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«-»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	See also Parameter Description "P-0-1891, CCD: Actual value data container 4. Slave 1 2Byte"				

Product-Specific Parameters

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1898 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.11.457 P-0-1899, CCD: Actual value data container 4, Slave 9 2Byte

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** See also Parameter Description "P-0-1891, CCD: Actual value data container 4, Slave 1 2Byte"

See also Functional Description "Cross Communication (CCD)"

<b>P-0-1899 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.12 P-0-2000 to P-0-2299 General Device Parameters

### 5.12.1 P-0-2002, Oper. hours of contr. sect. at change of functional packages

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameter is used in conjunction with the enabling of functional packages.

In parameter "P-0-2002" the count of the operating hours counter of the control section, at the time of a change in the functional package selection in "P-0-2003, Selection of functional packages", is stored.



The value is stored on the control section and therefore gets lost when the device is replaced. Parameter P-0-2002 cannot be changed but only be read.

See also Functional Description "Enabling of Functional Packages"

See also Functional Description "Functional Packages"

<b>P-0-2002 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	ON_BOARD_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV

## Product-Specific Parameters

Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

## 5.12.2 P-0-2003, Selection of functional packages

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Func. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter "P-0-2003" is used for selecting the desired and licensed functional packages for functional package enable. There may be cases where functional packages are enabled (ALL) which may only be used alternatively (MSP, SNC, SRV) to each other. The effective alternative package is selected by means of "P-0-2003".

See also Functional Description "Enabling of Functional Packages"

See also Functional Description "Functional Packages"

See also Functional Description "Change of Active Functional Packages Selection"

## Structure

Bit No.	Name of package (Bit = 1 → Package has been selected)	Rules for selection via P-0-2003
0	Base package "open-loop"	- As an alternative to bit 1
1	Base package "closed-loop"	- As an alternative to bit 0
2	Not used	--
3	Not used	--
4	Expansion package "servo function" (SRV)	- As an alternative to bit 5 or 6 - Not with "open-loop"
5	Expansion package "synchronization" (SNC)	- As an alternative to bit 4 or 6
6	Expansion package "main spindle" (MSP)	- As an alternative to bit 4 or 5
7	Not used	--
8	Additional package "IndraMotion MLD Advanced" (MA)	- For MPC only - Only in conjunction with bit 1 (closed-loop) and bit 9 (IndraMotion MLD)
9	Additional package "IndraMotion MLD" (ML or TF) <sup>1)</sup>	- Not for MPE
10 to 31	Not used	--

Tab.5-271: Selecting the Functional Packages via Parameter P-0-2003

**Use** Observe the following aspects for parameter setting:

- When the mode is switched from parameter mode (PM) to operation mode (OM), this parameter is marked as invalid if enabled packages were selected which may be active only alternatively in relation to each other.

## Product-Specific Parameters

- Changes in this parameter do not become effective before the drive is restarted the next time or "S-0-1350, C6400 reboot command" is executed.
- If the optional module for safety technology (S1) is fitted, the functional package "Open Loop" cannot be activated.

### P-0-2003 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Input</b>					
		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		---	
<b>MPC:</b>		--- / ---		---	
<b>MPE:</b>		--- / ---		---	
<b>MPM:</b>		--- / ---		---	

## 5.12.3 P-0-2004, Active functional packages

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	---			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

### Function

This parameter contains the active functional packages.

When booting the functional packages selected in "P-0-2003, Selection of functional packages " are activated and then the respective bits are set or cleared in "P-0-2004". This allows recognizing at any time which functional packages are actually active.

See also Functional Description "Enabling of Functional Packages"

See also Functional Description "Functional Packages"

See also Functional Description "Change of Active Functional Packages Selection"

### P-0-2004 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>					
		<b>min./max.</b>		<b>Default value</b>	
<b>MPB:</b>		--- / ---		---	
<b>MPC:</b>		--- / ---		---	
<b>MPE:</b>		--- / ---		---	
<b>MPM:</b>		--- / ---		---	

## 5.12.4 P-0-2051, Operating hours counter, motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	---			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

### Function

This parameter displays the current count of the operating hours counter of the motor. The operating hours counter records the duration of three different operating states:

- Motor enabled (AF, electric load)
- Motor in motion (actual velocity unequal "0")
- Motor temperature less than 10K away from "S-0-0204, Motor shutdown temperature"

See Functional Description "Diagnostic Data of Motor Operation"

## Product-Specific Parameters

## Structure List Parameter With Three Elements

List element	Operating time	Default value	Unit	Definition
0	Duration drive enable	0.0	h	Duration during which drive enable (AF) had been set for the motor
1	Duration motion	0.0	h	Duration during which the actual velocity of the motor was unequal "0"
2	Duration motor warning temperature	0.0	h	Duration during which the motor temperature was less than 10K below the switch-off threshold

Tab.5-272: List Elements of "P-0-2051, Operating hours counter, motor"

**Use** The parameter can be written in the parameter mode (PM).

For motors without encoder data memory, the values of "P-0-2051" remain unchanged when switching to the operating mode (bb, Ab, OM). After switching to the operating mode, time recording continues on the basis of the values of "P-0-2051", when the corresponding time recording criterion has been fulfilled.

## P-0-2051 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.12.5 P-0-2052, Thermal operating data, motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays the current status of the thermal operating data:

- Maximum temperature of motor
- Average motor temperature during total operating time (motor in "AF")



The values of the thermal operating data are only realistic, when the temperature sensor allows winding temperature measurement! This is impossible for temperature sensors with switching performance!

See Functional Description "Diagnostic Data of Motor Operation"

Product-Specific Parameters

Structure List Parameter With Two Elements

List element	Operating time	Default value	Unit	Definition
0	Maximum temperature	0.0	°C	Maximum winding temperature which ever occurred during the operating time (AF)
1	Average temperature	0.0	°C	Average winding temperature, averaged over the total operating time (AF) of the motor

Tab.5-273: List Elements of P-0-2052, Thermal operating data, motor

Use The parameter can be written in the parameter mode (PM).

For motors without encoder data memory, the values of P-0-2052 remain unchanged when switching to the operating mode (bb, Ab, OM). After switching to the operating mode, temperature operating data measurement continues on the basis of the values of P-0-2052, when the measurement criteria have been fulfilled.

P-0-2052 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
Unit:	°C	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.12.6 P-0-2053, Mechanical operating data, motor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

Function This parameter displays the current status of the mechanical operating data:

- Maximum velocity of motor shaft or of moving part of motor
- Average velocity of motor shaft or of moving part of motor during total operating time (motor in AF)

See Functional Description "Diagnostic Data of Motor Operation"

Structure List Parameter With Two Elements

List element	Operating time	Default value	Unit	Definition
0	Maximum velocity	0	S-0-0044	Maximum velocity of motor which ever occurred during the operating time (AF)
1	Average velocity	0	S-0-0044	Average velocity of motor during motion, averaged over the time period during which the motor is in motion.

Tab.5-274: List Elements of P-0-2053, Mechanical operating data, motor

Use The parameter is writable in the parameter mode (PM).

For motors without encoder data memory, the values of P-0-2053 remain unchanged on switching to the operating mode (bb, Ab, OM).

## Product-Specific Parameters

After switching to the operating mode, measurement of the mechanical operating data continues on the basis of the values of P-0-2053, when the measurement criteria have been fulfilled.

<b>P-0-2053 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s. Text	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	s. Text
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.12.7 P-0-2054, Operational performance, motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter displays the current operational performance of the motor. Depending on "P-0-4014, Type of construction of motor, bit 9", the unit is switched between "1000 rev" and "m".

This parameter displays the current status of the operational performance of the motor.

The operational performance is determined from the current values of:

- P-0-2051, Operating hours counter, motor, "list element 1, duration motion" and
- P-0-2053, Mechanical operating data, motor, "list element 1, average velocity of motor in motion"

See Functional Description "Diagnostic Data of Motor Operation"

<b>P-0-2054 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	1000 Rev	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.12.8 P-0-2055, Serial number, motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This function is not available in MPx16.

See Functional Description "Diagnostic Data of Motor Operation"

<b>P-0-2055 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.12.9 P-0-2100, Velocity loop proportional gain, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	This parameter contains the default value for "S-0-0100, Velocity loop proportional gain" stored in the encoder data memory.					
	During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "S-0-0100". This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"					
P-0-2100 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	Nm/(rad/s)	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,000 / 2147483,647			0,000	
	MPC:	0,000 / 2147483,647			0,000	
	MPE:	0,000 / 2147483,647			0,000	
	MPM:	0,000 / 2147483,647			0,000	

## 5.12.10 P-0-2101, Velocity loop integral-action time, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Default value for "S-0-0101, Velocity loop integral action time" stored in the encoder data memory.					
	During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "S-0-0101, Velocity loop integral action time". This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"					
P-0-2101 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,0 / 6553,5			0,0	
	MPC:	0,0 / 6553,5			0,0	
	MPE:	0,0 / 6553,5			0,0	
	MPM:	0,0 / 6553,5			0,0	

## 5.12.11 P-0-2104, Position loop Kv-factor, type plate

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

## Product-Specific Parameters

**Function** Default value for "S-0-0104" stored in the encoder data memory.

During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "S-0-0104". This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

<b>P-0-2104 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	1000/min	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		0,00 / 655,35		---		
<b>MPC:</b>		0,00 / 655,35		---		
<b>MPE:</b>		0,00 / 655,35		---		
<b>MPM:</b>		0,00 / 655,35		---		

## 5.12.12 P-0-2106, Current loop proportional gain 1, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
<b>Funct. package(s):</b>		closed loop			
<b>Device parameter:</b>		axis-specific			

**Function** Default value for "S-0-2106, Current loop proportional gain 1, type plate" stored in the encoder data memory and intended for operating the connected motor at a PWM switching frequency of 4000 Hz.

**Use** During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "S-0-0106". In this context, there is an automatic adjustment to "P-0-0001, Switching frequency of the power output stage" and to the performance setting parameterized in "P-0-0556, Config word of axis controller".



The factory-set current loop values should not be changed.



This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

<b>P-0-2106 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	V/A	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		0,00 / 500,00		0,00		
<b>MPC:</b>		0,00 / 500,00		0,00		
<b>MPE:</b>		0,00 / 500,00		0,00		
<b>MPM:</b>		0,00 / 500,00		0,00		

## 5.12.13 P-0-2107, Current loop integral-action time 1, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			



## Product-Specific Parameters

**Function** Value stored in the encoder data memory for the current that can continuously flow in the motor without the motor being destroyed. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "S-0-0111, Motor current at standstill".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-2111 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	A	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	0,000 / 500,000		0,000		
	<b>MPC:</b>	0,000 / 500,000		0,000		
	<b>MPE:</b>	0,000 / 500,000		0,000		
	<b>MPM:</b>	0,000 / 500,000		0,000		

## 5.12.16 P-0-2113, Maximum velocity of motor, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** Value stored in the encoder data memory for the maximum possible motor speed. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "S-0-0113, Maximum motor speed".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-2113 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	rpm	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	0,0001 / 250000,0000		0,1000		
	<b>MPC:</b>	0,0001 / 250000,0000		0,1000		
	<b>MPE:</b>	0,0001 / 250000,0000		0,1000		
	<b>MPM:</b>	0,0001 / 250000,0000		0,1000		

## 5.12.17 P-0-2141, Motor type, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** Text for the motor type stored in the encoder data memory. During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)", the content of this parameter is copied to parameter "S-0-0141, Motor type".

Diagnostic message "F2008 RL The motor type has changed" is based on the comparison of "S-0-0141" with "P-0-2141".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

Product-Specific Parameters

<b>P-0-2141 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		s. Text		
	<b>MPC:</b>	--- / ---		s. Text		
	<b>MPE:</b>	--- / ---		s. Text		
	<b>MPM:</b>	--- / ---		s. Text		

## 5.12.18 P-0-2204, Motor shutdown temperature, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	Value available in the encoder data memory for the maximum allowed operating temperature of the motor. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "S-0-0204, Motor shutdown temperature".					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-2204 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	°C	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	15,5	
	MPC:			--- / ---	15,5	
	MPE:			--- / ---	15,5	
	MPM:			--- / ---	15,5	

## 5.12.19 P-0-2206, Drive On delay time, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Default value stored in the encoder data memory for the release delay of the motor holding brake.					
	During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "S-0-0206, Drive on delay time".					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"					
P-0-2206 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## Product-Specific Parameters

## 5.12.20 P-0-2207, Drive Off delay time, type plate

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Default value stored in the encoder data memory for the clamping delay of the motor holding brake.

During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "S-0-0207, Drive off delay time".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

<b>P-0-2207 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>				<b>Default value</b>
	MPB:	--- / ---				0
	MPC:	--- / ---				0
	MPE:	--- / ---				0
	MPM:	--- / ---				0

## 5.12.21 P-0-2216, Parameter set switching, configuration

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS), main spindle			
	Device parameter:	axis-specific			

**Function** This parameter is used to configure parameter set switching. It is also used to determine the parameter groups which are included in parameter set switching and it allows parameterizing the switching behavior.

See also Functional Description "Parameter Set Switching"

**Structure** The individual bits of the parameter have the following significance:

Product-Specific Parameters

Bit	Designation/function	Comment
4-0	<b>Parameter group selection</b> <b>Bit 0: Group 1, application parameters</b> 0: Cannot be switched 1: Can be switched <b>Bit 1: Group 2, control loop parameters</b> 0: Cannot be switched 1: Can be switched <b>Bit 2: Group 3, load gear parameters</b> 0: Cannot be switched 1: Can be switched <b>Bit 3: Group 4, winding parameters</b> 0: Cannot be switched 1: Can be switched <b>Bit 4: Group 5, motor control and motor encoder parameters</b> 0: Cannot be switched 1: Can be switched	
7-5	<b>Not used</b>	
8	<b>Activation of "Drive-controlled parameter set switching"</b> 0: Deactivated 1: "Drive-controller parameter set switching" is active.	
14-9	<b>Not used</b>	
15	<b>Activation of "maintain reference bit at gear switching"</b> 0: Deactivated 1: Although the reference position gets lost, the reference bit is cleared on gear switching.	See note

Tab.5-275: Parameter Set Switching, Group Selection

**Use** Observe the following aspects for using the parameter:

- It is possible to select none, several or all parameter groups for parameter set switching.
- The parameters which are combined in the respective group are described in chapter "Parameter Set Switching" of the Functional Description.
- Which parameters are really switched can be checked in parameter "S-0-0219, IDN-list of parameter set" immediately after changing "P-0-2216".
- If the gear ratio changes on gear switching, the exact reference position of the motor encoder cannot be guaranteed any more! This is signaled by the fact that its reference bit in "S-0-0403, Position feedback value status" is cleared.
- Some control units do not allow motion if "S-0-0403 = 0". To move the axis nevertheless, clearing of the reference bits can be prevented by activating "maintain reference bit", although the reference of the motor encoder is lost.

## Product-Specific Parameters



Reference is only safely reestablished, when a new homing procedure was executed! The reference of the spindle encoder is maintained on gear switching.

## P-0-2216 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		0x0		
MPC:	--- / ---		0x0		
MPE:	--- / ---		0x0		
MPM:	--- / ---		0x0		

## 5.12.22 P-0-2217, Parameter set switching, preselection range

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	Servo(compensation), synchronisation (ELS), main spindle			
	Device parameter:	axis-specific			

**Function** This parameter is used to define the number of switchable parameter sets which are available in the drive firmware.

See also Functional Description "Parameter Set Switching"

## Use



The parameter set switching functions is included in the base package of MPE.

Parameter set number	0	1	2	3	4	5	6	7
Value in P-0-2217	0							
	1							
	2							
	3							
	4							
	5							
	6							
	7							

Tab.5-276: Selecting Parameter Sets for Parameter Set Switching


## P-0-2217 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	0 / s. Text		0		
MPC:	0 / s. Text		0		
MPE:	0 / s. Text		0		
MPM:	0 / s. Text		0		

## 5.12.23 P-0-2218, Parameter set switching, delay time

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Product-Specific Parameters

<b>Hardware</b>		--				
<b>Funct. package(s):</b>		Servo(compensation), synchronisation (ELS), main spindle				
<b>Device parameter:</b>		axis-specific				
<b>Function</b>	This parameter can be used to enter a waiting time for defined delay of parameter set switching.					
<b>Use</b>	See also Functional Description "Parameter Set Switching"					
<hr/>						
 The parameter set switching functions is included in the base package of MPE.						
<hr/>						
Observe the following aspects for using the parameter:						
<ul style="list-style-type: none"><li>• The waiting time is only effective if the "winding parameters" or "encoder parameters" parameter group is active.</li><li>• The waiting time allows the user to wait until the motor contactors has been switched successfully in case of winding or encoder switching.</li><li>• If the "winding parameters" parameter group is active, reactivation of drive enable is delayed; if the "encoder parameters" parameter group is active, the internal start of command C02 is delayed.</li></ul>						
<b>P-0-2218 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<hr/>						
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		0 / 60000		0		
<b>MPC:</b>		0 / 60000		0		
<b>MPE:</b>		0 / 60000		0		
<b>MPM:</b>		0 / 60000		0		

## 5.13 P-0-2300 to P-0-2999 16-Bit Alias IDNs

### 5.13.1 P-0-2300, List of 32-bit IDNs

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	The parameter lists					
	<ul style="list-style-type: none"><li>• P-0-2300, List of 32-bit IDNs and</li><li>• P-0-2301, List of 16-bit alias IDNs</li></ul>					
	allow converting 32-bit EIDNs to 16-bit alias IDNs. By means of the 16-bit alias IDNs, it is possible to parameterize the functionality accessible via EIDNs via a conventional communication interface which cannot handle 32-bit EIDNs.					
	P-0-2300 contains the list of those EIDNs for which 16-bit alias IDNs have been defined. The list is displayed in hexadecimal form and classified in ascending order. For each entry there is a corresponding entry in P-0-2301 which indicates the associated 16-bit alias IDN.					
P-0-2300 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
		Input	min./max.		Default value	
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		

## Product-Specific Parameters

MPE:	---	---	---
MPM:	---	---	---

## 5.13.2 P-0-2301, List of 16-bit alias IDNs

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	---			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

Function The parameter lists

- P-0-2300, List of 32-bit IDNs and
- P-0-2301, List of 16-bit alias IDNs

allow converting 32-bit EIDNs to 16-bit alias IDNs. By means of the 16-bit alias IDNs, it is possible to parameterize the functionality accessible via EIDNs via a conventional communication interface which cannot handle 32-bit EIDNs.

P-0-2301 contains the list of the 16-bit alias IDNs. The list is displayed in hexadecimal form and is not classified. For each entry there is a corresponding entry in P-0-2300 which indicates the associated EIDN.

P-0-2301 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.13.3 P-0-2303, Device Address

Function "P-0-4089.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## 5.13.4 P-0-2304, Active Device Address

Function "P-0-4089.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## 5.13.5 P-0-2310, Master communication: Protocol

Function Replacement parameter of "P-0-4089.0.1" for communication interface, which does not support 32-bit ident numbers (EIDN).

## 5.13.6 P-0-2311, Master communication: Device name

Function Replacement parameter of "P-0-4089.0.2" for communication interface, which does not support 32-bit ident numbers (EIDN).

## 5.13.7 P-0-2312, Master communication: MAC address device

Function Replacement parameter of "P-0-4089.0.10" for communication interface, which does not support 32-bit ident numbers (EIDN).

## 5.13.8 P-0-2313, Master communication: MAC address Port1

Function Replacement parameter of "P-0-4089.0.11" for communication interface, which does not support 32-bit ident numbers (EIDN).

### 5.13.9 P-0-2314, Master communication: MAC address Port2

**Function** Replacement parameter of "P-0-4089.0.12" for communication interface, which does not support 32-bit ident numbers (EIDN).

### 5.13.10 P-0-2315, Master communication: IP address

**Function** Replacement parameter of "P-0-4089.0.13" for communication interface, which does not support 32-bit ident numbers (EIDN).

### 5.13.11 P-0-2316, Master communication: Network mask

**Function** Replacement parameter of "P-0-4089.0.14" for communication interface, which does not support 32-bit ident numbers (EIDN).

### 5.13.12 P-0-2317, Master communication: Gateway address

**Function** Replacement parameter of "P-0-4089.0.15" for communication interface, which does not support 32-bit ident numbers (EIDN).

### 5.13.13 P-0-2318, Master communication: Configuration

**Function** P-0-4089.0.5 replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.14 P-0-2320, System data

**Function** "P-0-0250.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.15 P-0-2321, CCD: Slave address in high level network

**Function** "P-0-1621.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.16 P-0-2323, CCD: Slave address in high level network

**Function** "P-0-1621.1.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.17 P-0-2325, CCD: Slave address in high level network

**Function** "P-0-1621.2.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.18 P-0-2327, CCD: Slave address in high level network

**Function** "P-0-1621.3.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.19 P-0-2329, CCD: Slave address in high level network

**Function** "P-0-1621.4.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.20 P-0-2331, CCD: Slave address in high level network

**Function** "P-0-1621.5.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.21 P-0-2333, CCD: Slave address in high level network

**Function** "P-0-1621.6.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## Product-Specific Parameters

**5.13.22 P-0-2339, Parameter channel: Configuration**

Function "P-0-4083.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.23 P-0-2340, Encoder emulation signal selection**

Function "P-0-0901.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.24 P-0-2341, Encoder emulation signal selection**

Function "P-0-0901.1.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.25 P-0-2342, Encoder emulation signal selection**

Function "P-0-0901.2.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.26 P-0-2343, Encoder emulation signal selection**

Function "P-0-0901.3.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.27 P-0-2344, Encoder emulation signal selection**

Function "P-0-0901.4.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.28 P-0-2345, Encoder emulation signal selection**

Function "P-0-0901.5.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.29 P-0-2346, Encoder emulation signal selection**

Function "P-0-0901.6.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.30 P-0-2348, Encoder emulation control parameter**

Function "P-0-0901.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.31 P-0-2349, Encoder emulation control parameter**

Function "P-0-0901.1.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.32 P-0-2350, Encoder emulation control parameter**

Function "P-0-0901.2.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.33 P-0-2351, Encoder emulation control parameter**

Function "P-0-0901.3.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.34 P-0-2352, Encoder emulation control parameter**

Function "P-0-0901.4.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.35 P-0-2353, Encoder emulation control parameter

Function "P-0-0901.5.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.36 P-0-2354, Encoder emulation control parameter

Function "P-0-0901.6.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.37 P-0-2356, Encoder emulation resolution

Function "P-0-0901.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.38 P-0-2357, Encoder emulation resolution

Function "P-0-0901.1.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.39 P-0-2358, Encoder emulation resolution

Function "P-0-0901.2.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.40 P-0-2359, Encoder emulation resolution

Function "P-0-0901.3.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.41 P-0-2360, Encoder emulation resolution

Function "P-0-0901.4.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.42 P-0-2361, Encoder emulation resolution

Function "P-0-0901.5.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.43 P-0-2362, Encoder emulation resolution

Function "P-0-0901.6.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.44 P-0-2364, Encoder emulation zero pulse offset

Function "P-0-0901.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.45 P-0-2365, Encoder emulation zero pulse offset

Function "P-0-0901.1.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.46 P-0-2366, Encoder emulation zero pulse offset

Function "P-0-0901.2.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.47 P-0-2367, Encoder emulation zero pulse offset

Function "P-0-0901.3.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## Product-Specific Parameters

**5.13.48 P-0-2368, Encoder emulation zero pulse offset**

Function "P-0-0901.4.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.49 P-0-2369, Encoder emulation zero pulse offset**

Function "P-0-0901.5.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.50 P-0-2370, Encoder emulation zero pulse offset**

Function "P-0-0901.6.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.51 P-0-2372, Encoder emulation zero pulse distance**

Function "P-0-0901.0.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.52 P-0-2373, Encoder emulation zero pulse distance**

Function "P-0-0901.1.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.53 P-0-2374, Encoder emulation zero pulse distance**

Function "P-0-0901.2.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.54 P-0-2375, Encoder emulation zero pulse distance**

Function "P-0-0901.3.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.55 P-0-2376, Encoder emulation zero pulse distance**

Function "P-0-0901.4.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.56 P-0-2377, Encoder emulation zero pulse distance**

Function "P-0-0901.5.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.57 P-0-2378, Encoder emulation zero pulse distance**

Function "P-0-0901.6.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.58 P-0-2380, Encoder emulation assignment**

Function "P-0-0901.0.6" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.59 P-0-2381, Encoder emulation assignment**

Function "P-0-0901.1.6" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.60 P-0-2382, Encoder emulation assignment**

Function "P-0-0901.2.6" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.61 P-0-2383, Encoder emulation assignment

Function "P-0-0901.3.6" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.62 P-0-2384, Encoder emulation assignment

Function "P-0-0901.4.6" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.63 P-0-2385, Encoder emulation assignment

Function "P-0-0901.5.6" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.64 P-0-2386, Encoder emulation assignment

Function "P-0-0901.6.6" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.65 P-0-2388, Encoder emulation, external signal

Function "P-0-0901.0.7" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.66 P-0-2389, Basic encoder evaluation phys. configuration, compact

Function "S-0-0602.1.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.67 P-0-2390, Basic encoder evaluation phys. configuration, compact

Function "S-0-0602.2.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.68 P-0-2391, Basic encoder evaluation phys. configuration, compact

Function "S-0-0602.3.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.69 P-0-2392, Basic encoder evaluation phys. configuration, compact

Function "S-0-0602.4.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.70 P-0-2393, Basic encoder evaluation phys. configuration, compact

Function "S-0-0602.5.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.71 P-0-2394, Basic encoder evaluation phys. configuration, compact

Function "S-0-0602.6.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.72 P-0-2396, Encoder emulation, modulo value of external signal

Function "P-0-0901.0.8" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

#### 5.13.73 P-0-2413, CCD: Actual topology

Function "P-0-1610.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## Product-Specific Parameters

**5.13.74 P-0-2414, CCD: Slave addresses at end of line**

Function "P-0-1610.0.21" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.75 P-0-2415, CCD: Diagnostic message text**

Function "P-0-1610.0.30" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.76 P-0-2416, CCD: Command topology**

Function "P-0-1620.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.77 P-0-2417, CCD: Slave identification**

Function "P-0-1620.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.78 P-0-2418, C7400 CCD: Switching to phase 2**

Function "P-0-1620.0.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.79 P-0-2419, C7500 CCD: Switching to phase 4**

Function "P-0-1620.0.6" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.80 P-0-2420, C7100 CCD: Command Close ring**

Function "P-0-1620.0.21" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.81 P-0-2421, C7200 CCD: Commando Apply I/O configuration**

Function "P-0-1620.0.31" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.82 P-0-2422, CCD: Master communication gateway parameter pool 1**

Function "P-0-1621.0.24" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.83 P-0-2423, CCD: Master communication gateway parameter pool 1**

Function "P-0-1621.1.24" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.84 P-0-2424, CCD: Master communication gateway parameter pool 1**

Function "P-0-1621.2.24" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.85 P-0-2425, CCD: Master communication gateway parameter pool 1**

Function "P-0-1621.3.24" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.86 P-0-2426, CCD: Master communication gateway parameter pool 1**

Function "P-0-1621.4.24" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

- 5.13.87 P-0-2427, CCD: Master communication gateway parameter pool 1**  
Function "P-0-1621.5.24" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.88 P-0-2428, CCD: Master communication gateway parameter pool 1**  
Function "P-0-1621.6.24" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.89 P-0-2429, CCD: Master communication gateway parameter pool 2**  
Function "P-0-1621.0.25" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.90 P-0-2430, CCD: Master communication gateway parameter pool 2**  
Function "P-0-1621.1.25" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.91 P-0-2431, CCD: Master communication gateway parameter pool 2**  
Function "P-0-1621.2.25" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.92 P-0-2432, CCD: Master communication gateway parameter pool 2**  
Function "P-0-1621.3.25" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.93 P-0-2433, CCD: Master communication gateway parameter pool 2**  
Function "P-0-1621.4.25" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.94 P-0-2434, CCD: Master communication gateway parameter pool 2**  
Function "P-0-1621.5.25" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.95 P-0-2435, CCD: Master communication gateway parameter pool 2**  
Function "P-0-1621.6.25" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.96 P-0-2436, CCD: Module type codes of the modular I/Os**  
Function "P-0-1634.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.97 P-0-2437, CCD: Module type codes of the modular I/Os**  
Function "P-0-1634.1.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.98 P-0-2438, CCD: Module type codes of the modular I/Os**  
Function "P-0-1634.2.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).
- 5.13.99 P-0-2439, CCD: Module type codes of the modular I/Os**  
Function "P-0-1634.3.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## Product-Specific Parameters

**5.13.100 P-0-2440, SMO: Basic scaling, compact**

**Function** "P-0-3221.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.101 P-0-2441, SMO: Position scaling, compact**

**Function** "P-0-3222.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.102 P-0-2442, SMO: Velocity scaling, compact**

**Function** "P-0-3223.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.103 P-0-2443, SMO: Acceleration scaling, compact**

**Function** "P-0-3224.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.104 P-0-2445, SMO: Global safety functions, compact**

**Function** "P-0-3270.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.105 P-0-2446, SMO: Safe motion, compact**

**Function** "P-0-3290.1.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.106 P-0-2447, SMO: Safe motion, compact**

**Function** "P-0-3290.2.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.107 P-0-2448, SMO: Safe motion, compact**

**Function** "P-0-3290.3.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.108 P-0-2449, SMO: Safe motion, compact**

**Function** "P-0-3290.4.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.109 P-0-2450, SMO: Safe motion, compact**

**Function** "P-0-3290.5.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.110 P-0-2451, SMO: Safe motion, compact

**Function** "P-0-3290.6.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.111 P-0-2452, SMO: Safe motion, compact

**Function** "P-0-3290.7.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.112 P-0-2453, SMO: Safe motion, compact

**Function** "P-0-3290.8.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.113 P-0-2454, SMO: Safe motion, compact

**Function** "P-0-3290.9.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.114 P-0-2455, SMO: Safe motion, compact

**Function** "P-0-3290.10.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.115 P-0-2456, SMO: Safe motion, compact

**Function** "P-0-3290.11.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.116 P-0-2457, SMO: Safe motion, compact

**Function** "P-0-3290.12.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.117 P-0-2458, SMO: Safe motion, compact

**Function** "P-0-3290.13.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.118 P-0-2459, SMO: Safe motion, compact

**Function** "P-0-3290.14.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.119 P-0-2460, SMO: Safe motion, compact

**Function** "P-0-3290.15.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## Product-Specific Parameters

**5.13.120 P-0-2461, SMO: Safe motion, compact**

**Function** "P-0-3290.16.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.121 P-0-2462, SMO: Safety function status**

**Function** "P-0-3264.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.122 P-0-2463, SMO: State machine control word, functional**

**Function** "P-0-3261.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.123 P-0-2464, SMO: Configuration in normal operation**

**Function** "P-0-3277.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.124 P-0-2465, C8100 SMO: Command Activate configuration mode**

**Function** "P-0-3231.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.125 P-0-2466, C8200 SMO: Command Exit configuration mode**

**Function** "P-0-3231.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.126 P-0-2467, C8300 SMO: Command Activate parameter image**

**Function** "P-0-3231.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.127 P-0-2468, SMO: Password**

**Function** "P-0-3230.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.128 P-0-2469, SMO: System configuration**

**Function** "P-0-3231.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.129 P-0-2474, SMO: Phys. encoder configuration, compact**

**Function** "P-0-3242.1.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.130 P-0-2486, SMO: Encoder mechanics, compact

**Function** "P-0-3252.1.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.131 P-0-2492, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.132 P-0-2493, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.1.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.133 P-0-2494, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.2.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.134 P-0-2495, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.3.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.135 P-0-2496, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.4.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.136 P-0-2497, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.5.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.137 P-0-2498, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.6.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.138 P-0-2499, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.7.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.139 P-0-2500, SMO: IO mapper inputs, compact, compact

**Function** "P-0-3330.8.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## Product-Specific Parameters

**5.13.140 P-0-2501, SMO: IO mapper inputs, compact, compact**

**Function** "P-0-3330.9.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.141 P-0-2502, SMO: IO mapper inputs, compact, compact**

**Function** "P-0-3330.10.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.142 P-0-2503, SMO: IO mapper inputs, compact, compact**

**Function** "P-0-3330.11.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.143 P-0-2504, SMO: IO mapper inputs, compact, compact**

**Function** "P-0-3330.12.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.144 P-0-2505, SMO: IO mapper inputs, compact, compact**

**Function** "P-0-3330.13.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.145 P-0-2506, SMO: IO mapper inputs, compact, compact**

**Function** "P-0-3221.14.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.146 P-0-2507, SMO: IO mapper inputs, compact, compact**

**Function** "P-0-3330.15.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.147 P-0-2508, SMO: IO mapper block type, compact**

**Function** "P-0-3331.1.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.148 P-0-2509, SMO: IO mapper block type, compact**

**Function** "P-0-3331.2.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.149 P-0-2510, SMO: IO mapper block type, compact**

**Function** "P-0-3331.3.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.150 P-0-2511, SMO: IO mapper block type, compact

**Function** "P-0-3331.4.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.151 P-0-2512, SMO: IO mapper block type, compact

**Function** "P-0-3331.5.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.152 P-0-2513, SMO: IO mapper block type, compact

**Function** "P-0-3331.6.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.153 P-0-2514, SMO: IO mapper block type, compact

**Function** "P-0-3331.7.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.154 P-0-2515, SMO: Signal control for discrete outputs, IDN assignment

**Function** "P-0-3335.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.155 P-0-2516, SMO: Signal control for discrete outputs, bit number

**Function** "P-0-3335.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.156 P-0-2517, SMO: Signal ctrl for discrete outputs, possible source IDNs

**Function** "P-0-3335.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.157 P-0-2518, SMO: Signal ctrl for discrete outputs, possible source bits

**Function** "P-0-3335.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.158 P-0-2519, SMO: Signal control, status, safe bus, IDN assignment

**Function** "P-0-3336.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### 5.13.159 P-0-2520, SMO: Signal control, status, safe bus, bit number

**Function** "P-0-3336.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## Product-Specific Parameters

**5.13.160 P-0-2521, SMO: Signal control, status, safe bus, possible source IDNs**

**Function** "P-0-3336.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.161 P-0-2522, SMO: Signal control, status, safe bus, possible source bits**

**Function** "P-0-3336.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.162 P-0-2523, SMO: Operation mode transitions, compact**

**Function** "P-0-3280.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.163 P-0-2524, SMO: Safe standstill, compact**

**Function** "P-0-3285.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.164 P-0-2525, SMO: Image information, compact**

**Function** "P-0-3234.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.165 P-0-2526, SMO: Functional input signals, local**

**Function** "P-0-3236.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.166 P-0-2527, SMO: IO mapper inputs, minimum pulse duration**

**Function** "P-0-3332.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.167 P-0-2528, SMO: Mask of Control word Safety-Bus**

**Function** "P-0-3340.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.168 P-0-2529, SMO: Signal control, status, safe bus, SMMx coding**

**Function** "P-0-3336.0.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.169 P-0-2531, SMO: Stopping process, compact**

**Function** "P-0-3263.0.130" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.170 P-0-2532, SMO: Configuration Input Signals, safety zone module**

**Function** "P-0-3320.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.171 P-0-2533, SMO: Active axis identifier**

**Function** "P-0-3235.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.172 P-0-2534, SMO: Proposed axis identifier**

**Function** "P-0-3235.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.173 P-0-2535, C8500 SMO: Command Apply identification data**

**Function** "P-0-3235.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.174 P-0-2536, SMO: Axis identification: Control word**

**Function** "P-0-3235.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.175 P-0-2537, SMO: Verification interface, configuration**

**Function** "P-0-3236.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.176 P-0-2538, SMO: Verification interface, data**

**Function** "P-0-3236.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.177 P-0-2539, SMO: Verification interface, acknowledgment**

**Function** "P-0-3236.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.178 P-0-2540, SMO: Verification interface, axis ID**

**Function** "P-0-3236.0.4" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

### **5.13.179 P-0-2541, SMO: Verification interface, commissioning identifier**

**Function** "P-0-3236.0.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## Product-Specific Parameters

**5.13.180 P-0-2542, SMO: Measured position difference**

**Function** "P-0-3210.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.181 P-0-2543, SMO: Axis validation status**

**Function** "P-0-3210.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.182 P-0-2544, SMO: Configuration of safe braking and holding function**

**Function** "P-0-3265.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.183 P-0-2545, SMO: Control word of safe braking and holding function**

**Function** "P-0-3265.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.184 P-0-2546, SMO: Safety zone control word**

**Function** "P-0-3266.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.185 P-0-2547, SMO: Safety zone configuration**

**Function** "P-0-3266.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.186 P-0-2548, SMO: Control word of safe door locking**

**Function** "P-0-3266.0.3" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.187 P-0-2549, SMO: Configuration consuming connection Safety-Bus**

**Function** "P-0-3342.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.188 P-0-2550, SMO: Configuration list consuming connection Safety-Bus**

**Function** "P-0-3342.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

**5.13.189 P-0-2551, SMO: Configuration producing connection Safety-Bus**

**Function** "P-0-3343.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## 5.13.190 P-0-2552, SMO: Configuration list producing connection Safety-Bus

**Function** "P-0-3343.0.2" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## 5.13.191 P-0-2553, SMO: Identification data image

**Function** "P-0-3235.0.5" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## 5.13.192 P-0-2660, Configurable factory default values

**Function** "P-0-0660.0.1" replacement parameter for communication interfaces which do not support any 32-bit ident numbers (EIDN).

## 5.14 P-0-3000 to P-03199 Encoder Memory

### 5.14.1 P-0-3000, Module code of motor, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter contains the identification data for motors with encoder data memory. For Rexroth motors with encoder data memory, it is stored there when the motor is assembled.



In case the encoder is replaced, the elements 3 and 4 of P-0-3000 are cleared (i.e., the content is "0") for motors with encoder data memory. This signals that the parameter contents are no longer corresponding to the condition as supplied.

**Structure** The list parameter contains the following elements:

Element no.	Function
0	Module designation (1)
1	Module designation (2)
2	Module designation (3)
3	Part number
4	Serial number
5	Module firmware code
6	Release/revision index
7	Writing cycles

Tab.5-277: Elements of Parameter P-0-3000

**Use** The firmware of the controller identifies the following parameters from the module firmware code:

- "P-0-3100, Version of data structure in encoder memory"
- "P-0-4014, Type of construction of motor"

## Product-Specific Parameters

<b>P-0-3000 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		s. Text	
		<b>MPC:</b>	--- / ---		s. Text	
		<b>MPE:</b>	--- / ---		s. Text	
		<b>MPM:</b>	--- / ---		s. Text	

## 5.14.2 P-0-3001, Encoder type 1 (motor encoder), encoder memory

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	axis-specific		

**Function** Value for the encoder type of the motor encoder stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-0074, Encoder type 1 (motor encoder)".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-3001 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		0	
		<b>MPC:</b>	--- / ---		0	
		<b>MPE:</b>	--- / ---		0	
		<b>MPM:</b>	--- / ---		0	

## 5.14.3 P-0-3002, Number of pole pairs/pole pair distance, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
		<b>Device parameter:</b>	axis-specific		

**Function** Value for the number of pole pairs or the pole pair distance of the motor stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-0018, Number of pole pairs/pole pair distance".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-3002 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Pole pairs	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	1 / 2000		1	
		<b>MPC:</b>	1 / 2000		1	
		<b>MPE:</b>	1 / 2000		1	
		<b>MPM:</b>	1 / 2000		1	

#### 5.14.4 P-0-3003, Rotor inertia, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Value for the rotor inertia of the motor stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-0510, Rotor inertia".					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-3003 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	kgm²	Extr. val. ch.:	--	Decim. pl.:	7
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0,0000000 / 429,4967295		0,0000000		
	MPC:	0,0000000 / 429,4967295		0,0000000		
	MPE:	0,0000000 / 429,4967295		0,0000000		
	MPM:	0,0000000 / 429,4967295		0,0000000		

#### 5.14.5 P-0-3004, Speed controller smoothing time constant, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Default value for "P-0-0004, Velocity loop smoothing time constant" stored in the encoder data memory.					
Use	During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "P-0-0004". This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"					
P-0-3004 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	250 / 65500		250		
	MPC:	250 / 65500		250		
	MPE:	250 / 65500		250		
	MPM:	250 / 65500		250		

#### 5.14.6 P-0-3005, Torque/force constant, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	Value for the torque/force constant of the motor stored in the encoder data memory. When the controller is switched on and during the transition "PM →				

## Product-Specific Parameters

OM", the content of the parameter is copied to the effective parameter "P-0-0051, Torque/force constant".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-3005 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Nm/A	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	0,00 / 655,35		---	
		<b>MPC:</b>	0,00 / 655,35		---	
		<b>MPE:</b>	0,00 / 655,35		---	
		<b>MPM:</b>	0,00 / 655,35		---	

## 5.14.7 P-0-3006, Rated motor speed, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	closed loop		
		<b>Device parameter:</b>	axis-specific		

**Function** Value stored in the encoder data memory for the rated speed of an asynchronous motor. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4036, Rated motor speed".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-3006 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	rpm	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	0,0000 / 429496,7295		0,0000	
		<b>MPC:</b>	0,0000 / 429496,7295		0,0000	
		<b>MPE:</b>	0,0000 / 429496,7295		0,0000	
		<b>MPM:</b>	0,0000 / 429496,7295		0,0000	

## 5.14.8 P-0-3007, Stator resistance, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	closed loop		
		<b>Device parameter:</b>	axis-specific		

**Function** Value for the stator resistance of the motor stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4048, Stator resistance".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-3007 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Ohm	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	0,000 / 65,535	0,000
MPC:	0,000 / 65,535	0,000
MPE:	0,000 / 65,535	0,000
MPM:	0,000 / 65,535	0,000

### 5.14.9 P-0-3008, Commutation offset, type plate

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	Value for the commutation offset of the synchronous motor stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-0508, Commutation offset".					
	See also Functional Description: "Rexroth Housing Motors With Encoder Data Memory"					
P-0-3008 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	FEEDB_I2C	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0 / 1024			---	
	MPC:	0 / 1024			---	
	MPE:	0 / 1024			---	
	MPM:	0 / 1024			---	

### 5.14.10 P-0-3009, Holding brake control word, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Information on the motor holding brake stored in the encoder data memory.					
	In the case of MSK and, if required, MAD and MAF motors, the bits are written to the bits 0 and 2 of the effective parameter "P-0-0525, Holding brake control word" when the controller is switched on and during the transition "PM → OM". All other bits of P-0-0525 can be freely written.					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-3009 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:				--- / ---	0x0
	MPC:				--- / ---	0x0
	MPE:				--- / ---	0x0
	MPM:				--- / ---	0x0

### 5.14.11 P-0-3010, Torque of motor holding brake, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			



Product-Specific Parameters

<b>P-0-3012 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0	
		MPC:	--- / ---		0	
		MPE:	--- / ---		0	
		MPM:	--- / ---		0	

## 5.14.14 P-0-3014, Magnetizing current, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
Device parameter:		axis-specific				
Function	Value for the magnetizing current in the rated point of the motor stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4004, Magnetizing current".					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-3014 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	A eff	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		0,000		
MPC:		--- / ---		0,000		
MPE:		--- / ---		0,000		
MPM:		--- / ---		0,000		

## 5.14.15 P-0-3015, Flux-generating current, limit value, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
Device parameter:		axis-specific				
Function	Limit value for the flux-generating current stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4005, Flux-generating current, limit value".					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-3015 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	A eff	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			---	---	
	MPC:			---	---	
	MPE:			---	---	
	MPM:			---	---	

## Product-Specific Parameters

## 5.14.16 P-0-3016, Direct-axis inductance of motor, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Value stored in the encoder data memory for the direct-axis inductance of a synchronous motor. When the controller is switched on and during the transition "PM → OM", the value is copied to the effective parameter "P-0-4016, Direct-axis inductance of motor".					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-3016 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	mH	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		0,000	
	MPC:		--- / ---		0,000	
	MPE:		--- / ---		0,000	
	MPM:		--- / ---		0,000	

## 5.14.17 P-0-3017, Quadrature-axis inductance of motor, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Value stored in the encoder data memory for the quadrature-axis inductance of a synchronous motor. When the controller is switched on and during the transition "PM → OM", the value is copied to the effective parameter "P-0-4017, Quadrature-axis inductance of motor".					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-3017 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	mH	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		0,000		
	MPC:	--- / ---		0,000		
	MPE:	--- / ---		0,000		
	MPM:	--- / ---		0,000		

## 5.14.18 P-0-3018, Charact. quadr.-axis induct. of motor, induct., type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	List of inductance values of the characteristic of the motor quadrature-axis inductance stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is cop-				

Product-Specific Parameters

ied to the effective parameter "P-0-4002, Charact. of quadrature-axis induct. of motor, inductances".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

P-0-3018 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		s. Text		
MPC:	--- / ---		s. Text		
MPE:	--- / ---		s. Text		
MPM:	--- / ---		s. Text		

## 5.14.19 P-0-3019, Charact. quadr.-axis induct. of motor, currents, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	closed loop				
Device parameter:	axis-specific				

**Function** List of current values of the characteristic of the motor quadrature-axis inductance stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4003, Charact. of quadrature-axis inductance of motor, currents".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

P-0-3019 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		s. Text		
MPC:	--- / ---		s. Text		
MPE:	--- / ---		s. Text		
MPM:	--- / ---		s. Text		

## 5.14.20 P-0-3020, Thermal time constant of winding, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--				
Funct. package(s):	closed loop				
Device parameter:	axis-specific				

**Function** Value for the thermal time constant of the motor winding stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4034, Thermal time constant of winding".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

P-0-3020 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	0,0
MPC:	--- / ---	0,0
MPE:	--- / ---	0,0
MPM:	--- / ---	0,0

## 5.14.21 P-0-3021, Thermal time constant of motor, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Value for the thermal time constant of the motor stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4035, Thermal time constant of motor".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

P-0-3021 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	min	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0,0
MPC:	--- / ---	0,0
MPE:	--- / ---	0,0
MPM:	--- / ---	0,0

## 5.14.22 P-0-3022, Thermal short-time overload of winding, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Value for the thermal short-time overload of the winding stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4037, Thermal short-time overload of winding".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

P-0-3022 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0,0
MPC:	--- / ---	0,0
MPE:	--- / ---	0,0
MPM:	--- / ---	0,0


## 5.14.23 P-0-3023, Current limit value of demagnetization, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Product-Specific Parameters

	<b>Funct. package(s):</b>	closed loop		
	<b>Device parameter:</b>	axis-specific		
<b>Function</b>	Factor for the current limit value for synchronous motors stored in the encoder data memory; if the limit value is exceeded, the magnets run the risk of being demagnetized. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4013, Current limit value of demagnetization".			
	This function is only available for Rexroth motors with encoder data memory.			
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"			
<b>P-0-3023 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--
			<b>Data length:</b>	2Byte
			<b>Format:</b>	DEC_OV
			<b>Decim. pl.:</b>	0
			<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	<b>MPB:</b>	--- / ---		0
	<b>MPC:</b>	--- / ---		0
	<b>MPE:</b>	--- / ---		0
	<b>MPM:</b>	--- / ---		0

### 5.14.24 P-0-3025, Brake voltage, type plate

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	For KSD motors (IndraDrive Mi), the brake voltage is derived from the DC bus voltage. This parameter defines the brake voltage required for the installed brake.					
<div> This parameter is only relevant for IndraDrive Mi!</div>						
P-0-3025 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	V	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		0,0 / 6553,5		---	
	MPC:		0,0 / 6553,5		---	
	MPE:		0,0 / 6553,5		---	
	MPM:		0,0 / 6553,5		---	

### 5.14.25 P-0-3028, Flux loop proportional gain, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Default value for "P-0-0528, Flux control loop proportional gain" stored in the encoder data memory.  During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "P-0-0528". This function is only available for Rexroth motors with encoder data memory.  See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"				

## Product-Specific Parameters

<b>P-0-3028 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0,00	
		MPC:	--- / ---		0,00	
		MPE:	--- / ---		0,00	
		MPM:	--- / ---		0,00	

## 5.14.26 P-0-3029, Scaling of stall current limit, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	axis-specific		

**Function** Default value for "P-0-0529, Scaling of stall current limit" stored in the encoder data memory.

During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "P-0-0529". This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

<b>P-0-3029 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0	
		MPC:	--- / ---		0	
		MPE:	--- / ---		0	
		MPM:	--- / ---		0	

## 5.14.27 P-0-3032, Premagnetization factor, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
		<b>Device parameter:</b>	axis-specific		

**Function** Default value for "P-0-0532, Premagnetization factor" stored in the encoder data memory.

During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "P-0-0532".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

<b>P-0-3032 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0	
		MPC:	--- / ---		0	

Product-Specific Parameters

MPE:	---	---	0
MPM:	---	---	0

## 5.14.28 P-0-3033, Voltage loop proportional gain, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Default value for "P-0-0533, Voltage loop proportional gain" stored in the encoder data memory.

During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "P-0-0533".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

P-0-3033 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	A/V	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0,000
MPC:	--- / ---	0,000
MPE:	--- / ---	0,000
MPM:	--- / ---	0,000

## 5.14.29 P-0-3034, Voltage loop integral action time, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Default value for "P-0-0534, Voltage loop integral action time" stored in the encoder data memory.

During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "P-0-0534".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

P-0-3034 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0,0
MPC:	--- / ---	0,0
MPE:	--- / ---	0,0
MPM:	--- / ---	0,0

## 5.14.30 P-0-3035, Motor voltage at no load, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Product-Specific Parameters

<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>	--			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

**Function** Default value for "P-0-0535, Motor voltage at no load" stored in the encoder data memory.

During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "P-0-0535".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

<b>P-0-3035 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0,0
MPC:	--- / ---	0,0
MPE:	--- / ---	0,0
MPM:	--- / ---	0,0

## 5.14.31 P-0-3036, Maximum motor voltage, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Default value for "P-0-0536, Maximum motor voltage" stored in the encoder data memory.

During execution of command "C0700 Load defaults proced. command (motor-spec. controller val.)" or on acknowledgement of error "F2008 RL The motor type has changed", the content of this parameter is copied to the effective parameter "P-0-0536". This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors with Encoder Data Memory"

<b>P-0-3036 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	%	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0,0
MPC:	--- / ---	0,0
MPE:	--- / ---	0,0
MPM:	--- / ---	0,0

## 5.14.32 P-0-3039, Stator leakage inductance, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Value for the stator leakage inductance of an asynchronous motor stored in the encoder data memory. When the controller is switched on and during the

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transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4039, Stator leakage inductance".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-3039 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	mH	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0,000	
		MPC:	--- / ---		0,000	
		MPE:	--- / ---		0,000	
		MPM:	--- / ---		0,000	

### 5.14.33 P-0-3040, Rotor leakage inductance, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b>	axis-specific		

**Function** Value for the rotor leakage inductance of an asynchronous motor stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4040, Rotor leakage inductance".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-3040 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	mH	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	--- / ---		0,000	
		MPC:	--- / ---		0,000	
		MPE:	--- / ---		0,000	
		MPM:	--- / ---		0,000	

### 5.14.34 P-0-3041, Motor magnetizing inductance, type plate

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
		<b>Funct. package(s):</b>	"open loop", "closed loop"		
		<b>Device parameter:</b>	axis-specific		

**Function** Value stored in the encoder data memory for the magnetizing inductance of an asynchronous motor. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4041, Motor magnetizing inductance".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

<b>P-0-3041 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	mH	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

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Input	min./max.	Default value
MPB:	--- / ---	0,000
MPC:	--- / ---	0,000
MPE:	--- / ---	0,000
MPM:	--- / ---	0,000

## 5.14.35 P-0-3042, Characteristic of motor magnetizing inductance, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Characteristic of the magnetizing inductance of an asynchronous motor stored in the encoder data memory. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4042, Characteristic of motor magnetizing inductance".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

P-0-3042 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.14.36 P-0-3043, Rotor time constant, type plate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Value stored in the encoder data memory for the rotor time constant of an asynchronous motor. When the controller is switched on and during the transition "PM → OM", the content of the parameter is copied to the effective parameter "P-0-4043, Rotor time constant".

This function is only available for Rexroth motors with encoder data memory.

See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"

P-0-3043 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0,000
MPC:	--- / ---	0,000
MPE:	--- / ---	0,000
MPM:	--- / ---	0,000

## 5.14.37 P-0-3044, Motor torque at nominal current when reluctance, Name Plate

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»

Product-Specific Parameters

	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	<p>If the reluctance torque is used, the available motor torque is increased while the current remains the same. This requires an appropriate motor construction. If reluctance is used at nominal current, parameter "P-0-3940" specifies the corresponding torque and/or force developed by the motor if the reluctance effect is utilized. The current to which the torque refers, is entered in parameter "S-0-0111, Motor current at standstill".</p> <p>The value of the torque must be higher than the torque calculated from the product of:</p> <p>P-0-0051, Torque/force constant * S-0-0111, Motor current at standstill</p>					
P-0-3044 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	FEEDB_I2C	Validity ch.:	--	Format:	DEC_OV
	Unit:	Nm	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

### 5.14.38 P-0-3045, Motor torque at maximum current when reluctance, Nmae plate

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	If the reluctance torque is used, the available motor torque is increased while the current remains the same. This requires an appropriate motor construction. If reluctance is used at maximum current, parameter "P-0-3941" specifies the corresponding torque and/or force developed by the motor if the reluctance effect is utilized. The current to which the torque refers, is entered in parameter "S-0-0109, Motor peak current".					
	The value of the torque must be higher than the torque specified in parameter "S-0-0534, Maximum torque/force of motor".					
P-0-3045 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	FEEDB_I2C	Validity ch.:	--	Format:	DEC_OV
	Unit:	Nm	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.14.39 P-0-3046, Reluctance angle at nominal motor current, Nmae plate

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	If the reluctance torque is used, the available motor torque is increased while the current remains the same. This requires an appropriate motor construction. Parameter "P-0-3942, Reluctance angle at nominal motor current" speci-				

## Product-Specific Parameters

fies the electrical angle by which the current is to be imprinted into the motor as compared with the commutation offset. The angle applies to the current value which is specified in parameter "S-0-0111, Motor current at standstill".

## P-0-3046 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	FEEDB_I2C	Validity ch.:	--	Format:	DEC_OV
Unit:	Deg	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.14.40 P-0-3047, Reluctance angle at maximum motor current, Name plate

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** If the reluctance torque is used, the available motor torque is increased while the current remains the same. This requires an appropriate motor construction. Parameter "P-0-3943, Reluctance angle at maximum motor current" specifies the electrical angle by which the current is to be imprinted into the motor as compared with the commutation offset. The angle applies to the current value which is specified in parameter "S-0-0109, Motor peak current".

## P-0-3047 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	FEEDB_I2C	Validity ch.:	--	Format:	DEC_OV
Unit:	Deg	Extr. val. ch.:	--	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.14.41 P-0-3048, Motor control configuration, type plate

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** The motor control parameters for different control methods are stored in the electronic type plate. The parameter is available as of memory version 4.6 of the type plate parameters.

Configuration bits are stored for controlling synchronous motors according to the reluctance principle. When the type plate parameters are loaded to the drive controller, these bits are copied in parameter "P-0-4014, Type of construction of motor" that is active for control.

## P-0-3048 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	FEEDB_I2C	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

Product-Specific Parameters

## 5.14.42 P-0-3051, Encoder memory, operating hours counter, motor

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This function is not available in MPx16.					
See Functional Description "Diagnostic Data of Motor Operation"						
P-0-3051 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.14.43 P-0-3052, Encoder memory, thermal operating data, motor

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function						
This function is not available in MPx16.						
See Functional Description "Diagnostic Data of Motor Operation"						
P-0-3052 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	°C	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## 5.14.44 P-0-3053, Encoder memory, mechanical operating data, motor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This function is not available in MPx16.					
	See Functional Description "Diagnostic Data of Motor Operation"					
P-0-3053 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	s. Text	Extr. val. ch.:	--	Decim. pl.:	s. Text
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Product-Specific Parameters

## 5.14.45 P-0-3055, Maximum motor torque/force, encoder memory

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	Motor-specific value for the maximum torque of the motor stored in the encoder data memory. When the controller is switched on, the value, in the case of MSK motors (as of encoder memory version 4.5), is copied to the effective parameter "S-0-0534, Maximum torque/force of motor".					
	See also Functional Description "Correction of Torque/Force Constant"					
P-0-3055 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	Nm	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	0,000 / 4294967,295		---		
	MPC:	0,000 / 4294967,295		---		
	MPE:	0,000 / 4294967,295		---		
	MPM:	0,000 / 4294967,295		---		

## 5.14.46 P-0-3056, Nominal motor torque/force, encoder memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	Motor-specific value for the continuous torque at standstill of the motor stored in the encoder data memory. When the controller is switched on, the value, in the case of MSK motors (as of encoder memory version 4.5), is copied to the effective parameter "S-0-0533, Nominal torque/force of motor".					
	See also Functional Description "Correction of Torque/Force Constant"					
P-0-3056 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	Nm	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	0,000 / 4294967,295			---	
	MPC:	0,000 / 4294967,295			---	
	MPE:	0,000 / 4294967,295			---	
	MPM:	0,000 / 4294967,295			---	

## 5.14.47 P-0-3057, Speed-dependent torque/force coefficient, encoder memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Motor-specific value for the speed-dependent torque/force coefficient stored in the encoder data memory. When the controller is switched on, the value, in the case of MSK motors (as of encoder memory version 4.5), is copied to the effective parameter "P-0-0449, Speed-dependent torque/force coefficient".  See also Functional Description "Correction of Torque/Force Constant".				

Product-Specific Parameters

<b>P-0-3057 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Hz	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	5
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		MPB:	0,00000 / 0,65535		---	
		MPC:	0,00000 / 0,65535		---	
		MPE:	0,00000 / 0,65535		---	
		MPM:	0,00000 / 0,65535		---	

## 5.14.48 P-0-3058, Temperature-dependent torque/force coefficient, enc. memory

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		"open loop", "closed loop"			
Device parameter:			axis-specific			
Function	Motor-specific value for the thermal torque/force coefficient stored in the encoder data memory. When the controller is switched on, the value, in the case of MSK motors (as of encoder memory version 4.5), is copied to the effective parameter "P-0-0448, Temperature-dependent torque/force coefficient".					
See also Functional Description "Correction of Torque/Force Constant"						
P-0-3058 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		0,0 / 6553,5		---		
MPC:		0,0 / 6553,5		---		
MPE:		0,0 / 6553,5		---		
MPM:		0,0 / 6553,5		---		

## 5.14.49 P-0-3100, Version of data structure in encoder memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	This parameter indicates the version of the data structure in the encoder memory of Rexroth motors. According to the connected motor, the possible values are 0x0201, 0x301, 0x0401, 0x0402, 0x0403, 0x0404 or 0x0501.					
	This function is only available for Rexroth motors with encoder data memory.					
	See also Functional Description "Rexroth Housing Motors With Encoder Data Memory"					
P-0-3100 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:				--- / ---	---
	MPC:				--- / ---	---
	MPE:				--- / ---	---
	MPM:				--- / ---	---

## Product-Specific Parameters

## 5.15 P-0-3200 to P-0-3599 Safety Technology


## 5.15.1 P-0-3200, SMO: Manufacturer version

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter contains the version name of the safety firmware.					
P-0-3200 - Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	ASCII
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.15.2 P-0-3200.0.5, SMO: Module code

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter displays the content of the assembly code of the safety option.					
P-0-3200.0.5 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:				--- / ---	---
	MPC:				--- / ---	---
	MPE:				--- / ---	---
	MPM:				--- / ---	---

## 5.15.3 P-0-3200.0.20, SMO: Service password

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»		
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function						
		This parameter is for service purposes only and irrelevant on the application side!				
P-0-3200.0.20 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

## 5.15.4 P-0-3201, SMO: Configuration of functional commissioning

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to configure the behavior while "Safe Motion" is not active in order to be able to implement functional commissioning prior to "Safe Motion" commissioning.

Properties:

- Is only taken into account by "Safe Motion" in the non-active state (P-0-3230)
- Is not write-protected by "P-0-3230.0.1, SMO: Password"
- Is not contained in "P-0-3232, SMO: Parameter image"
- Does not have to be verified
- Has zero as default value

**Structure**

Bit	Designation/function	Comment
0	<b>Configuration of functional commissioning</b>  <b>0:</b> Condition as supplied: Output stage locked, brake activated for being applied  <b>1:</b> Enabling for functional commissioning: Output stage and brake are enabled by "Safe Motion" and are activated as requested by the standard firmware.  <b>Exception:</b> In the event of safety technology errors, the output stage is blocked and the brake is activated for being applied.	

Tab.5-278: Configuration of functional commissioning

P-0-3201 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.15.5 P-0-3210, C8600 SMO: Command Measure position difference

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter contains the command for measuring the position difference during axis validation. The measurement is started on start of the command. When the command is stopped, the measurement is stopped and the result is displayed in "P-0-3210.0.1, SMO: Measured position difference".

P-0-3210 - Attributes

Function:	Cmd	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.6 P-0-3210.0.1, SMO: Measured position difference

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter contains the position difference which was determined at the end of the "P-0-3210, C8600 SMO: Command Measure position difference" measurement command.

P-0-3210.0.1 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.7 P-0-3210.0.2, SMO: Axis validation status

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to display and store the axis validation.

**Structure**

Bit	Designation/function	Comment
0	Axis validation status 0: Axis not validated 1: Axis validated	

Tab.5-279: SMO: Axis validation status

P-0-3210.0.2 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.8 P-0-3211, SMO: Error reaction validation assistance

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

Product-Specific Parameters

**Function** The machine acceptance to be implemented in the "error reaction" testing point requires to check the reaction of the drive to safety technology errors that have occurred. Specifically for this purpose, this parameter features the function of generating F3 and/or F7 errors.

**Structure**

Bit	Designation/function	Comment
0	<b>Generation of F3 errors</b> 0: No F3100 error 1: F3100 – An error is present	
1	<b>Generation of F7 errors</b> 0: No F7100 error 1: F7100 – An error is present	

Tab.5-280: SMO: Axis validation status

**P-0-3211 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.9 P-0-3212, SMO: Code words for tests

**Allocation**

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	axis-specific		

**Function**

The functional principle of the parameter is documented only internally. Changes or evaluations are reserved to customer support.

List element	Code word
0	Code word 1 for channel 1
1	Code word 1 for channel 2
2	Code word 2 for channel 1
3	Code word 2 for channel 2
4	Code word 3 for channel 1
5	Code word 3 for channel 2
6	Code word 4 for channel 1
7	Code word 4 for channel 2

Tab.5-281: Code Word Allocation

**P-0-3212 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.15.10 P-0-3220, C8000 SMO: Command Apply scaling

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	Command C8000 serves to apply the safety technology scaling parameters from the standard scaling parameters. This allows presetting a uniform scaling.					
P-0-3220 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.15.11 P-0-3221.0.1, SMO: Polarity

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter serves to set the velocity polarity in the safety technology.				
Structure					

Bit	Designation/function	Comment
0	Velocity command value  0: Positive polarity  1: Negative polarity	

Tab.5-282:      *Velocity Polarities*

P-0-3221.0.1 - Attributes	Function:	Par	Editable:	SCM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	0x0 / 0x1	---
MPC:	0x0 / 0x1	---
MPE:	0x0 / 0x1	---
MPM:	0x0 / 0x1	---

## 5.15.12 P-0-3221.0.2, SMO: Input revolutions of load gearbox

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»		
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter serves to set the load gear input revolutions in the safety technology.					
P-0-3221.0.2 - Attributes	Function:	Par	Editable:	SCM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Product-Specific Parameters

Input	min./max.	Default value
MPB:	1 / 4294967295	---
MPC:	1 / 4294967295	---
MPE:	1 / 4294967295	---
MPM:	1 / 4294967295	---

### 5.15.13 P-0-3221.0.3, SMO: Output revolutions of load gearbox

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter serves to set the load gear output revolutions in the safety technology.					
P-0-3221.0.3 - Attributes	Function:	Par	Editable:	SCM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				
	Input	min./max.		Default value		
	MPB:	1 / 4294967295		---		
	MPC:	1 / 4294967295		---		
	MPE:	1 / 4294967295		---		
	MPM:	1 / 4294967295		---		

### 5.15.14 P-0-3221.0.4, SMO: Feed constant

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter serves to set the feed constant in the safety technology.					
P-0-3221.0.4 - Attributes	Function:	Par	Editable:	SCM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				
	Input	min./max.		Default value		
	MPB:	S-0-0076 / S-0-0076		---		
	MPC:	S-0-0076 / S-0-0076		---		
	MPE:	S-0-0076 / S-0-0076		---		
	MPM:	S-0-0076 / S-0-0076		---		

### 5.15.15 P-0-3221.0.6, SMO: Modulo value

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter serves to set the modulo value in the safety technology.					
P-0-3221.0.6 - Attributes	Function:	Par	Editable:	SCM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				
	Input	min./max.			Default value	
	MPB:	S-0-0076 / S-0-0076			---	
	MPC:	S-0-0076 / S-0-0076			---	

## Product-Specific Parameters

MPE:	S-0-0076 / S-0-0076	---
MPM:	S-0-0076 / S-0-0076	---

## 5.15.16 P-0-3221.0.7, SMO: Maximum travel range

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to set the maximum travel range in the safety technology.

P-0-3221.0.7 - Attributes	Function:	Par	Editable:	SCM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	---
MPC:	S-0-0076 / S-0-0076	---
MPE:	S-0-0076 / S-0-0076	---
MPM:	S-0-0076 / S-0-0076	---

## 5.15.17 P-0-3221.0.130, SMO: Basic scaling, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Summary of the basic scaling structure elements (P-0-3221.0.1 to P-0-3221.0.7).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

P-0-3221.0.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.18 P-0-3222.0.1, SMO: Position data scaling type

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the scaling of the position data in the safety technology along with parameters "P-0-3222.0.2, SMO: Linear position data scaling exponent" and "P-0-3222.0.3, SMO: Rotational position resolution".

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	2-0	<b>Scaling type</b> 001: Linear scaling 010: Rotary scaling	
	3	<b>Scaling</b> 0: Preferred scaling 1: Parameter scaling	
	4	<b>Unit for linear scaling</b> 0: Meter [m] 1: Inch [in] <b>Unit for rotary scaling</b> 0: Angular degree 1: Reserved	
	5	Reserved	
	6	<b>Data reference</b> 0: With respect to motor shaft 1: With respect to load	
	7	<b>Processing format</b> 0: Absolute format 1: Modulo format	
	15-8	Reserved	

Tab.5-283: Position data scaling type

<b>P-0-3222.0.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.19 P-0-3222.0.2, SMO: Linear position data scaling exponent

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter defines the scaling of the linear position data in the safety technology along with parameter "P-0-3222.0.1, SMO: Position data scaling type".

<b>P-0-3222.0.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	-15 / 0	---

## Product-Specific Parameters

MPC:	-15 / 0	---
MPE:	-15 / 0	---
MPM:	-15 / 0	---

## 5.15.20 P-0-3222.0.3, SMO: Rotational position resolution

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the scaling of the rotary position data in the safety technology along with parameter "P-0-3222.0.1, SMO: Position data scaling type".

P-0-3222.0.3 - Attributes	Function:	Par	Editable:	SCM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	1 / 4294967295	---
MPC:	1 / 4294967295	---
MPE:	1 / 4294967295	---
MPM:	1 / 4294967295	---

## 5.15.21 P-0-3222.0.130, SMO: Position scaling, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Summary of the position scaling structure elements (P-0-3222.0.1 to P-0-3222.0.3).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

P-0-3222.0.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.22 P-0-3223.0.1, SMO: Velocity data scaling type

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the scaling of the velocity data in the safety technology along with parameter "P-0-3223.0.2, SMO: Velocity data scaling exponent".

Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	2-0	<b>Scaling type</b> 001: Linear scaling 010: Rotary scaling	
	3	<b>Scaling</b> 0: Preferred scaling 1: Parameter scaling	
	4	<b>Unit for linear scaling</b> 0: Meter [m] 1: Inch [in] <b>Unit for rotary scaling</b> 0: Revolution 1: Reserved	
	5	<b>Unit of time</b> 0: Minute [min] 1: Second [s]	
	6	<b>Data reference</b> 0: With respect to motor shaft 1: With respect to load	
	15-8	Reserved	

Tab.5-284: SMO: Velocity data scaling type

P-0-3223.0.1 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.23 P-0-3223.0.2, SMO: Velocity data scaling exponent

Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	axis-specific		

Function

This parameter defines the scaling of the velocity data in the safety technology along with parameter "P-0-3223.0.1, SMO: Velocity data scaling type".

P-0-3223.0.2 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	-15 / 0	---
MPC:	-15 / 0	---
MPE:	-15 / 0	---
MPM:	-15 / 0	---

## Product-Specific Parameters

## 5.15.24 P-0-3223.0.130, SMO: Velocity scaling, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Summary of the velocity scaling structure elements (P-0-3223.0.1 to P-0-3223.0.2).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

P-0-3223.0.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.25 P-0-3224.0.1, SMO: Acceleration data scaling type

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the scaling of the acceleration data in the safety technology along with parameters "P-0-3224.0.2, SMO: Acceleration data scaling exponent" and "P-0-3224.0.3, SMO: Ramp reference velocity for acceleration data".

**Structure**

Bit	Designation/function	Comment
2-0	<b>Scaling type</b> 001: Linear scaling 010: Rotary scaling 011: Ramp time scaling	
3	<b>Scaling</b> 0: Preferred scaling 1: Parameter scaling	
4	<b>Unit for linear scaling</b> 0: Meter [m] 1: Inch [in] <b>Unit for rotary scaling</b> 0: Radiant [rad] 1: Reserved	
5	<b>Unit of time</b> 0: Second [s2] 1: Reserved	

Product-Specific Parameters

Bit	Designation/function	Comment
6	<b>Data reference</b> 0: With respect to motor shaft 1: With respect to load	
15-8	Reserved	

Tab.5-285: SMO: Acceleration data scaling type

<b>P-0-3224.0.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.26 P-0-3224.0.2, SMO: Acceleration data scaling exponent

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter defines the scaling of the rotary and linear acceleration data in the safety technology along with parameter "P-0-3224.0.1, SMO: Acceleration data scaling type".

<b>P-0-3224.0.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	-15 / 0	---
MPC:	-15 / 0	---
MPE:	-15 / 0	---
MPM:	-15 / 0	---

## 5.15.27 P-0-3224.0.3, SMO: Ramp reference velocity for acceleration data

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter defines the ramp time scaling of the acceleration data in the safety technology along with parameters "P-0-3224.0.1, SMO: Acceleration data scaling type".

<b>P-0-3224.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	---
MPC:	S-0-0044 / S-0-0044	---
MPE:	S-0-0044 / S-0-0044	---
MPM:	S-0-0044 / S-0-0044	---

## Product-Specific Parameters

## 5.15.28 P-0-3224.0.130, SMO: Acceleration scaling, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Summary of the acceleration scaling structure elements (P-0-3224.0.1 to P-0-3224.0.3).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

P-0-3224.0.130 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.29 P-0-3230, SMO: Password level

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function Structure** This parameter shows the current status of "P-0-3230.0.1, SMO: Password".

Level	Designation/function	Status
0	Write protection of the password-protected safety technology parameters is active. C0720 SMO: Load defaults procedure command is allowed.	Safety technology is <b>not</b> active
1	The password-dependent write protection of the password-protected safety technology parameters is deactivated. The safety technology can be deactivated. C0720 SMO: Load defaults procedure command is allowed.	Safety technology is active
2	Write protection of the password-protected safety technology parameters is active. C0720 SMO: Load defaults procedure command is not allowed.	Safety technology is active
3	Write protection of the password-protected safety technology parameters is active. C0720 SMO: Load defaults procedure command is allowed.	Safety technology is active

Tab.5-286: SMO: Password level

P-0-3230 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.15.30 P-0-3230.0.1, SMO: Password

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
Function	Parameter "P-0-3230.0.1, SMO: Password" can be used to activate the safety technology. The password serves to disable and enable write access to all relevant safety technology parameters.			
Structure	Password inputs.			

- At least 3 characters and no more than 10 characters long
- "A – Z", "a - z" and numerals "0 – 9"

If the safety technology password is not as specified, the password entered is discarded.



The initial password "INDRASAVE" and parameter "P-0-3235.0.1, SMO: Active axis identifier" are not accepted as safety technology password.



Safety technology passwords are handled with the assistance of dialog boxes in the "IndraWorks Ds/D/MLD" commissioning software.

#### P-0-3230.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	--	Validity ch.:	--	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.15.31 P-0-3231, SMO: Operating status

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter provides binary status signals for online monitoring of the "Safety technology operating status" of the Safe Motion.				

## Product-Specific Parameters

## Structure

Bit	Significance	Comment
0	<b>Normal operation (NO)</b> 0: Not active 1: Active	
1	<b>EMERGENCY STOP (SMES)</b> 0: Not active 1: Active	
2	<b>Special mode safe standstill (SMST)</b> 0: Not active 1: Active	
3	<b>Special mode safety motion 1 (SMM1)</b> 0: Not active 1: Active	
4	<b>Special mode safety motion 2 (SMM2)</b> 0: Not active 1: Active	
5	<b>Special mode safety motion 3 (SMM3)</b> 0: Not active 1: Active	
6	<b>Special mode safety motion 4 (SMM4)</b> 0: Not active 1: Active	
7	<b>Special mode safety motion 5 (SMM5)</b> 0: Not active 1: Active	
8	<b>Special mode safety motion 6 (SMM6)</b> 0: Not active 1: Active	
9	<b>Special mode safety motion 7 (SMM7)</b> 0: Not active 1: Active	
10	<b>Special mode safety motion 8 (SMM8)</b> 0: Not active 1: Active	
11	<b>Special mode safety motion 9 (SMM9)</b> 0: Not active 1: Active	
12	<b>Special mode safety motion 10 (SMM10)</b> 0: Not active 1: Active	

Product-Specific Parameters

Bit	Significance	Comment
13	<b>Special mode safety motion 11 (SMM11)</b> 0: Not active 1: Active	
14	<b>Special mode safety motion 12 (SMM12)</b> 0: Not active 1: Active	
15	<b>Special mode safety motion 13 (SMM13)</b> 0: Not active 1: Active	
16	<b>Special mode safety motion 14 (SMM14)</b> 0: Not active 1: Active	
17	<b>Special mode safety motion 15 (SMM15)</b> 0: Not active 1: Active	
18	<b>Special mode safety motion 16 (SMM16)</b> 0: Not active 1: Active	
19	Reserved	
23-20	Reserved	
24	<b>SMO application</b> 0: Not active 1: Active	
25	<b>Safety technology error</b> 0: No error message 1: Error message	
26	<b>SMO transition process</b> 0: Not active 1: Active	
27	<b>Parking axis</b> 0: Not active 1: Active	
28	<b>SMO parameter mode</b> 0: Not active 1: Active	
29	<b>SMO configuration mode</b> 0: Not active 1: Active	

## Product-Specific Parameters

Bit	Significance	Comment
30	<b>Behavior with non-active "Safe Motion" (only relevant if bit 31 = 1)</b> 0: Condition as supplied 1: Functional commissioning; output stage and brake(s) are activated by the standard firmware	
31	<b>SMO activation status</b> 0: "Safe Motion" functionality is active 1: "Safe Motion" functionality is not active	

Tab.5-287: SMO: Operating status

P-0-3231 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.15.32 P-0-3231.0.1, C8100 SMO: Command Activate configuration mode

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This command is used to go from parameter mode to configuration mode. Errors are output as command errors, and the axis remains in parameter mode.

P-0-3231.0.1 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.15.33 P-0-3231.0.2, C8200 SMO: Command Exit configuration mode

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This command is used to go from configuration mode to parameter mode. Errors are output as command errors, and the axis remains in configuration mode.

P-0-3231.0.2 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		

Product-Specific Parameters

MPE:	---	---	---
MPM:	---	---	---

### 5.15.34 P-0-3231.0.3, C8300 SMO: Command Activate parameter image

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This command is used to activate "P-0-3232.0.0, SMO: Parameter image". Within the command, initializations are made and parameter settings and configurations are checked. Errors are reported as command errors.

P-0-3231.0.3 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.15.35 P-0-3231.0.4, SMO: System configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the safety with a parked axis.

**Structure**

Bit	Designation/function	Comment
0	Defined safety with parked axis 0: No safety 1: Safety	

Tab.5-288: SMO: System configuration



Here, a safety is signaled which has to result from the risk analysis of the installation. Use for axes with long coasting times (grinding wheels, spindles, rolls, ...) must be excluded. The risk analysis must show that the axis, when parked, does not present any kind of danger to persons.

P-0-3231.0.4 - Attributes	Function:	Par	Editable:	SCM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.15.36 P-0-3232, SMO: Parameter image

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»

## Product-Specific Parameters

<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
<b>Hardware</b>	optional safety technology module			
<b>Funct. package(s):</b>	"open loop", "closed loop"			
<b>Device parameter:</b>	axis-specific			

**Function** Contains a binary image of all parameters in the safety memory.

See also Safety Technology "Serial Commissioning"

<b>P-0-3232 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	CM+PM	<b>Data length:</b>	1Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.37 P-0-3233, SMO: List of non-verified parameters

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter contains a list of all safety technology parameters that have not been verified yet. This list presents every non-verified parameter as a 32-bit hexadecimal value.

<b>P-0-3233 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.38 P-0-3234.0.1, SMO: Configuration checksum

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameters displays the unique configuration data record identifier stored in the safety option for diagnostic purposes. This identifier can be used to determine whether the safety-technology acceptance of the axis must be repeated after a parameter change (check of the scaling settings as compared with the real axis movement). If the configuration identifier has remained unchanged as compared with the last state accepted, acceptance of the axis does not have to be repeated.

<b>P-0-3234.0.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

Product-Specific Parameters

## 5.15.39 P-0-3234.0.2, SMO: Operating hours at last change of configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter displays the state of the operating hours counter of the control section at the time when the safety parameters were changed the last time. It cannot be changed by the user.					
P-0-3234.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.15.40 P-0-3234.0.3, SMO: Configuration change counter

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter displays the state of the internal configuration parameter change counter. It is incremented with each write access to a configuration parameter and cannot be directly changed by the user.					
P-0-3234.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.15.41 P-0-3234.0.4, SMO: Parameterization checksum

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameters displays the unique parameterization data record identifier stored in the safety option for diagnostic purposes.					
P-0-3234.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Product-Specific Parameters

## 5.15.42 P-0-3234.0.5, SMO: Operating hours at last change of parameterization

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»		
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter displays the state of the operating hours counter of the control section at the time when the safety parameters were changed the last time. It cannot be changed by the user.					
P-0-3234.0.5 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	--	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.15.43 P-0-3234.0.6, SMO: Parameterization change counter

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter displays the state of the internal parameterization parameter change counter. It is incremented with each write access to a parameterization parameter and cannot be directly changed by the user.					
P-0-3234.0.6 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.15.44 P-0-3234.0.130, SMO: Image information, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	Summary of the image information structure elements (P-0-3234.0.1 to P-0-3234.0.6).					
	In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.					
P-0-3234.0.130 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	


Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.15.45 P-0-3235.0.1, SMO: Active axis identifier

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
Function	The parameter contains a text which uniquely describes the function of the axis and the application in which it is used.			
P-0-3235.0.1 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	1Byte var.
			Format:	ASCII
			Decim. pl.:	0
			Set-depend.:	--
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.15.46 P-0-3235.0.2, SMO: Proposed axis identifier

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
Function	This parameter can be used to assign a new "SMO: Active axis identifier". This requires that the character string:			
	<ul style="list-style-type: none"><li>Does not correspond to the default value of "P-0-3235.0.1, SMO: Active axis identifier"</li><li>Is unequal to "P-0-3230.0.1, SMO: Password"</li><li>Must comprise ≥ 3 and ≤ 44 characters</li><li>Is limited to a range between 20 and 7D (hex) in the UTF-8 characters.<ul style="list-style-type: none"><li>0 1 2 3 4 5 6 7 8 9</li><li>A B C D E F G H I J K L M N O P Q R S T U V W X Y Z</li><li>a b c d e f g h i j k l m n o p q r s t u v w x y z</li><li>! # \$ % &amp; ( ) * + - . , &lt; &gt; = ? @ [ ] _ { }  </li></ul></li></ul>			
		 The "SMO: Proposed axis identifier" must uniquely identify the machine axis in the entire safety-related installation.		
P-0-3235.0.2 - Attributes	Function:	Par	Editable:	SCM
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
	Verify:	+		
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## Product-Specific Parameters

## 5.15.47 P-0-3235.0.3, C8500 SMO: Command Apply identification data

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** In connection with "P-0-3235.0.4, SMO: Axis identification: Control word", this command controls the acceptance of the proposed identification parameters.

P-0-3235.0.3 - Attributes	<b>Function:</b>	Cmd	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.48 P-0-3235.0.4, SMO: Axis identification: Control word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter controls axis identification. The identification is activated via bits 0 and 1. The axis reacts with a visual signal. In this state, the identification can be confirmed by starting "P-0-3235.0.3, C8500 SMO: Command Apply identification data". The command applies the proposed axis identifier and subsequently resets the bits in "P-0-3235.0.4, SMO: Axis identification: Control word" to 0.

**Structure**

Bit	Designation/function	Comment
0	Identification for assigning the axis identifier 0: Not active 1: Active	
1	Identification for assigning the TUNID 0: Not active 1: Active	

Tab.5-289: SMO: Axis identification: Control word


P-0-3235.0.4 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.49 P-0-3235.0.5, SMO: Identification data image

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		

## Product-Specific Parameters

Function	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
<div><div></div><div>The functional principle of the parameter is documented only internally. Changes or evaluations are reserved to customer support.</div></div>						
Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.15.50 P-0-3236.0.1, SMO: Verification interface, configuration

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter is used to set the parameter which is to be read for verification purposes. The display format is hexadecimal.					
- Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.15.51 P-0-3236.0.2, SMO: Verification interface, data

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
Device parameter:			axis-specific			
Function	This parameter is used to read the parameter selected in "P-0-3233: SMO: List of non-verified parameters". Along with the data of the parameter, the ident number, the attribute and a checksum of these data are also transmitted.					
- Attributes	Function:	Par	Editable:	--	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## Product-Specific Parameters

## 5.15.52 P-0-3236.0.3, SMO: Verification interface, acknowledgment

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter is used to acknowledge the parameter value read via "P-0-3236.0.2, SMO: Verification interface, data".					
P-0-3236.0.3 - Attributes	Function:	Par	Editable:	PM	Data length:	1Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.15.53 P-0-3236.0.4, SMO: Verification interface, axis ID

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter can be used to allow the commissioning software to read a random value generated by the axis after power-on, which is required for generating the data of "P-0-3236.0.3, SMO: Verification interface, acknowledgment".					
P-0-3236.0.4 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.15.54 P-0-3236.0.5, SMO: Verification interface, commissioning identifier

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	This parameter can be used to allow the commissioning software to write a randomly generated value to the axis, which the axis required for checking the content of "P-0-3236.0.3, SMO: Verification interface, acknowledgment".					
P-0-3236.0.5 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

Product-Specific Parameters

## 5.15.55 P-0-3237, SMO: Status word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter provides binary status signals for online monitoring of the safety technology.

**Structure**

Bit	Designation/function	Comment
0	<b>Safety state</b> 0: Axis not safe 1: Axis safe	
1	<b>State of output stage disable</b> 0: Enabled 1: Disabled:	

Tab.5-290: SMO: Status Word

P-0-3237 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.56 P-0-3238, SMO: Active velocity threshold

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter displays the currently active velocity monitoring limit.

P-0-3238 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.57 P-0-3242.x.1, SMO: Phys. encoder type

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** The parameter serves to configure the physical encoder type.

## Product-Specific Parameters

## Structure

Value	Designation/function	Comment
0	Encoder evaluation deactivated	
2	Encoder with sine signals (1Vss, 5V supply)	
4	Encoder with sine signals and HIPERFACE interface (1Vss, 12V supply) Code number for motor type code field "encoder" = "S1", "M1", "_3", "_5" Digital position data are not evaluated.	
6	Encoder with sine signals and EnDat2.1 interface (1Vss, 12V supply) Code number for motor type code field "encoder" = "_2", "_6" Digital position data are not evaluated.	
8	Encoder with sine signals and EnDat2.1 interface (1Vss, 5V supply) Digital position data are not evaluated.	
16	Encoder with sine signals (1Vss, 12V supply)	

Tab.5-291: SMO: Phys. encoder type

## P-0-3242.x.1 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	0 / 16	---
MPC:	0 / 16	---
MPE:	0 / 16	---
MPM:	0 / 16	---

## 5.15.58 P-0-3242.x.2, SMO: Phys. encoder properties

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

Function  
Structure

This parameter describes the properties of the physical encoder.

Bit	Designation/function	Comment
0	Type of design: 0: Rotary 1: Linear	
1	Rotational direction: 0: Not inverted 1: Inverted	

Tab.5-292: SMO: Phys. encoder properties

## P-0-3242.x.2 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Product-Specific Parameters

Input	min./max.	Default value
MPB:	0x0 / 0x3	---
MPC:	0x0 / 0x3	---
MPE:	0x0 / 0x3	---
MPM:	0x0 / 0x3	---

### 5.15.59 P-0-3242.x.3, SMO: Phys. encoder resolution (incremental)

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter specifies the resolution of the encoder.  
**Rotary encoder:** Division periods/cycles per shaft revolution (DP/rev)  
**Linear encoder:** Resolution in mm (mm/line count)

P-0-3242.x.3 - Attributes	Function:	Par	Editable:	SCM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	P-0-3242.x.2	Extr. val. ch.:	+	Decim. pl.:	P-0-3242.x.2
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	P-0-3242.x.2 / P-0-3242.x.2	---
MPC:	P-0-3242.x.2 / P-0-3242.x.2	---
MPE:	P-0-3242.x.2 / P-0-3242.x.2	---
MPM:	P-0-3242.x.2 / P-0-3242.x.2	---

### 5.15.60 P-0-3242.x.130, SMO: Phys. encoder configuration, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Summary of the physical encoder configuration structure elements (P-0-3242.0.1 to P-0-3242.0.3).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

P-0-3242.x.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.15.61 P-0-3252.x.2, SMO: Mounting position

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to configure the safety technology encoder mounting position.

## Product-Specific Parameters

Bit	Designation/function	Comment
0	<b>Mounting position:</b> 0: Encoder mounted on motor side 1: Encoder mounted on load side	

Tab.5-293: SMO: Mounting position

## P-0-3252.x.2 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	0 / 1	---
MPC:	0 / 1	---
MPE:	0 / 1	---
MPM:	0 / 1	---

## 5.15.62 P-0-3252.x.3, SMO: Gearbox input revolutions

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the input revolutions (on encoder side) of the encoder gear.

## P-0-3252.x.3 - Attributes

Function:	Par	Editable:	SCM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Rev	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.63 P-0-3252.x.4, SMO: Gearbox output revolutions

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the output revolutions (on motor or load side) of the encoder gear.

## P-0-3252.x.4 - Attributes

Function:	Par	Editable:	SCM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Rev	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.64 P-0-3252.x.130, SMO: Encoder mechanics, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»

Product-Specific Parameters

	Contained in 18VRS:				«MPB»	«-»	«MPM»	«MPC»
	Hardware				optional safety technology module			
	Funct. package(s):				"open loop", "closed loop"			
	Device parameter:				axis-specific			
Function	Summary of the encoder mechanics structure elements (P-0-3252.0.1 to P-0-3252.0.4).							
	In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.							
P-0-3252.x.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.		
	Memory:	--	Validity ch.:	--	Format:	HEX		
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0		
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--		
	Input	min./max.			Default value			
	MPB:	--- / ---			---			
	MPC:	--- / ---			---			
	MPE:	--- / ---			---			
	MPM:	--- / ---			---			

### 5.15.65 P-0-3254, C8400 SMO: Command Apply encoder configuration

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This command facilitates parameterization of the safety technology encoder. The encoder data from the standard application are applied to the safety technology application. Use is made of the data of the encoder connected via X4 (X4.n).					
P-0-3254 - Attributes	Function:	Cmd	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.15.66 P-0-3255, SMO: Velocity threshold for safe standstill

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter defines a velocity threshold for safety standstill. It is signaled in bit 6 of parameter "P-0-3256, SMO: Encoder evaluation status".					
P-0-3255 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				
	Input	min./max.			Default value	
	MPB:	S-0-0044 / S-0-0044			---	
	MPC:	S-0-0044 / S-0-0044			---	
	MPE:	S-0-0044 / S-0-0044			---	
	MPM:	S-0-0044 / S-0-0044			---	

## Product-Specific Parameters

## 5.15.67 P-0-3256, SMO: Encoder evaluation status

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** The status displays the current state of the encoder evaluation. In excerpts, the parameter definition corresponds to the definition of the sercos encoder specification.

**Structure**

Bit	Designation/function	Comment
0	<b>Amplitude monitoring error</b> 0: No error 1: Error	
1	<b>Frequency monitoring error</b> 0: No error 1: Error	
2	<b>Quadrant counter error</b> 0: No error 1: Error	
6	<b>Encoder standstill</b> 0: No standstill 1: Standstill	
10/9/8	<b>Verification error</b> 000: No error 001: Position error 010: Velocity error 100: Status error	
12	<b>Encoder warning</b> 0: No warning 1: Warning	
13	<b>Encoder error</b> 0: No errors 1: Error	
15/14	<b>Encoder evaluation status</b> 00: Not active 01: Active "error output OFF" 11: Active "error output ON"	

Tab.5-294: SMO: Encoder evaluation status

## P-0-3256 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---

Product-Specific Parameters

MPC:	---	---	---
MPE:	---	---	---
MPM:	---	---	---

### 5.15.68 P-0-3257, SMO: Position feedback value

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	The actual position value shows the current position of the encoder. On initialization, it is set to "0" with relative evaluation.					
P-0-3257 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0076	Extr. val. ch.:	--	Decim. pl.:	S-0-0077 / S-0-0078
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.15.69 P-0-3258, SMO: Velocity feedback value

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«MPM»	«MPC»
	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	The actual velocity value shows the current velocity of the safety technology encoder.					
P-0-3258 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	--	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input			min./max.	Default value	
	MPB:			--- / ---	---	
	MPC:			--- / ---	---	
	MPE:			--- / ---	---	
	MPM:			--- / ---	---	

### 5.15.70 P-0-3261, SMO: State machine control word

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter provides binary control signals for online control of the safety functions via digital hardware inputs (local safety inputs) or via safe bus communication of the drive.				

## Product-Specific Parameters

## Structure

Bit	Significance	Comment
0	<b>Operation mode selection signal (MS)</b> 0: Special operation mode 1: Normal operation mode	
1	<b>EMERGENCY STOP signal (SMES)</b> 0: Active 1: Not active	
2	<b>Enabling signal (EC)</b> 0: Not active 1: Active	
3	<b>SMM1 signal (A_SMM1)</b> 0: Not active 1: Active	
4	<b>SMM2 signal (A_SMM2)</b> 0: Not active 1: Active	
5	<b>SMM3 signal (A_SMM3)</b> 0: Not active 1: Active	
6	<b>SMM4 signal (A_SMM4)</b> 0: Not active 1: Active	
7	<b>SMM5 signal (A_SMM5)</b> 0: Not active 1: Active	
8	<b>SMM6 signal (A_SMM6)</b> 0: Not active 1: Active	
9	<b>SMM7 signal (A_SMM7)</b> 0: Not active 1: Active	
10	<b>SMM8 signal (A_SMM8)</b> 0: Not active 1: Active	
11	<b>SMM9 signal (A_SMM9)</b> 0: Not active 1: Active	
12	<b>SMM10 signal (A_SMM10)</b> 0: Not active 1: Active	

Product-Specific Parameters

Bit	Significance	Comment
13	<b>SMM11 signal (A_SMM11)</b> 0: Not active 1: Active	
14	<b>SMM12 signal (A_SMM12)</b> 0: Not active 1: Active	
15	<b>SMM13 signal (A_SMM13)</b> 0: Not active 1: Active	
16	<b>SMM14 signal (A_SMM14)</b> 0: Not active 1: Active	
17	<b>SMM15 signal (A_SMM15)</b> 0: Not active 1: Active	
18	<b>SMM16 signal (A_SMM16)</b> 0: Not active 1: Active	
19	Reserved	

Tab.5-295: SMO: State machine control word

P-0-3261 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.71 P-0-3261.0.1, SMO: State machine control word, functional

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter provides binary control signals for online control of the safety functions via the master communication of the drive.

**Structure** In NC-controlled safety technology operation mode transitions, "P-0-3280.0.1: bit 0 = 0", the control can shorten the transition times "P-0-3280.0.2" and "P-0-3280.0.3" and "P-0-3280.0.4". The monitoring functions selected are active on the spot.

## Product-Specific Parameters

Bit	Designation/function	Comment
0	<b>NC-Ready</b> 0: Inactive 1: Inactive <b>0-&gt;1 edge:</b> Causes an immediate change to the selected safety technology operating status. The "0->1 edge" can only be evaluated if the control signal is at least 10 ms zero.	

Tab.5-296: SMO: State machine control word, functional

## P-0-3261.0.1 - Attributes

Function:	Par	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.72 P-0-3262, SMO: Selected operating status

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter provides binary status signals for displaying the selected safety technology operating status.

**Structure**

Bit	Significance	Comment
0	<b>Normal operation (NO)</b> 0: Not active 1: Active	
1	<b>EMERGENCY STOP (SMES)</b> 0: Not active 1: Active	
2	<b>Special mode safe standstill (SMST)</b> 0: Not active 1: Active	
3	<b>Special mode safety motion 1 (SMM1)</b> 0: Not active 1: Active	
4	<b>Special mode safety motion 2 (SMM2)</b> 0: Not active 1: Active	
5	<b>Special mode safety motion 3 (SMM3)</b> 0: Not active 1: Active	

Product-Specific Parameters

Bit	Significance	Comment
6	<b>Special mode safety motion 4 (SMM4)</b> 0: Not active 1: Active	
7	<b>Special mode safety motion 5 (SMM5)</b> 0: Not active 1: Active	
8	<b>Special mode safety motion 6 (SMM6)</b> 0: Not active 1: Active	
9	<b>Special mode safety motion 7 (SMM7)</b> 0: Not active 1: Active	
10	<b>Special mode safety motion 8 (SMM8)</b> 0: Not active 1: Active	
11	<b>Special mode safety motion 9 (SMM9)</b> 0: Not active 1: Active	
12	<b>Special mode safety motion 10 (SMM10)</b> 0: Not active 1: Active	
13	<b>Special mode safety motion 11 (SMM11)</b> 0: Not active 1: Active	
14	<b>Special mode safety motion 12 (SMM12)</b> 0: Not active 1: Active	
15	<b>Special mode safety motion 13 (SMM13)</b> 0: Not active 1: Active	
16	<b>Special mode safety motion 14 (SMM14)</b> 0: Not active 1: Active	
17	<b>Special mode safety motion 15 (SMM15)</b> 0: Not active 1: Active	

## Product-Specific Parameters

Bit	Significance	Comment
18	<b>Special mode safety motion 16 (SMM16)</b> 0: Not active 1: Active	
19	Reserved	

Tab.5-297: SMO: Selected operating status

P-0-3262 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.15.73 P-0-3263.0.1, SMO: Configuration of stopping process

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM» «MPC»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to configure the "Safe Motion" error reaction.

**Structure**

Bit	Designation/function	Comment
3-0 = 0	<b>Velocity command value reset (emergency stop) - escalation stage 4</b> Safe Motion monitors the reaction of the standard drive using the SMD safety function if NC/MLD error reaction bit 16 = 0. <ul style="list-style-type: none"> <li>The controlled servo motor is decelerated taking parameter "P-0-0109" into account (vcmd = 0). Acceleration limit value "S-0-0138".</li> <li>"P-0-0109" is used for deceleration with open-loop U/f control only if the stall protection controller is activated (P-0-0045). Maximum deceleration is determined by parameter "P-0-0569".</li> </ul> After "S-0-0273, Maximum drive off delay time" has elapsed: <ul style="list-style-type: none"> <li>In case of a servo brake (P-0-0525), the holding brake is activated and drive enable is internally switched off after "S-0-0207".</li> <li>In case of a main spindle brake (P-0-0525), drive enable is internally switched off and the holding brake is activated, if the velocity has fallen below 10 rpm.</li> </ul> Effective torque/force value = "P-0-0109"	
3-0 = 1	<b>Torque enable - escalation stage 8</b> Safe Motion activates safety function STO (SBC). <ul style="list-style-type: none"> <li>In case of a servo brake (P-0-0525), the holding brake is immediately activated. Effective torque/force value = servo brake: Friction torque of holding brake</li> <li>In the case of the main spindle brake (P-0-0525), the holding brake remains released.</li> </ul> Main spindle brake: Not defined	

Product-Specific Parameters

Bit	Designation/function	Comment
3-0 = 2	<p><b>Velocity command value reset with ramp and filter (quick stop) - escalation stage 2</b></p> <p>Safe Motion monitors the reaction of the standard drive using the SMD safety function if NC/MLD error reaction bit 16 = 0.</p> <p>The drive is decelerated with the ramp "S-0-0372, Drive Halt acceleration bipolar" and the jerk filter "S-0-0349, Jerk limit bipolar" (vcmd = 0!).</p> <p><b>Note:</b> The maximum deceleration is given by the value entered in "P-0-0569, Maximum stator frequency slope".</p> <p>Effective torque/force value = P-0-0109.</p>	
3-0 = 3	<b>Return motion</b> is currently not supported by "Safe Motion"	
3-0 = 4	<p><b>Velocity command value reset with ramp and filter (emergency stop) - escalation stage 2</b></p> <p>Safe Motion monitors the reaction of the standard drive using the SMD safety function if NC/MLD error reaction bit 16 = 0.</p> <p>The controlled servo drive (in velocity control mode) or the controlled drive (in U/f mode) is decelerated with a command value ramp, determined by "S-0-0429, Emergency halt deceleration" and the jerk limit value (S-0-0349). If the value of "S-0-0429 = 0", the value is effective in "S-0-0138, Bipolar acceleration limit value".</p> <p><b>Note:</b> With open-loop U/f control, the maximum deceleration is given by the value entered in "P-0-0569, Maximum stator frequency slope".</p> <p>Effective torque/force value = P-0-0109</p>	
7-4 = 0	<p><b>Velocity command value reset (emergency stop) - escalation stage 3</b></p> <p>Safe Motion monitors the error reaction of the standard drive using the SMD safety function.</p> <ul style="list-style-type: none"> <li>The controlled servo motor is decelerated taking the "P-0-0109, Torque/force peak limit" into account (vcmd = 0).</li> <li>In case of open-loop U/f control, the deceleration at "P-0-0109, Torque/force peak limit" only takes place if the stall protection controller has been activated (P-0-0-0045, Control word of current controller). The maximum deceleration is given by the value entered in "P-0-0569, Maximum stator frequency slope".</li> </ul> <p>Effective torque/force value = P-0-0109</p>	
7-4 = 1	<p><b>Torque enable - escalation stage 8</b></p> <p>Safe Motion activates safety function STO (SBC).</p> <ul style="list-style-type: none"> <li>In case of a servo brake (P-0-0525), the holding brake is immediately activated. Effective torque/force value = servo brake: Friction torque of holding brake</li> <li>In the case of the main spindle brake (P-0-0525), the holding brake remains released. Main spindle brake: not defined.</li> </ul>	
7-4 = 4	<p><b>Emergency stop with ramp and filter - escalation stage 3</b></p> <p>Safe Motion monitors the error reaction of the standard drive using the SMD safety function.</p> <p>The drive is decelerated with the ramp "S-0-0429, Emergency halt deceleration" and the jerk filter "S-0-0349, Jerk limit bipolar" (vcmd = 0).</p> <p><b>Note:</b> With open-loop U/f control, the maximum deceleration is given by the value entered in "P-0-0569, Maximum stator frequency slope".</p> <p>Effective torque/force value = P-0-0109</p>	

## Product-Specific Parameters

Bit	Designation/function	Comment
15-8	Reserved	
16	<b>NC/MLD error reaction - escalation stage 1</b> If configured, Safe Motion monitors the "safe maximum speed (SMS)". The reaction time is limited to "P-0-3263.0.6". If the axis is not at standstill and torque-free yet, the error reaction is aborted with an F7 error message.	
31-17	Reserved	

Tab.5-298: SMO: Best possible deceleration

P-0-3263.0.1 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	Verify:	+				
Input		min./max.		Default value		
MPB:		--- / ---		---		
MPC:		--- / ---		---		
MPE:		--- / ---		---		
MPM:		--- / ---		---		

## 5.15.74 P-0-3263.0.2, SMO: Oscillation velocity window of SMD-E

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter serves to configure the "safety-monitored deceleration (SMD)" safety function for monitoring the drive-controlled error reaction.

At the beginning of monitoring, the velocity value defined in this parameter is added to the actual velocity and is the monitoring threshold during the reaction time set in "P-0-3263.0.3, SMO: SMD-E reaction time".

See also: Safely-Monitored Deceleration (SMD)

P-0-3263.0.2 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				
Input		min./max.		Default value		
MPB:		S-0-0044 / S-0-0044		---		
MPC:		S-0-0044 / S-0-0044		---		
MPE:		S-0-0044 / S-0-0044		---		
MPM:		S-0-0044 / S-0-0044		---		

## 5.15.75 P-0-3263.0.3, SMO: SMD-E reaction time

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter serves to configure the "safety-monitored deceleration (SMD)" safety function for monitoring the drive-controlled error reaction.

Reaction time for the standard drive to be able to adjust the command value input for transition to the "safe standstill". After this time has elapsed, the parameterized deceleration ramp is monitored.

See also: Safely-Monitored Deceleration (SMD)

Product-Specific Parameters

<b>P-0-3263.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	0,0 / 429496729,5			---	
	<b>MPC:</b>	0,0 / 429496729,5			---	
	<b>MPE:</b>	0,0 / 429496729,5			---	
	<b>MPM:</b>	0,0 / 429496729,5			---	

## 5.15.76 P-0-3263.0.4, SMO: Velocity window of SMD-E

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	optional safety technology module			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter serves to configure the "safety-monitored deceleration (SMD)" safety function for monitoring the drive-controlled error reaction.

The start value for monitoring the deceleration ramp is established from the current actual velocity plus the tolerance limit defined in this parameter.

See also: Safely-Monitored Deceleration (SMD)

<b>P-0-3263.0.4 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	S-0-0044 / S-0-0044			---	
	<b>MPC:</b>	S-0-0044 / S-0-0044			---	
	<b>MPE:</b>	S-0-0044 / S-0-0044			---	
	<b>MPM:</b>	S-0-0044 / S-0-0044			---	

## 5.15.77 P-0-3263.0.5, SMO: SMD-E delay

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	optional safety technology module			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter serves to configure the "safety-monitored deceleration (SMD)" safety function for monitoring the drive-controlled error reaction.

The parameter defines a deceleration threshold (bipolar) for going to the "safe standstill".

See also: Safely-Monitored Deceleration (SMD)

<b>P-0-3263.0.5 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	<b>MPB:</b>	S-0-0160 / S-0-0160			---	
	<b>MPC:</b>	S-0-0160 / S-0-0160			---	
	<b>MPE:</b>	S-0-0160 / S-0-0160			---	
	<b>MPM:</b>	S-0-0160 / S-0-0160			---	

## Product-Specific Parameters

## 5.15.78 P-0-3263.0.6, SMO: Error reaction F3 tolerance time

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the maximum available time within which the drive must be decelerated to standstill by means of "error reaction F3". If this is not the case, the "F7050 Time for stopping process exceeded" or "F8350 Time for stopping process exceeded" (if F3==F7 reaction) is generated.

See also "Safely-Monitored Deceleration (SMD)"

P-0-3263.0.6 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	0,000 / 4294967,295	---
MPC:	0,000 / 4294967,295	---
MPE:	0,000 / 4294967,295	---
MPM:	0,000 / 4294967,295	---

## 5.15.79 P-0-3263.0.7, SMO: Error reaction F7 tolerance time

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the maximum available time within which the drive must be decelerated to standstill by means of "error reaction F7". Otherwise, error message "F8350 Time for stopping process exceeded" is generated.

See also: Safely-Monitored Deceleration (SMD)

P-0-3263.0.7 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	0,000 / 4294967,295	---
MPC:	0,000 / 4294967,295	---
MPE:	0,000 / 4294967,295	---
MPM:	0,000 / 4294967,295	---

## 5.15.80 P-0-3263.0.130, SMO: Stopping process, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Summary of the deceleration structure elements (P-0-3263.0.1 to P-0-3263.0.7).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

P-0-3263.0.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.81 P-0-3264, SMO: Safety function selection

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter provides binary control signals for online control of the safety technology functions. The motion operation mode in "special mode safe motion" is selected via a code.

**Structure**

Bit	Designation/function	Comment
0	Reserved	
1	Reserved	
2	Reserved	
3	Reserved	
4	Reserved	
5	Reserved	
6	<b>Safe direction positive (SDIpos) normal operation</b> 0: Selected 1: Not selected	
7	<b>Safe direction negative (SDIneg) normal operation</b> 0: Selected 1: Not selected	
8	Reserved	
10/9	Reserved	
14	<b>Safe stop 1 (SS1) - drive-controlled</b> 0: Selected 1: Not selected	
15	<b>Safe Stop 2 (SS2) - drive-controlled</b> 0: Selected 1: Not selected	
16	<b>Safe stop 1 (SS1) - NC-controlled</b> 0: Selected 1: Not selected	
17	<b>Safe stop 2 (SS2) - NC-controlled</b> 0: Selected 1: Not selected	
18	Reserved	

## Product-Specific Parameters

Bit	Designation/function	Comment
19	<b>Safely-monitored deceleration with trend monitoring (SMD-Trend)</b> 0: Selected 1: Not selected	
20	<b>Safely-monitored deceleration based on actual velocity (SMD-ActVel)</b> 0: Selected 1: Not selected	
22/21	Reserved	
23	<b>Safe maximum speed (SMS)</b> 0: Selected 1: Not selected	
24	Reserved	
25	Reserved	
30... 26	<b>Motion operation modes (SMM1 – SMM16)</b> 0x00: Special mode safe motion not selected 0x01: Special mode safe motion SMM1 selected ... 0x0F: Special mode safe motion SMM15 selected 0x10: Special mode safe motion SMM16 selected	
31	Reserved	

Tab.5-299: SMO: Safety function selection

## P-0-3264 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.15.82 P-0-3264.0.1, SMO: Safety function status

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** This parameter presents binary status signals for displaying the status of safety functions and provides them for Safe Motion. The status of the motion operation mode is displayed in "special mode safe motion" in bit 30... 26 via a code.

Product-Specific Parameters

Structure

Bit	Designation/function	Comment
<b>0</b>	<b>Safe brake control (SBC)</b> 0: Not active 1: Active	
<b>1</b>	Reserved	
<b>2</b>	<b>Safe Torque Off (STO)</b> 0: Not active 1: Active	
<b>3</b>	<b>Safety operating stop (SOS)</b> 0: Not active 1: Active	
<b>4</b>	<b>Safely-limited speed (SLS)</b> 0: Not active 1: Active <b>Note:</b> Detailed information on the "SLS" selected can be found under bits 26 to 30	
<b>5</b>	Reserved	
<b>6</b>	<b>Safe direction positive (SDIpos)</b> 0: Not active 1: Active	
<b>7</b>	<b>Safe direction negative (SDIneg)</b> 0: Not active 1: Active	
<b>8</b>	<b>Safely-limited increment (SLI)</b> 0: Not active 1: Active <b>Note:</b> Detailed information on the "SLI" selected can be found under bits 26 to 30	
<b>10/9</b>	Reserved	
<b>14</b>	<b>Safe stop 1 (SS1) - drive-controlled</b> 0: Not active 1: Active	
<b>15</b>	<b>Safe Stop 2 (SS2) - drive-controlled</b> 0: Not active 1: Active	
<b>16</b>	<b>Safe stop 1 (SS1) - NC-controlled</b> 0: Not active 1: Active	
<b>17</b>	<b>Safe stop 2 (SS2) - NC-controlled</b> 0: Not active 1: Active	

## Product-Specific Parameters

Bit	Designation/function	Comment
18	Reserved	
19	<b>Safely-monitored deceleration with trend monitoring (SMD-Trend)</b> 0: Not active 1: Active	
20	<b>Safely-monitored deceleration based on actual velocity (SMD-ActVel)</b> 0: Not active 1: Active	
21	<b>Drive-controlled error reaction</b> (with safely-monitored deceleration based on actual velocity (SMD-ActVel) in case of F3 and F7 errors) 0: Not active 1: Active	
22	<b>NC/MLD error reaction</b> (with F3 error reaction time monitoring) 0: Not active 1: Active	
23	<b>Safe maximum speed (SMS)</b> 0: Not active 1: Active	
24	<b>Safely-monitored transient oscillation (SLS-LT)</b> 0: Not active 1: Active <b>Note:</b> Detailed information on the "SLS-LT" selected can be found under bits 26 to 30	
25	Reserved	
30... 26	<b>Motion operation modes (SMM1 – SMM16)</b> 0x00: Special mode safe motion not active 0x01: Special mode safe motion SMM1 active ... 0x0F: Special mode safe motion SMM15 active 0x10: Special mode safe motion SMM16 active	
31	Reserved	

Tab.5-300: SMO: Safety function status

## P-0-3264.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.83 P-0-3265, SMO: Status word of safe braking and holding function

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function Structure** This parameter provides the state of the safe holding system.

Bit	Designation/function	Comment
0	<b>Safe brake control (SBC) activation acknowledgement</b> 0: Not controlled 1: Activated	

Tab.5-301: SMO: Status word of safe braking and holding function

P-0-3265 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	+	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.84 P-0-3265.0.1, SMO: Configuration of safe braking and holding function

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function Structure** Configuration of the safe braking and holding function.

Bit	Designation/function	Comment
0	<b>Safe brake control (SBC)</b> 0: Not active (default) 1: Active	
1	<b>"Release holding system"</b> - allowed with active SBC in "special mode safe standstill" with STO. 0: No (default) 1: Yes	

Tab.5-302: SMO: Configuration of safe braking and holding function

P-0-3265.0.1 - Attributes	Function:	Par	Editable:	SCM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.15.85 P-0-3265.0.2, SMO: Control word of safe braking and holding function

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter provides binary control signals for online control of the safe brake via digital hardware inputs (local safe inputs).

**Structure**

Bit	Designation/function	Comment
0	Open holding system 0: Not active (default) 1: Active	

Tab.5-303: SMO: Control word of safe braking and holding function

With active SBC function, the signal can be used to activate the holding system if "P-0-3265.0.1: bit 1 = 1" and the "special mode safe standstill" safety technology operating status is active with STO.

## P-0-3265.0.2 - Attributes

Function:	Par	Editable:	OM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.86 P-0-3266, SMO: Safety zone status word

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter displays the information which the zone node delivers to the zone bus (bits 0 and 1). This information is formed from the status of the preceding zone nodes (bits 4 and 5) and the status of the zone node itself (bits 8 and 9).

In addition, it displays enabling of normal operation (bit 2) which is only established by the zone master.

**Structure**

Bit	Designation/function	Comment
0	Status safety, to following zone nodes (out, X43) 0: Zone is not safe 1: Zone is safe	
1	Status error, to following zone nodes (out, X43) 0: Zone error present 1: Zone error not present	

Product-Specific Parameters

Bit	Designation/function	Comment
2	<b>Enabling of normal operation (only zone master)</b> (out, X43) 0: Normal operation disabled 1: Normal operation enabled	
4	<b>Status safety, to preceding zone nodes</b> (in, X42) 0: Zone is not safe 1: Zone is safe	
5	<b>Status error, to preceding zone nodes</b> (in, X42) 0: Zone error present 1: Zone error not present	
8	<b>Status safety of axis (axis contribution to total status)</b> 0: Axis is not safe 1: Axis is safe	
9	<b>Status error of axis (axis contribution to total status)</b> 0: "Safe Motion" error present on axis 1: No "Safe Motion" error present on axis	

Tab.5-304: Safety zone status word

P-0-3266 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.15.87 P-0-3266.0.1, SMO: Safety zone control word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter displays information which the zone telegram reports to the zone node. In addition, the status of the zone bus communication is displayed.

**Structure**

Bit	Designation/function	Comment
0	<b>Status safety of safety zone (total)</b> 0: Zone not safe 1: Zone is safe	
1	<b>Status error of safety zone (total)</b> 0: Zone error present 1: No errors	

## Product-Specific Parameters

Bit	Designation/function	Comment
2	<b>Status enabling of normal operation by zone master</b> 0: Normal operation disabled 1: Normal operation enabled	
4	<b>Status zone bus communication</b> 0: No or invalid telegrams received 1: Valid telegrams received	

Tab.5-305: Safety zone control word

## P-0-3266.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.88 P-0-3266.0.2, SMO: Safety zone configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function Structure** This parameter serves to configure the axis for operation in a safety zone.

Bit	Designation/function	Comment
0	<b>Zone formation</b> 0: Single-axis acknowledgement (default) - self-sustaining acknowledgement of safety through axis. 1: Zone acknowledgement: The axis is connected to the safety zone module via the zone bus to form a safety zone.	
1	<b>Safety acknowledgement of the zone (effective only with bit 0 = 1)</b> 0: Zone node (default) 1: Zone master	
4-2	Reserved	
5	<b>Activation of a door locking device via the safety zone module</b> 0: Not active (default) 1: Active (only select it when bit 1 = 1)	
7/6	Reserved	

Product-Specific Parameters

Bit	Designation/function	Comment
8	<b>Zone error reaction – reaction</b> Reaction of the zone node to a zone error <b>0:</b> No reaction (default) <b>1:</b> Reaction (E8300, with the same reaction as errors of category F3)	
9	<b>Zone error reaction – signaling</b> The zone node signals to the safety zone its own safety technology errors with regard to the zone error reaction. <b>0:</b> No signaling (default) <b>1:</b> Signaling (triggering of "zone reaction" in case of an error)	

Tab.5-306: SMO: Safety zone configuration

P-0-3266.0.2 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.89 P-0-3266.0.3, SMO: Control word of safe door locking

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** This parameter provides binary control signals for online control of the safe safety door activation (safe door lock, SDL).

The acknowledgement contacts of the safety door are provided via digital hardware inputs (safe inputs) of the safety zone module.

**Structure**

Bit	Designation/function	Comment
0	<b>Unlock safety door request</b> <b>0:</b> Lock door <b>1:</b> Unlock door	
1	<b>Acknowledgement contacts of safety door</b> <b>0:</b> Latch open <b>1:</b> Latch closed	

Tab.5-307: SMO: Control word of safe door locking

P-0-3266.0.3 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---

## Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.15.90 P-0-3270.0.1, SMO: Configuration of global safety functions

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Configuration of the global safety functions which are active in normal and special operation mode.

Bit	Designation/function	Comment
0	<b>Safe maximum speed (SMS)</b> 0: Not active 1: Active (normal and special modes - default)	

Tab.5-308: Configuring the Global Safety Function

P-0-3270.0.1 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	---	---
MPC:	---	---
MPE:	---	---
MPM:	---	---

## 5.15.91 P-0-3270.0.2, SMO: Safe maximum speed

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the velocity monitoring limit for the "SMO: Safe maximum speed" safety function.

If the drive exceeds the parameterized velocity threshold, error message F7020 is output. The drive is decelerated to standstill with the configured F7 error reaction.

P-0-3270.0.2 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	---
MPC:	S-0-0044 / S-0-0044	---
MPE:	S-0-0044 / S-0-0044	---
MPM:	S-0-0044 / S-0-0044	---

## 5.15.92 P-0-3270.0.3, SMO: Standstill window for safe direction of motion

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

Product-Specific Parameters

<b>Function</b>	This parameter defines the monitoring window.			
<b>P-0-3270.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--
	<b>Verify:</b>	+	<b>Data length:</b>	4Byte
			<b>Format:</b>	DEC_MV
			<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
			<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>
	MPB:	S-0-0076 / S-0-0076		---
	MPC:	S-0-0076 / S-0-0076		---
	MPE:	S-0-0076 / S-0-0076		---
	MPM:	S-0-0076 / S-0-0076		---

### 5.15.93 P-0-3270.0.130, SMO: Global safety functions, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»	
	Hardware	optional safety technology module				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	axis-specific				
Function	Summary of the global safety function structure elements (P-0-3270.0.1 to P-0-3270.0.5).					
	In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.					
P-0-3270.0.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

### 5.15.94 P-0-3277.0.1, SMO: Configuration in normal operation

Allocation

Contained in 16VRS:	«-»	«-»	«-»
Contained in 17VRS:	«-»	«-»	«-»
Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module		
Funct. package(s):	"open loop", "closed loop"		
Device parameter:	axis-specific		

Function Structure

This parameter configures the safe motion function in normal operation.

Bit	Designation/function	Comment
0	<b>Safe direction, positive (SDI)</b> 0: Not active (default) 1: Active in normal operation	
1	<b>Safe direction, negative (SDI)</b> 0: Not active (default) 1: Active in normal operation	

Tab.5-309: SMO: Configuration in normal operation

<b>P-0-3277.0.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+
	<b>Verify:</b>	+	<b>Data length:</b>	2Byte
			<b>Format:</b>	BIN
			<b>Decim. pl.:</b>	0
			<b>Set-depend.:</b>	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.95 P-0-3280.0.1, SMO: Configuration of operation mode transitions

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to configure the safety technology operation mode transitions.

**Structure**

Bit	Designation/function	Comment
0	<b>Safety technology operation mode transitions to "safe standstill"</b> 0: NC-controlled (default) 1: Drive-controlled Transitions to "special mode safe motion SMM1... 16" are always NC-controlled.	
1	<b>Safe stop 1 (SS1)</b> 0: SS1 time prioritized (default): Triggering of the STO function at standstill with cleared drive enable, however not later than after the maximum transfer time has elapsed (P-0-3280.0.2/P-0-3280.0.3). 1: SS1 deceleration/standstill prioritized: Triggering of the STO function at standstill with cleared drive enable. Deceleration monitoring always active.	
2	<b>Configuration of deceleration monitoring with variant SS1 time prioritized</b> 0: Without deceleration monitoring (default) 1: With deceleration monitoring (Only select when bit 1 = 0)	
3	<b>Variant of "safely-monitored deceleration" when a "safe standstill" is selected</b> 0: With trend monitoring (default) (only configurable when bit 1 = 0) 1: Based on actual velocity The safe standstill contains the EMERGENCY stop and the "special mode safe standstill"	
4	<b>Variant of "safely-monitored deceleration" when a "safe motion" special mode is selected</b> 0: With trend monitoring (default) 1: Based on actual velocity	

Product-Specific Parameters

Bit	Designation/function	Comment
5	<b>Option of immediate switching in special mode "safe motion"</b> 0: Inactive (default) 1: Active Immediate switching on selection if: Vact ≤ SLS-SMM target and SDI-SMM source == SDI-SMM target or SMM target without SDI	
6	<b>Option "immediate switching from NO operation to motion operation mode"</b> 0: Inactive (default) 1: Active Immediate switching on selection if: Vact ≤ SLS-SMM target and SDI-NO operation == SDI-SMM target or SMM target without SDI	

Tab.5-310: SMO: Configuration of operation mode transitions

P-0-3280.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.96 P-0-3280.0.2, SMO: Max. transition time normal oper. to safe standstill

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** In case of transitions from normal operation to a "safe standstill/EMERGENCY STOP" or "special mode safe standstill", this parameter defines the maximum available time after which the command value system of the drive must have been adjusted to the new operating status.

See also: Safely-Monitored Deceleration (SMD)

P-0-3280.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	s	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	0,002 / 3600,000	---
MPC:	0,002 / 3600,000	---
MPE:	0,002 / 3600,000	---
MPM:	0,002 / 3600,000	---

## Product-Specific Parameters

**5.15.97 P-0-3280.0.3, SMO: Max. transition time between safe operating states**

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** In case of transitions from one safe operating status to another, this parameter defines the maximum available time after which the command value system of the drive must have been adjusted to the new operating status.

See also: Safely-Monitored Deceleration (SMD)

<b>P-0-3280.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	0,002 / 3600,000	---
MPC:	0,002 / 3600,000	---
MPE:	0,002 / 3600,000	---
MPM:	0,002 / 3600,000	---

**5.15.98 P-0-3280.0.4, SMO: Max. transition time normal oper. to safe motion**

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** In case of transitions from normal operation to special mode "safe motion", this parameter defines the maximum available time after which the command value system of the drive must have been adjusted to the new operating status.

See also: Safely-Monitored Deceleration (SMD)

<b>P-0-3280.0.4 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	0,002 / 3600,000	---
MPC:	0,002 / 3600,000	---
MPE:	0,002 / 3600,000	---
MPM:	0,002 / 3600,000	---

**5.15.99 P-0-3280.0.5, SMO: Max. tolerance time for different selection**

<b>Allocation</b>	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter defines the maximum allowed time within which the input signals may be different from the selection signals. The parameter defines the maximum allowed time during which no or several SMM switches can be actuated when the motion operation modes are selected.

When the maximum allowed time is exceeded, the "F3141 Operating status selection validation error" is generated

Product-Specific Parameters

<b>P-0-3280.0.5 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	0,000 / 4294967,295		---		
	MPC:	0,000 / 4294967,295		---		
	MPE:	0,000 / 4294967,295		---		
	MPM:	0,000 / 4294967,295		---		

## 5.15.100 P-0-3280.0.6, SMO: Oscillation velocity window of SMD

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter serves to configure the "safety-monitored deceleration (SMD)" safety function based on the actual velocity.				
	At the beginning of monitoring, the velocity value defined in this parameter is added to the actual velocity and is the monitoring threshold during the reaction time set in "P-0-3280.0.7, SMO: SMD-E reaction time".				
	See also: Safely-Monitored Deceleration (SMD)				

<b>P-0-3280.0.6 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0044 / S-0-0044		---		
	MPC:	S-0-0044 / S-0-0044		---		
	MPE:	S-0-0044 / S-0-0044		---		
	MPM:	S-0-0044 / S-0-0044		---		

## 5.15.101 P-0-3280.0.7, SMO: SMD reaction time

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter serves to configure the "safety-monitored deceleration (SMD)" safety function based on the actual velocity.				
	The "SMD-E reaction time" is the reaction time for the system (control and drive) in order that the command value input can be adjusted for the transfer to the selected special mode. After this time has elapsed, the parameterized deceleration ramp is monitored.				
	See also: Safely-Monitored Deceleration (SMD)				

<b>P-0-3280.0.7 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	0,0 / 1000,0		---		

## Product-Specific Parameters

MPC:	0,0 / 1000,0	---
MPE:	0,0 / 1000,0	---
MPM:	0,0 / 1000,0	---

## 5.15.102 P-0-3280.0.8, SMO: Velocity window of SMD

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to configure the "safety-monitored deceleration (SMD)" safety function based on the actual velocity.

The start value for monitoring the deceleration ramp is established from the current actual velocity and the tolerance limit defined in this parameter.

See also: Safely-Monitored Deceleration (SMD)

P-0-3280.0.8 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	---
MPC:	S-0-0044 / S-0-0044	---
MPE:	S-0-0044 / S-0-0044	---
MPM:	S-0-0044 / S-0-0044	---

## 5.15.103 P-0-3280.0.9, SMO: SMD delay

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to configure the "safety-monitored deceleration (SMD)" safety function with trend monitoring based on the actual velocity.

The parameter defines a deceleration threshold (bipolar) for switching between the safety technology operating statuses.

See also: Safely-Monitored Deceleration (SMD)

P-0-3280.0.9 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	S-0-0160 / S-0-0160	---
MPC:	S-0-0160 / S-0-0160	---
MPE:	S-0-0160 / S-0-0160	---
MPM:	S-0-0160 / S-0-0160	---

## 5.15.104 P-0-3280.0.130, SMO: Operation mode transitions, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»

Product-Specific Parameters

	Hardware		optional safety technology module			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	Summary of the operation mode transition structure elements (P-0-3280.0.1 to P-0-3280.0.9).					
	In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.					
P-0-3280.0.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input				min./max.	Default value
	MPB:				--- / ---	---
	MPC:				--- / ---	---
	MPE:				--- / ---	---
	MPM:				--- / ---	---

### 5.15.105 P-0-3285.0.1, SMO: Configuration of safe standstill

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function Structure	This parameter serves to configure the safe standstill.				
		Bit	Designation/function		Comment
		0	Monitoring in special mode "safe standstill (SMST)"		
			0: Safe operating stop (SOS) - (default)		
			1: Safe torque off (STO)		

Tab.5-311: SMO: Configuration of safe standstill

P-0-3285.0.1 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
	Verify:	+				
		Input	min./max.		Default value	
		MPB:	--- / ---		---	
		MPC:	--- / ---		---	
		MPE:	--- / ---		---	
		MPM:	--- / ---		---	

### 5.15.106 P-0-3285.0.2, SMO: Monitoring window for safe operational stop

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter defines the maximum allowed travel distance in positive or negative direction in relation to the actual position present at the time of activation of "Safe operating stop (SOS)".				
	If the parameterized position window is violated, the "F7030 Pos. window for safety rel. operational stop exceeded" error is generated.				

## Product-Specific Parameters

<b>P-0-3285.0.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	<b>MPB:</b>		S-0-0076 / S-0-0076		---	
	<b>MPC:</b>		S-0-0076 / S-0-0076		---	
	<b>MPE:</b>		S-0-0076 / S-0-0076		---	
	<b>MPM:</b>		S-0-0076 / S-0-0076		---	

## 5.15.107 P-0-3285.0.130, SMO: Safe standstill, compact

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	optional safety technology module			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Summary of the safe standstill structure elements (P-0-3285.0.1 to P-0-3285.0.2).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

<b>P-0-3285.0.130 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	<b>MPB:</b>		--- / ---		---	
	<b>MPC:</b>		--- / ---		---	
	<b>MPE:</b>		--- / ---		---	
	<b>MPM:</b>		--- / ---		---	

## 5.15.108 P-0-3290.x.1, SMO: Configuration of safe motion

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	optional safety technology module			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter can be used to configure the safety functions in special mode "safe motion".

**Structure**

Bit	Designation/function	Comment
0	Function block safe motion n (n = SMM 1-16) 0: Not active (default) 1: Active	
1	Safely-limited speed (SLS) 1: Active	Cannot be changed
2	Safe direction, positive (SDI) 0: Not active (default) 1: Active	

Product-Specific Parameters

Bit	Designation/function	Comment
3	<b>Safe direction, negative (SDI)</b> 0: Not active (default) 1: Active	
4	<b>Safely-limited increment (SLI)</b> 0: Not active (default) 1: Active	
6	<b>Safely-monitored transient oscillation (SLS-LT)</b> 0: Not active (default) 1: Active	

Tab.5-312: SMO: Configuration of safe motion

P-0-3290.x.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.109 P-0-3290.x.2, SMO: Safely-limited speed

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware		optional safety technology module		
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		axis-specific		

Function This parameter provides the velocity limit value to be monitored.

P-0-3290.x.2 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0044	Extr. val. ch.:	+	Decim. pl.:	S-0-0045 / S-0-0046
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	---
MPC:	S-0-0044 / S-0-0044	---
MPE:	S-0-0044 / S-0-0044	---
MPM:	S-0-0044 / S-0-0044	---

## 5.15.110 P-0-3290.x.3, SMO: Safely-limited increment

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware		optional safety technology module		
Funct. package(s):		"open loop", "closed loop"		
Device parameter:		axis-specific		

Function This parameter provides the position limit value to be monitored.

P-0-3290.x.3 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_MV
Unit:	S-0-0076	Extr. val. ch.:	+	Decim. pl.:	S-0-0077 / S-0-0078

## Product-Specific Parameters

Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	---
MPC:	S-0-0076 / S-0-0076	---
MPE:	S-0-0076 / S-0-0076	---
MPM:	S-0-0076 / S-0-0076	---

## 5.15.111 P-0-3290.x.6, SMO: Maximum activation time of enabling control

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
Device parameter:	axis-specific			

**Function** The numerical value entered in the parameter defines the maximum time permitted for actuating the enabling control. After the time entered in this parameter has elapsed, the enabling control must be removed. The time is effective if the mode selector and an SMM switch are actuated in addition to the enabling control.

P-0-3290.x.6 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	s	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	0,000 / 4294967,295	---
MPC:	0,000 / 4294967,295	---
MPE:	0,000 / 4294967,295	---
MPM:	0,000 / 4294967,295	---

## 5.15.112 P-0-3290.x.7, SMO: Tolerance time for overshooting

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
Device parameter:	axis-specific			

**Function** This parameter provides the tolerance time for "safely-monitored transient oscillation".

P-0-3290.x.7 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				

Input	min./max.	Default value
MPB:	0,0 / 429496729,5	---
MPC:	0,0 / 429496729,5	---
MPE:	0,0 / 429496729,5	---
MPM:	0,0 / 429496729,5	---

## 5.15.113 P-0-3290.x.8, SMO: Safely-reduced speed

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
Device parameter:	axis-specific			

Product-Specific Parameters

<b>Function</b>	This parameter provides the velocity value to be monitored, which may be exceeded for a tolerance time only.			
<b>P-0-3290.x.8 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--
	<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	+
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--
	<b>Verify:</b>	+	<b>Set-depend.:</b>	--
	<b>Data length:</b>	4Byte		
	<b>Format:</b>	DEC_MV		
	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046		
	<b>Input</b>	<b>min./max.</b>	<b>Default value</b>	
	MPB:	S-0-0044 / S-0-0044	---	
	MPC:	S-0-0044 / S-0-0044	---	
	MPE:	S-0-0044 / S-0-0044	---	
	MPM:	S-0-0044 / S-0-0044	---	

### 5.15.114 P-0-3290.x.130, SMO: Safe motion, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
Function	Summary of the safe motion structure elements (P-0-3290.0.1 to P-0-3290.0.8).			
	In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.			
P-0-3290.x.130 - Attributes	Function:	Par	Editable:	PM
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	4Byte var.
			Format:	HEX
			Decim. pl.:	0
			Set-depend.:	--
		Input	min./max.	Default value
		MPB:	--- / ---	---
	MPC:	--- / ---	---	
	MPE:	--- / ---	---	
	MPM:	--- / ---	---	

### 5.15.115 P-0-3320, SMO: Safe Input Signals, safety zone module

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	optional safety technology module			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Parameter "P-0-3320.0.0" is used to map (the safe inputs of) the safety zone module (HSZ01).				

## Product-Specific Parameters

## Structure

Bit	Designation/function	Comment
7-0	Channel 1, safe input 1... 8 (bit 0 = input 1, bit 1 = input 2... ) 0: Input n selected 1: Input n deselected	
15-8	Channel 2, safe input *) 1... 8 (bit 0 = input 1, bit 1 = input 2... ) 0: Input n selected 1: Input n deselected	

\*) If the input was configured for 2-channel selection, the input information of channel 1 and channel 2 is identical.

Tab.5-313: P-0-3320.0.0, SMO: Safe input signals, safety zone module

## P-0-3320 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.15.116 P-0-3320.0.2, SMO: Configuration Input Signals, safety zone module

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

Function This parameter can be used to define how the (1- or 2-channel) inputs of the safety zone module are to be evaluated.

## Function

Bit	Designation/function	Comment
0	Evaluation of input pair 1 0: 2-channel selection (default value) 1: 1-channel selection (error exclusion required in wiring)	
1	Evaluation of input pair 2 0: 2-channel selection (default value) 1: 1-channel selection (error exclusion required in wiring)	
2	Evaluation of input pair 3 0: 2-channel selection (default value) 1: 1-channel selection (error exclusion required in wiring)	
3	Evaluation of input pair 4 0: 2-channel selection (default value) 1: 1-channel selection (error exclusion required in wiring)	
4	Evaluation of input pair 5 0: 2-channel selection (default value) 1: 1-channel selection (error exclusion required in wiring)	

Product-Specific Parameters

Bit	Designation/function	Comment
5	<b>Evaluation of input pair 6</b> 0: 2-channel selection (default value) 1: 1-channel selection (error exclusion required in wiring)	
6	<b>Evaluation of input pair 7</b> 0: 2-channel selection (default value) 1: 1-channel selection (error exclusion required in wiring)	
7	<b>Evaluation of input pair 8</b> 0: 2-channel selection (default value) 1: 1-channel selection (error exclusion required in wiring)	

Tab.5-314: Configuration of input signals, safety zone module

P-0-3320.0.2 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.117 P-0-3321, SMO: Safe Output Signals, safety zone module

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Parameter "P-0-3321.0.0" displays the command status (of the safe outputs) of the safety zone module (HSZ01, connector X44).

**Structure**

Bit	Designation/function	Comment
0	<b>Output, zone safety of channel 1 (SZA_Ch1)</b> 0: No zone safety 1: Zone safety	
1	<b>Output, zone error of channel 1 (SZE_Ch1)</b> 0: Zone error 1: No zone error	
2	<b>Output, safe door locking of channel 1 (SDL_Ch1)</b> 0: Door latch not activated 1: Door latch activated	
3	<b>Output, zone safety of channel 2 (SZA_Ch2)</b> 0: No zone safety 1: Zone safety	

## Product-Specific Parameters

Bit	Designation/function	Comment
4	Output, zone error of channel 2 (SZE_Ch2) 0: Zone error 1: No zone error	
5	Output, safe door locking of channel 2 (SDL_Ch2) 0: Door latch not activated 1: Door latch activated	

Tab.5-315: SMO: Safe Output Signals, safety zone module

## P-0-3321 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.118 P-0-3322.0.1, SMO: Functional input signals, local

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

Function Parameter "P-0-3322.0.1" is used to map the functional input signal at the local interface "S4".

## Structure

Bit	Designation/function	Comment
0	Diagnosis of input 1 at local interface 0: Not active (0 V) 1: Active (24 V)	
1	Diagnosis of input 2 at local interface 0: Not active (0 V) 1: Active (24 V)	

Tab.5-316: SMO: Functional input signals, local

## P-0-3322.0.1 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.119 P-0-3323, SMO: Safe output signals, local

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		



## Product-Specific Parameters

## Structure

P-0-3330.00.1	Module type	Comment
0	Deactivated	
1	Safe connector	
2	Safe inversion	
3	Safe constant selection	
4	Binary-to-bit decoder	
5	Safe OR	
6	Safe AND with protection against restart	
7	SDL with door request	

Tab.5-318: SMO: IO mapper inputs, type

## P-0-3330.x.1 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	0 / 7	---
MPC:	0 / 7	---
MPE:	0 / 7	---
MPM:	0 / 7	---

## 5.15.122 P-0-3330.x.2, SMO: IO mapper inputs, IDN source

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** These parameters are used to configure the input signals of the IO mapper block. One instance of this parameter is present for each IO mapper network (0... 15).

**Example:** Parameter "P-0-3320" is entered as IDN source and "0" is entered for the bit source to configure input "E0" of the safety zone module.

## P-0-3330.x.2 - Attributes

Function:	Par	Editable:	SCM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.123 P-0-3330.x.3, SMO: IO mapper inputs, bit source

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
Hardware	optional safety technology module			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

Product-Specific Parameters

**Function** These parameters are used to configure the input signals of the IO mapper block. One instance of this parameter is present for each IO mapper network (0... 15).

**Example:** Parameter "P-0-3320" is entered as IDN source and "0" is entered for the bit source to configure input "EO" of the safety zone module.

**P-0-3330.x.3 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.124 P-0-3330.x.4, SMO: IO mapper inputs, IDN target

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** These parameters are used to configure the input signal of the IO mapper block. One instance of this parameter is present for each IO mapper network (0... 15).

**Example:** Parameter "P-0-3261" is entered as IDN target and "0" is entered for the bit target to configure the "mode switch (MS)".

**P-0-3330.x.4 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.125 P-0-3330.x.5, SMO: IO mapper inputs, bit target

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** These parameters are used to configure the input signal of the IO mapper block. One instance of this parameter is present for each IO mapper network (0... 15).

**Example:** Parameter "P-0-3261" is entered as IDN target and "0" is entered for the bit target to configure the "mode switch (MS)".

**P-0-3330.x.5 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Verify:</b>	+				

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.126 P-0-3330.x.130, SMO: IO mapper inputs, compact, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** Summary of the structure elements of the IO mapper inputs, compact (P-0-3330.x.1 to P-0-3330.x.5).

In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

P-0-3330.x.130 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.127 P-0-3331.x.130, SMO: IO mapper block type, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** In this parameter, the information about a linking module type required for the engineering tool is provided in compact form for each instance.

P-0-3331.x.130 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.128 P-0-3332.0.1, SMO: IO mapper inputs, minimum pulse duration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is used to parameterize the minimum pulse duration (minimum waiting time between 0-1 edge and 1-0 edge) for the reset and start input of the IO mapper block type 6: "Safe AND with protection against restart".

Product-Specific Parameters

If the pulse duration falls below the minimum value, error message F3010, SMO: IO mapper inputs error is generated.

P-0-3332.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	1
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	0,0 / 10000,0	---
MPC:	0,0 / 10000,0	---
MPE:	0,0 / 10000,0	---
MPM:	0,0 / 10000,0	---

## 5.15.129 P-0-3335.0.1, SMO: Signal control for discrete outputs, IDN assignment

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to configure the signal for the local output. For example, "P-0-3256.0.0" can be entered in this parameter as IDN source and "6" can be entered in "P-0-3335.0.2, SMO: SMO: Signal control for discrete outputs, bit number" for the bit source to configure the "standstill" encoder status to the local output.

P-0-3335.0.1 - Attributes

Function:	Par	Editable:	SCM	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.130 P-0-3335.0.2, SMO: Signal control for discrete outputs, bit number

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to configure the signal for the local output. For example, "P-0-3356.0.0" can be entered in this parameter as IDN source and "6" can be entered in "P-0-3335.0.2, SMO: SMO: Signal control for discrete outputs, bit number" for the bit source to configure the "standstill" encoder status to the local output.

P-0-3335.0.2 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.15.131 P-0-3335.0.3, SMO: Signal ctrl for discrete outputs, possible source IDNs

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter serves to store the potential signals that can be configured as signal source for the local output. No other IDNs than the IDNs contained in this parameter along with their associated bit numbers in "P-0-3335.0.4" can be configured in "P-0-3335.0.1, SMO: Signal control for discrete outputs, IDN assignment" or "P-0-3335.0.2, SMO: Signal control for discrete outputs, bit number".

P-0-3335.0.3 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.132 P-0-3335.0.4, SMO: Signal ctrl for discrete outputs, possible source bits

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** The signals stored in this parameter can be configured as signal source for the local output.

P-0-3335.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.133 P-0-3336.0.1, SMO: Signal control, status, safe bus, IDN assignment

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is used to configure the signals (IDNs) for the status word provided for transmission via the safe bus.

The current expansion stage only allows preferential configurations via safe bus communication. The content of this parameter is automatically set accordingly.

See also Parameter Description "P-0-3341, SMO: Status word Safety-Bus"

Product-Specific Parameters

<b>P-0-3336.0.1 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.15.134 P-0-3336.0.2, SMO: Signal control, status, safe bus, bit number

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	optional safety technology module			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to configure the signals (bit numbers) for the status word provided for transmission via the safe bus.

The current expansion stage only allows preferential configurations via safe bus communication. The content of this parameter is automatically set accordingly.

See also Parameter Description "P-0-3341, SMO: Status word Safety-Bus"

<b>P-0-3336.0.2 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Verify:</b>	+				
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

### 5.15.135 P-0-3336.0.3, SMO: Signal control, status, safe bus, possible source IDNs

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM»	«MPC»
	<b>Hardware</b>	optional safety technology module			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter serves to store the potential signals (IDNs) that can be configured as signal sources for the status word Safety bus.

<b>P-0-3336.0.3 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>		<b>min./max.</b>		<b>Default value</b>	
	MPB:		--- / ---		---	
	MPC:		--- / ---		---	
	MPE:		--- / ---		---	
	MPM:		--- / ---		---	

## Product-Specific Parameters

## 5.15.136 P-0-3336.0.4, SMO: Signal control, status, safe bus, possible source bits

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
Function	This parameter serves to store the potential signals (bit numbers) that can be configured as signal sources for the status word Safety bus.			
P-0-3336.0.4 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte var.
		Format:	DEC_OV	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.15.137 P-0-3336.0.5, SMO: Signal control, status, safe bus, SMMx coding

Allocation

Contained in 16VRS:

Contained in 17VRS:

Contained in 18VRS:

Hardware

Funct. package(s):

Device parameter:

«-»

«-»

«-»

«-»

«MPB»

«-»

«MPM»

«MPC»

optional safety technology module

"open loop", "closed loop"

axis-specific

Function

The "Special mode safe motion x (SMM x)" source signals from "P-0-3231 SMO: Operating status" are bit-encoded. Depending on the type of preferential configuration of the status word Safety bus, the status for special mode safe motion is contained there either with bit or binary coding.

The coding function is parameterized in this parameter. If a value unequal to 0 is entered here, the coding in the "signal control for status word Safety bus" function is bit-to-binary. The number of source signals is then parameterized in this parameter.

Structure

Bit	Coding function	Assignment of P-0-3341
0	Binary coding not active; bit coding	1:1 assignment
1	Binary coding not active; bit coding	1-bit-coded in P-0-3341
4 - 2	Binary coding active SMM1 / 4-2 to 2 bit outputs	2-bit-coded in P-0-3341, 1 following bit assigned
8 - 5	Binary coding active SMM1 / 8-5 to 3 bit outputs	3-bit-coded in P-0-3341, 2 following bits assigned
16 - 9	Binary coding active SMM1 / 8-5 to 3 bit outputs	4-bit-coded in P-0-3341, 3 following bits assigned

Tab.5-319:

SMO: Signal control, status, safe bus, SMMx coding

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	0 / 16	---
MPC:	0 / 16	---

P-0-3336.0.5 - Attributes

Tab.5-319: SMO: Signal control, status, safe bus, SMMx coding

Product-Specific Parameters

MPE:	0 / 16	---
MPM:	0 / 16	---

## 5.15.138 P-0-3340, SMO: Control word Safety-Bus

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is used to transmit control information of a safety control via safe bus communication as a part of the consumer connection. The evaluation of the individual bits of the "control word Safety bus" depends on the configuration of the IO mapper inputs (P-0-3330.x.y).



Only preferential configurations are supported at present; therefore the "IO mapper inputs" are configured automatically.

If "P-0-3340.0.1, SMO: Mask of Control word Safety-Bus" is used to mask bits, the respective bit of the control word is not implemented to the target parameter 1:1. A user-side setting for evaluation of the bit can be configured in the IO mapper.

### P-0-3340 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.139 P-0-3340.0.1, SMO: Mask of Control word Safety-Bus

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter can be used to deactivate the preferential configuration of individual bits of "P-0-3340.0.0, SMO: Control word Safety-Bus". Bits thus deactivated can be used via the I/O configurator as desired.



A value of "0" at the appropriate bit of this parameter deactivates the effect of the bit in "P-0-3345, SMO: Configuration Safety-Bus".

### P-0-3340.0.1 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## Product-Specific Parameters

## 5.15.140 P-0-3341, SMO: Status word Safety-Bus

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
Function	This parameter is used to transmit status information of the drive-integrated Safe Motion application via safe bus communication to a safety control, being a part of the producer connection. The significance of the individual bits depends on the settings in "P-0-3336.0.1, SMO: Signal control, status, safe bus, IDN assignment" and "P-0-3336.0.2, SMO: Signal control, status, safe bus, bit number".			
P-0-3341 - Attributes	Function:	Par	Editable:	--
	Memory:	--	Validity ch.:	--
	Unit:	--	Extr. val. ch.:	--
	Cycl. tra.:	--	Comb. check:	--
			Data length:	2Byte
		Format:	BIN	
		Decim. pl.:	0	
		Set-depend.:	--	
	Input	min./max.		Default value
	MPB:	--- / ---		---
	MPC:	--- / ---		---
	MPE:	--- / ---		---
	MPM:	--- / ---		---

## 5.15.141 P-0-3342, SMO: Status consuming connection Safety-Bus

Allocation	Contained in 16VRS:	«-»	«-»	«-»															
	Contained in 17VRS:	«-»	«-»	«-»															
	Contained in 18VRS:	«MPB»	«-»	«MPM»															
	Hardware	optional safety technology module																	
	Funct. package(s):	"open loop", "closed loop"																	
	Device parameter:	axis-specific																	
Function	This parameter is used to map the state of the consumer connection.																		
Structure	The following definitions apply:																		
	<table><tr><th>Bit</th><th>Description</th><th>Function</th></tr><tr><td>0</td><td>Not initialized</td><td>The connection has not been initialized or closed yet.</td></tr><tr><td>1</td><td>Initializes</td><td>The connection is being initialized. But the connection has not been started yet.</td></tr><tr><td>2</td><td>Active</td><td>The connection has been fully initialized and has been started.</td></tr><tr><td>3</td><td>Error</td><td>An error has occurred in the active connection.</td></tr></table>				Bit	Description	Function	0	Not initialized	The connection has not been initialized or closed yet.	1	Initializes	The connection is being initialized. But the connection has not been started yet.	2	Active	The connection has been fully initialized and has been started.	3	Error	An error has occurred in the active connection.
Bit	Description	Function																	
0	Not initialized	The connection has not been initialized or closed yet.																	
1	Initializes	The connection is being initialized. But the connection has not been started yet.																	
2	Active	The connection has been fully initialized and has been started.																	
3	Error	An error has occurred in the active connection.																	
	Tab.5-320: Safe Connection States																		
P-0-3342 - Attributes	Function:	Par	Editable:	--															
	Memory:	--	Validity ch.:	--															
	Unit:	--	Extr. val. ch.:	--															
	Cycl. tra.:	--	Comb. check:	--															
			Data length:	2Byte															
		Format:	DEC_OV																
		Decim. pl.:	0																
		Set-depend.:	--																
	Input	min./max.		Default value															
	MPB:	--- / ---		---															
	MPC:	--- / ---		---															
	MPE:	--- / ---		---															
	MPM:	--- / ---		---															

Product-Specific Parameters

## 5.15.142 P-0-3342.0.1, SMO: Configuration consuming connection Safety-Bus

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is used to set the expected configuration of the consumer connection in the form of the type number.

Type	Name	Type number	
		Decimal	Hexadecimal
1	1-byte SMO control word, bit-coded SMM	778	0x030A
2	1-byte SMO control word, binary-coded SMM	779	0x030B
3	2-byte SMO control word, bit-coded SMM	780	0x030C
4	2-byte SMO control word, binary-coded SMM	781	0x030D

### P-0-3342.0.1 - Attributes

Function:	Par	Editable:	SCM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Verify:	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.143 P-0-3342.0.2, SMO: Configuration list consuming connection Safety-Bus

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is used to map the IDNs in the consumer connection which are transmitted to the drive.

### P-0-3342.0.2 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	IDN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.144 P-0-3343, SMO: Status producing connection Safety-Bus

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		

**Function** This parameter is used to map the state of the producer connection.

## Product-Specific Parameters

**Structure** The following definitions apply:

Bit	Description	Function
0	Not initialized	The connection has not been initialized or closed yet.
1	Initializes	The connection is being initialized. But the connection has not been started yet.
2	Active	The connection has been fully initialized and has been started.
3	Error	An error has occurred in the active connection.

Tab.5-321: Producer Connection States

**P-0-3343 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.145 P-0-3343.0.1, SMO: Configuration producing connection Safety-Bus

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM» «MPC»
	<b>Hardware</b>	optional safety technology module		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter is used to configure the expected configuration of the producer connection in the form of the type number.

Type	Name	Type number	
		Decimal	Hexadecimal
1	1-byte SMO status word, bit-coded SMM	782	0x030E
2	1-byte SMO status word, binary-coded SMM	783	0x030F
3	2-byte SMO status word, bit-coded SMM	784	0x0310
4	2-byte SMO status word, binary-coded SMM	785	0x0311

**P-0-3343.0.1 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	SCM	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Verify:</b>	+				

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.15.146 P-0-3343.0.2, SMO: Configuration list producing connection Safety-Bus

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPM» «MPC»
	<b>Hardware</b>	optional safety technology module		

Product-Specific Parameters

	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		axis-specific			
Function	This parameter is used to map the IDNs in the producer connection which are transmitted to the drive.					
P-0-3343.0.2 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.15.147 P-0-3345, SMO: Configuration Safety-Bus

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPM»
	Hardware	optional safety technology module		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	axis-specific		
Function	This parameter is used to make fundamental settings for safe bus communication.			
Structure				
	Bit	Designation/function		Comment
	0	Safe bus communication		
		0: Not active		
		1: Active		

Tab.5-322: SMO: Configuration Safety-Bus

P-0-3345 - Attributes	Function:	Par	Editable:	SCM	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Verify:	+				
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.16 P-0-3600 to P-0-4067 General Device Parameters

### 5.16.1 P-0-3610, CANopen: Heartbeat/NodeGuard Configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	Parameter "P-0-3610" is a CANopen-specific parameters which can be used to configure the node monitoring function (Heartbeat or Node Guarding). See also Functional Description "CANopen Interface"				
Structure	The individual elements of the parameter have the following significance:				

## Product-Specific Parameters

Element	Designation/function	Comment	Object
1	Producer Heartbeat Time (ms)	Default value: 0 Min./max. value: 0/60000	0x1017/00
2	Consumer Heartbeat Time (ms)	Default value: 0 Min./max. value: 0/60000	0x1016/01 Low word
3	Consumer HeartbeatNode ID	Default value: 127 Min./max. value: 1/127	0x1016/01 High word
4	Node Guard Time (ms)	Default value: 0 (off) Min./max. value: 0/60000	0x100C0x100C
5	Life Time Factor	Default value: 3 Min./max. value: 1/255	0x100D

Tab.5-323: P-0-3610 CANopen: Heartbeat/NodeGuard Configuration

**Use** As only one type of monitoring may be switched on at a time, element 4 must be set to 0, when a value is written to element 1 or 2, and vice versa.

<b>P-0-3610 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>		--- / ---		s. Text		
<b>MPC:</b>		--- / ---		s. Text		
<b>MPE:</b>		--- / ---		s. Text		
<b>MPM:</b>		--- / ---		s. Text		

## 5.16.2 P-0-3611, CANopen: COB-IDs

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«-»
	<b>Contained in 18VRS:</b>	«MPB»	«-»	«MPC»
	<b>Hardware</b>	optional drives card		
<b>Funct. package(s):</b>		"open loop", "closed loop"		
<b>Device parameter:</b>		device-specific		

**Function** Parameter P-0-3611 is a CANopen-specific parameter with which the COB IDs (CAN identifiers) are set. When the default values are not changed, an address change (P-0-4025) is applied to the COB IDs.

See also Functional Description "CANopen"

**Structure** The individual bits of the parameter have the following significance:

Element	Designation/function	Default value	Object
1	COB-ID PDO1(tx)	0x180 + Node-ID	0x1800/01
2	COB-ID PDO1(rx)	0x200 + Node-ID	0x1400/01
3	COB-ID PDO2(tx)	0x280 + Node-ID	0x1801/01
4	COB-ID PDO2(rx)	0x300 + Node-ID	0x1401/01

Product-Specific Parameters

Element	Designation/function	Default value	Object
5	COB-ID PDO3(tx)	0x380 + Node-ID	0x1802/01
6	COB-ID PDO3(rx)	0x400 + Node-ID	0x1402/01
7	COB-ID PDO4(tx)	0x480 + Node-ID	0x1803/01
8	COB-ID PDO4(rx)	0x500 + Node-ID	0x1403/01
9	COB-ID EMCY	0x80 + Node-ID	0x1005/00
10	COB-ID SYNC	0x80	0x1014/00

Tab.5-324: P-0-3611, CANopen: COB-IDs

P-0-3611 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

### 5.16.3 P-0-3612, CANopen: Transmission Types

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** Parameter P-0-3612 is a CANopen-specific parameter with which the transmission types of the PDOs are set.

See also Functional Description "CANopen"

**Structure** The individual bits of the parameter have the following significance:

Element	Designation/function	Comment	Object
1	Transmission Type PDO1(tx)	default value: <b>254</b>	0x1800/02
2	Transmission Type PDO1(rx)	default value: <b>254</b>	0x1400/02
3	Transmission Type PDO2(tx)	default value: <b>254</b>	0x1801/02
4	Transmission Type PDO2(rx)	default value: <b>254</b>	0x1401/02
5	Transmission Type PDO3(tx)	default value: <b>254</b>	0x1802/02
6	Transmission Type PDO3(rx)	default value: <b>254</b>	0x1402/02
7	Transmission Type PDO4(tx)	default value: <b>254</b>	0x1803/02
8	Transmission Type PDO4(rx)	default value: <b>254</b>	0x1403/02

Tab.5-325: P-0-3612, CANopen: Transmission Types

P-0-3612 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--


Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## Product-Specific Parameters

## 5.16.4 P-0-3613, CANopen: List of the Event Parameters

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«MPB»	«MPE»	«-»		
	Contained in 18VRS:	«MPB»	«-»	«MPC»		
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	This list contains parameters which are monitored for changes during cyclic configuration. If such a parameter is configured in a PDO which is transmitted cyclically and the parameter changes, the PDO is transmitted. See also Functional Description "CANopen Interface"					
Use	The following aspects have to be observed for use: <ul style="list-style-type: none"><li>• A typical application is the transmission of probe values.</li><li>• This list cannot be edited by the user.</li></ul>					
P-0-3613 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	--	Validity ch.:	--	Format:	IDN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.16.5 P-0-3900, Command values for control section adjustment

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	List parameter for reading the voltage values to be preset that are required for the amplification adjust of the analog channels.					
<hr/>						
<div> This parameter is only relevant for the production process of the control section. It is irrelevant for the application side!</div>						
<hr/>						
P-0-3900 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	ON_BOARD_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	<hr/>					
	Input	min./max.		Default value		
	MPB:	0,000 / 4294967,295		---		
	MPC:	0,000 / 4294967,295		---		
	MPE:	0,000 / 4294967,295		---		
	MPM:	0,000 / 4294967,295		---		

## 5.16.6 P-0-3901, Adjustment values of control section

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	List parameter with the adjust values for the analog channels of the control section.				

Product-Specific Parameters



During the production process the adjust values for the analog channels are individually determined for each control section. They are irrelevant for the application side and cannot be changed!

See also Functional Description "Analog Inputs"

P-0-3901 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	ON_BOARD_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-2147483,648 / 2147483,647---	
MPC:	-2147483,648 / 2147483,647---	
MPE:	-2147483,648 / 2147483,647---	
MPM:	-2147483,648 / 2147483,647---	

## 5.16.7 P-0-3902, Command values for power section adjustment

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** List parameter for reading the values to be preset for the amplification adjust of the current and voltage measurement.



This parameter is only relevant for the production process of the power section. It is irrelevant for the application side!

See also Functional Description "Analog Inputs"

P-0-3902 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	LT_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,000 / 4294967,295	---
MPC:	0,000 / 4294967,295	---
MPE:	0,000 / 4294967,295	---
MPM:	0,000 / 4294967,295	---

## 5.16.8 P-0-3903, Adjustment values of power section

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** List parameter with the adjust values for the current and voltage measurement of the power section.



During the production process the adjust values are individually determined for each power section. The values are displayed by this parameter, changes are not required and not allowed (write-protected parameter)!

P-0-3903 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	LT_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	-2147483,648 / 2147483,647---	
MPC:	-2147483,648 / 2147483,647---	
MPE:	-2147483,648 / 2147483,647---	
MPM:	-2147483,648 / 2147483,647---	

## 5.16.9 P-0-3908.0.130, Circuit board management data, compact

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	«MPC»		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains characteristic data of the printed circuit boards installed in the device. The data are determined separately for each individual device during the production process and cannot be changed by the user.

P-0-3908.0.130 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	I2C_OPM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.10 P-0-3908.0.151, Adjustment values

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	«MPC»		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains calibration data of the printed circuit boards installed in the device. The data are determined separately for each individual device during the production process and cannot be changed by the user.

P-0-3908.0.151 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	I2C_OPM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.11 P-0-3908.0.152, Type data 0

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«MPM»
	Hardware	«MPC»		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter contains hard-ware specific characteristic data which are required for operating the printed circuit boards installed in the device. The data are determined separately for each individual device during the production process and cannot be changed by the user.

P-0-3908.0.152 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte var.
	Memory:	I2C_OPM_SP	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

### 5.16.12 P-0-3909, Boot Control word

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	
	Hardware		optional drives card			
	Funct. package(s):		"open loop", "closed loop"			
	Device parameter:		device-specific			
Function		This system-internal parameter controls the boot behavior of the drive.				
P-0-3909 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

### 5.16.13 P-0-3910, Physical type data of control section

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»
	Hardware		--		
	Funct. package(s):		"open loop", "closed loop"		
	Device parameter:		device-specific		
Function	This parameter contains important manufacturer data for the operation of the control section.				
P-0-3910 - Attributes	Function:	Par	Editable:	--	Data length:
		ON_BOARD_			2Byte var.
	Memory:	SP	Validity ch.:	--	Format:
					DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:
				0	
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:
					--
	Input		min./max.		Default value
	MPB:		--- / ---		---
	MPC:		--- / ---		---
	MPE:		--- / ---		---
	MPM:		--- / ---		---

### 5.16.14 P-0-3911, Temperature sensor characteristic of power output stage

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	This parameter contains the characteristic for temperature measurement of the power output stage, if this characteristic deviates from a nominal characteristic. The data are written during assembly and cannot be changed by the user.				
Structure	The values must be strictly and monotonously ascending or descending, i.e. in the table the values assigned to an increasing temperature must either be always higher than all preceding values or always lower than all preceding values. In the table, the values must not descend and ascend in different sections of the table!				

## Product-Specific Parameters

Row no. of P-0-3911	Temperature in °Celsius [°C]	Characteristic value
1	-20	
2	-10	
3	0	
4	10	
5	20	
6	30	
7	40	
8	50	
9	60	
10	70	
11	80	
12	90	
13	100	
14	110	
15	120	
16	130	
17	140	
18	150	
19	160	
20	170	
21	180	
22	190	
23	200	
24	210	
25	220	
26	230	
27	240	
28	250	

Tab.5-326: P-0-3911.0.0, Temperature sensor characteristic of power output stage

## P-0-3911 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	LT_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0 / 4294967295		---		
<b>MPC:</b>	0 / 4294967295		---		
<b>MPE:</b>	0 / 4294967295		---		
<b>MPM:</b>	0 / 4294967295		---		

Product-Specific Parameters

## 5.16.15 P-0-3912, Command values for adjustment of PI interface extension

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	List parameter for reading the values to be specified during calibration of the interface extension card "ICO-01".				



This parameter is only relevant for the production process of the power section. It is of no relevance for the application!

### P-0-3912 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0,000 / 4294967,295	---
MPC:	0,000 / 4294967,295	---
MPE:	0,000 / 4294967,295	---
MPM:	0,000 / 4294967,295	---

## 5.16.16 P-0-3913, Adjustment values of PI interface extension

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	List parameter containing the calibration values for the interface extension card "ICO-01".				



The calibration values are separately determined for each device during the production process and displayed via this parameter. Changes are neither required nor allowed (write-protected parameter).

### P-0-3913 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-2147483,648 / 2147483,647	---
MPC:	-2147483,648 / 2147483,647	---
MPE:	-2147483,648 / 2147483,647	---
MPM:	-2147483,648 / 2147483,647	---

## 5.16.17 P-0-3914, Type data of PI interface extension

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«-»	«-»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			
Function	This parameter contains manufacturer data this is important for operating the interface extension card ICO-01.				

### P-0-3914 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.18 P-0-3930, C7600 Command Create parameter image

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-3930" can be used to generate an image of the current drive parameter values in a file on the external memory card (SnapShot). The name of the parameter image file is always "SnapShot.par". The file is stored to the "Temp" folder of the memory card.

The unit, the attribute and the operating data of all ident numbers listed in parameter "S-0-0017" are stored. This also includes the ident number itself. The backup file is stored in "SERCOS-ASCII" format, i.e., it can be opened and evaluated in "IndraWorks".

This parameter image can comprise the data of a single axis (single backup) or the data of all axes connected in the CCD group (complete backup). Image generation is configured in parameter "P-0-3931".

Execution of the command can be aborted by deleting the command. If execution of the command is aborted, the associated backup file is deleted.

P-0-3930 - Attributes	Function:	Cmd	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.19 P-0-3931, Config. of Create parameter image

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Parameter "P-0-3931" is used to define whether the backup is a single back-up or a complete backup.

Product-Specific Parameters

Byte	Designation/function	Comment
0	<b>0xFF</b> : Backup of all axes Logical axis number: Backup of a single axis	Default: Backup of all axes Examples: 0x00: Backup of master axis 0x02: Backup of second slave axis
1	<b>0x01</b> : Generate "SnapShot" parameter image !=0x01: Invalid setting	Default: 0x01
		Min. parameter value: 0x0100 Max. parameter value: 0x01FF

Tab.5-327: Byte Assignment of Parameter P-0-3931

During running execution of command "Generate parameter image", the configuration cannot be changed (input is ignored). If an invalid configuration is entered, the default setting takes effect.

P-0-3931 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	---	
<b>MPC:</b>			0x100 / 0x1FF	---	
<b>MPE:</b>			--- / ---	---	
<b>MPM:</b>			--- / ---	---	

## 5.16.20 P-0-3933, Service password

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«-»	«-»	«-»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** Parameter "P-0-3933.0.0" contains the character string of the service password.

- The password must have a length between 5 and 15 characters.
- Allowed characters are alphanumeric characters.
- The maximum number of identical successive characters is two.

The length and type of the characters used are checked while the parameter is written. If the entry is not allowed, the password that was active beforehand remains applicable.

After "Load default values", the password is "serviceIMST12".

A service password is set by writing the new password string twice to parameter "P-0-3933.0.0". The two strings must be separated by blank characters.

The service password is used by the EndUser tool for defining access rights. If the default password is active, all access rights are enabled for all users. If a service password is set, various accesses are disabled (locked) for user "guest".

P-0-3933 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPB:</b>			--- / ---	---	

## Product-Specific Parameters

MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.16.21 P-0-3940, Motor torque/force at nominal current when using reluctance

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** If the reluctance torque is used, the available motor torque is increased while the current remains the same. This requires an appropriate motor construction. If reluctance is used at nominal current, parameter "P-0-3940" specifies the corresponding torque and/or force developed by the motor if the reluctance effect is utilized. The current to which the torque refers is specified in parameter "S-0-0111, Motor current at standstill".

The torque value must be higher than the torque resulting from the product of:

P-0-0051, Torque/force constant \* S-0-0111, Motor current at standstill

P-0-3940 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Nm	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5

Input	min./max.	Default value
MPB:	0,000 / 4294967,295	0,000
MPC:	0,000 / 4294967,295	0,000
MPE:	0,000 / 4294967,295	0,000
MPM:	0,000 / 4294967,295	0,000

## 5.16.22 P-0-3941, Motor torque/force at maximum current when using reluctance

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«-»	«MPC»
	Hardware	--		
	Funct. package(s):	closed loop		
	Device parameter:	axis-specific		

**Function** If the reluctance torque is used, the available motor torque is increased while the current remains the same. This requires an appropriate motor construction. If reluctance is used at maximum current, parameter "P-0-3941" specifies the corresponding torque and/or force developed by the motor if the reluctance effect is utilized. The current to which the torque refers is specified in parameter "S-0-0109, Motor peak current".

The torque value must be higher than the torque specified in parameter "S-0-0534, Maximum torque/force of motor".

P-0-3941 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Nm	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5

Input	min./max.	Default value
MPB:	0,000 / 4294967,295	0,000
MPC:	0,000 / 4294967,295	0,000
MPE:	0,000 / 4294967,295	0,000
MPM:	0,000 / 4294967,295	0,000

Product-Specific Parameters

## 5.16.23 P-0-3942, Reluctance angle at nominal motor current

Allocation	Contained in 16VRS:	«-»	«-»	«-»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«MPB»	«-»	«-»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	If the reluctance torque is used, the available motor torque is increased while the current remains the same. This requires an appropriate motor construction. Parameter "P-0-3942, Reluctance angle at nominal motor current" specifies the electric angle by which the current - shifted against the commutation offset - is to be stamped into the motor. The angle is applicable for the current value which is specified in parameter "S-0-0111, Motor current at standstill".					
P-0-3942 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
	Input	min./max.			Default value	
	MPB:	0,0 / 6553,5			0,0	
	MPC:	0,0 / 6553,5			0,0	
	MPE:	0,0 / 6553,5			0,0	
	MPM:	0,0 / 6553,5			0,0	

## 5.16.24 P-0-3943, Reluctance angle at maximum motor current

Allocation	Contained in 16VRS:		«-»	«-»	«-»	
	Contained in 17VRS:		«-»	«-»	«-»	«-»
	Contained in 18VRS:		«MPB»	«-»	«-»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	If the reluctance torque is used, the available motor torque is increased while the current remains the same. This requires an appropriate motor construction. Parameter "P-0-3943, Reluctance angle at maximum motor current" specifies the electric angle by which the current - shifted against the commutation offset - is to be stamped into the motor. The angle is applicable for the current value which is specified in parameter "S-0-0109, Motor peak current".					
P-0-3943 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	Deg	Extr. val. ch.:	+	Decim. pl.:	1
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 5
	Input		min./max.		Default value	
	MPB:		0,0 / 6553,5		0,0	
	MPC:		0,0 / 6553,5		0,0	
	MPE:		0,0 / 6553,5		0,0	
	MPM:		0,0 / 6553,5		0,0	

## 5.16.25 P-0-3972, FOCsl: Estimated angle

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			
Function	Parameter with internal values of sensorless positioning of synchronous motors.				



This parameter is for service purposes only and irrelevant on the application side!

## Product-Specific Parameters

<b>P-0-3972 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Deg	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 5.16.26 P-0-3973, FOCsl: Correction angle

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Parameter with internal values of sensorless positioning of synchronous motors.



This parameter is for service purposes only and irrelevant on the application side!

<b>P-0-3973 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Deg	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 5.16.27 P-0-3974, FOCsl: Encoder angle

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Parameter with internal values of sensorless positioning of synchronous motors.



This parameter is for service purposes only and irrelevant on the application side!

<b>P-0-3974 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	Deg	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>		<b>min./max.</b>			<b>Default value</b>	
MPB:		--- / ---			---	
MPC:		--- / ---			---	
MPE:		--- / ---			---	
MPM:		--- / ---			---	

## 5.16.28 P-0-3975, FOCsl: Control deviation

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
	Hardware	--			

Product-Specific Parameters

**Funct. package(s):** closed loop  
**Device parameter:** axis-specific

**Function** Parameter with internal values of sensorless positioning of synchronous motors.



This parameter is for service purposes only and irrelevant on the application side!

**P-0-3975 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_MV
<b>Unit:</b>	A	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.29 P-0-3980, FOCsl: Configuration word

**Allocation**

Contained in 16VRS:	«MPB»	«-»	«MPM»	
Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware	--			
<b>Funct. package(s):</b>	closed loop			
<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to configure the sensorless positioning of synchronous motors.



Changes in the parameter values can cause uncontrolled drive motion.

**Structure**

Bit	Designation/function	Comment
0	Reserved	
1	Reserved	
2	Reserved	
3	<b>Current loop low pass</b> 0: Inactive 1: Active	
8	Reserved	
9	Reserved	
16	Reserved	
18/17	<b>Velocity filter</b> 00: Inactive 01: 2 ms filter 10: 8 ms filter 11: Reserved	
21	Reserved	
22	Reserved	

## Product-Specific Parameters

Bit	Designation/function	Comment
28	Evaluation structure 0: Inactive 1: Active	
29	Reserved	
30	Reserved	
31	Reserved	

Tab.5-328: Current Loop Configuration

## P-0-3980 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.16.30 P-0-3981, FOCsl: Motor model configuration

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware		--			
Funct. package(s):		closed loop			
Device parameter:		axis-specific			

**Function** This parameter is configured the motor model of sensorless positioning of synchronous motors.



Changes in the parameter values can cause uncontrolled drive motion.

**Use** The parameter contains data in the internal format. The values are made available by Bosch Rexroth for every released motor type.

## P-0-3981 - Attributes

Function:	Par	Editable:	++	Data length:	4Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	6
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.16.31 P-0-3982, FOCsl: Carrier signal configuration

Allocation	Contained in 16VRS:	«MPB»	«-»	«MPM»	
	Contained in 17VRS:	«MPB»	«-»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«-»	«MPM»	«MPC»
Hardware		--			
Funct. package(s):		closed loop			
Device parameter:		axis-specific			

**Function** This parameter is configured the carrier signal for sensorless positioning of synchronous motors.



Changes in the parameter values can cause uncontrolled drive motion.

## Product-Specific Parameters

**Use** The parameter contains data in the internal format. The values are made available by Bosch Rexroth for every released motor type.

### P-0-3982 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.16.32 P-0-4002, Charact. of quadrature-axis induct. of motor, inductances

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--	--	--	--
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Along with parameter "P-0-4003, Charact. of quadrature-axis inductance of motor, currents", this parameter describes the characteristic curve of the quadrature-axis inductance of the motor ( $L_q$ ) in relation to the torque-generating current ( $I_q$ ).



If required (e.g. saturation phenomena), it is thereby possible to achieve a reduction of the effective current controller gain for higher currents.

**Structure** "P-0-4002" is designed as a list whose list elements each form value pairs with those of "P-0-4003"; these value pairs define the characteristic curve.

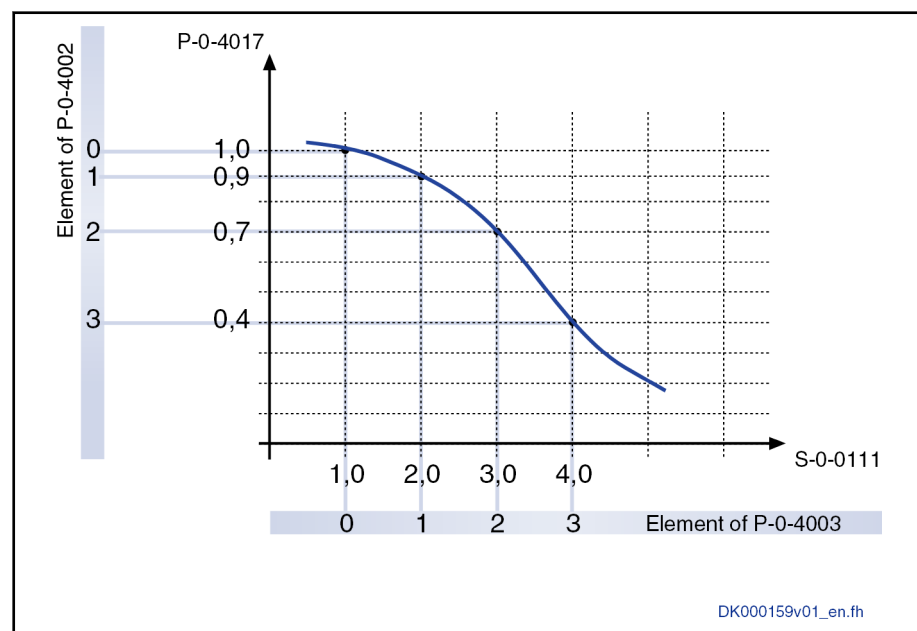


Fig. 5-329: Significance and Function of P-0-4002 and P-0-4003

The values in parameter "P-0-4002" are factors which refer to parameter "P-0-4017, Quadrature-axis inductance of motor". The inductance values  $L_q$  of the characteristic are resulting by multiplication with this value.

**Use** The parameter must always contain 4 list elements. The values of these elements have to be monotonously descending.

## Product-Specific Parameters



The parameter is exclusively used when the "synchronous motor with reluctance torque" or "adjustment of current controller to saturation of quadrature-axis inductance of motor" bit is set in parameter "P-0-4014, Type of construction of motor".

Writing the correct value to this parameter:

- By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD" in case of MBS high-speed motors by Bosch Rexroth.
- By loading the value from the motor encoder data memory when the control voltage of the drive is switched on in case of MSK motors.
- In case of all other Rexroth motors, use of the parameter is prevented by a setting of parameter "P-0-4014" that is automatically made in the firmware or by the commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors, manual input according to manufacturer's specification.

## P-0-4002 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>					
<b>MPB:</b>			<b>min./max.</b>	<b>Default value</b>	
<b>MPC:</b>			0,000 / 30,000	s. Text	
<b>MPE:</b>			0,000 / 30,000	s. Text	
<b>MPM:</b>			0,000 / 30,000	s. Text	

## 5.16.33 P-0-4003, Charact. of quadrature-axis inductance of motor, currents

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** Along with parameter "P-0-4002, Charact. of quadrature-axis induct. of motor, inductances", this parameter describes the characteristic curve of the quadrature-axis inductance of the motor  $L_q$  in relation to the torque-generating current  $I_q$ .



If required (e.g. saturation phenomena), it is thereby possible to achieve a reduction of the effective current controller gain for higher currents.

**Structure** P-0-4002 is designed as a list whose list elements each form value pairs with those of "P-0-4003"; these value pairs define the characteristic curve.

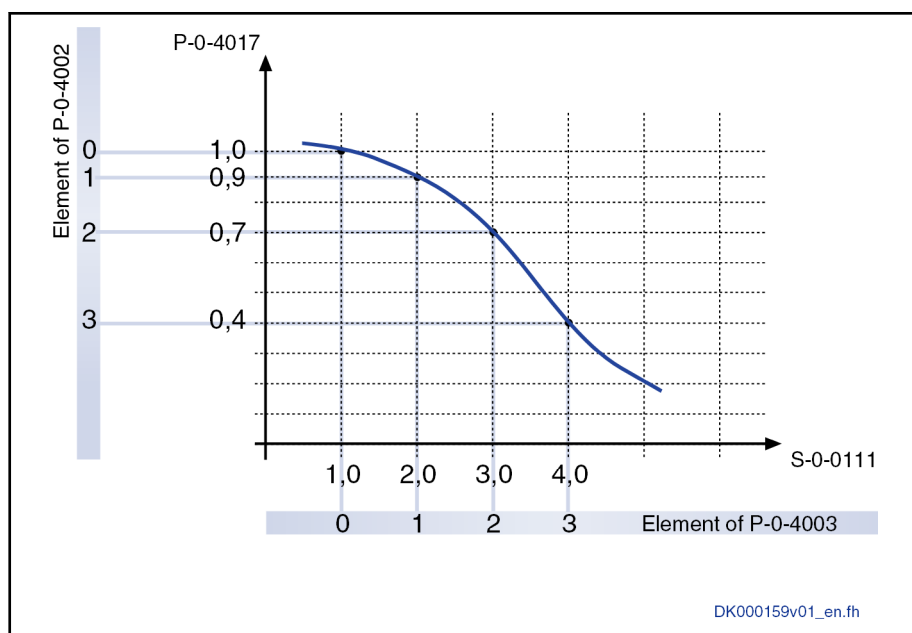


Fig.5-330: Significance and Function of P-0-4002 and P-0-4003

The values in parameter "P-0-4003" are factors which refer to the value in parameter "S-0-0111, Motor current at standstill". The current values  $I_q$  of the characteristic are resulting by multiplication with this value.

**Use** Observe the following aspects for parameterization:

- The parameter must always contain 4 list elements. The values of these elements have to be monotonously ascending.
- The parameter is exclusively used when the "synchronous motor with reluctance torque" bit is set in parameter "P-0-4014, Type of construction of motor".
- Writing the correct value to this parameter:
  - By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD" in case of MBS high-speed motors by Bosch Rexroth.
  - In case of all other Rexroth motors, use of the parameter is prevented by a setting of parameter "P-0-4014" that is automatically made in the firmware or by the commissioning software "IndraWorks Ds/D/MLD".
  - In case of other motors, manual input according to manufacturer's specification.

#### P-0-4003 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0,000 / 30,000		s. Text		
<b>MPC:</b>	0,000 / 30,000		s. Text		
<b>MPE:</b>	0,000 / 30,000		s. Text		
<b>MPM:</b>	0,000 / 30,000		s. Text		

## 5.16.34 P-0-4004, Magnetizing current

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
<b>Hardware</b>		--			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** In case of asynchronous motors, this parameter is used to enter the nominal magnetizing current defined by Bosch Rexroth. The actually flowing magnetizing current in the basic speed range results from multiplying the value of "P-0-4004" by "P-0-0532, Premagnetization factor". In the field-weakening range, the magnetizing current is reduced with increasing speed, starting from the value of this product by the field controller.



Writing the correct value to this parameter:

- In case of Rexroth motors of the 2AD, ADF series as well as in case of linear and rotary kit motors, by loading the motor parameters via the commissioning software "IndraWorks Ds/D/MLD".
- In case of other asynchronous motors, by manual input according to the manufacturer's specification.
- In case of synchronous motors, the parameter is not used and automatically set to  $A_{eff} = 0$ .

See also Functional Description "Motor, Mechanical Axis System, Measuring Systems"

## P-0-4004 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	A eff	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
<b>MPB:</b>	0,000 / s. Text	1,000
<b>MPC:</b>	0,000 / s. Text	1,000
<b>MPE:</b>	0,000 / s. Text	1,000
<b>MPM:</b>	0,000 / s. Text	1,000

## 5.16.35 P-0-4005, Flux-generating current, limit value

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»
	<b>Hardware</b>	--		
	<b>Funct. package(s):</b>	"open loop", "closed loop"		
	<b>Device parameter:</b>	axis-specific		

**Function** This parameter can be used to enter a negative limit value for the flux-generating current. This limit value is provided for field-weakening operation of synchronous motors and is therefore only effective for synchronous motors for which field-weakening operation is allowed (P-0-0045, Control word of current controller).

Writing the correct value to this parameter:



Writing the correct value to this parameter:

- In case of Rexroth motors of the MHD, MKD, MKE and MKS series, automatically on initial commissioning.
- In case of linear and rotary synchronous kit motors, by loading the motor parameters via the "IndraWorks Ds/D/MLD" commissioning software.
- In case of other synchronous motors, By manual input according to the manufacturer's specification.
- In case of asynchronous motors, this parameter is automatically set to  $A_{eff} = 0$ .

Product-Specific Parameters

See also Functional Description "Limitations"

P-0-4005 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	A eff	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	s. Text / 0,000	0,000
MPC:	s. Text / 0,000	0,000
MPE:	s. Text / 0,000	0,000
MPM:	s. Text / 0,000	0,000

## 5.16.36 P-0-4006, Positioning block target position

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** In operation mode "positioning block mode", this parameter is used to define the target positions of the max. 64 positioning blocks individually and in different form (→ list parameter with 64 elements).



The significance and internal interpretation of the entered value depends on "P-0-4019, Positioning block mode".

See also Functional Description "Positioning Block Mode"

P-0-4006 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0076	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0077 / S-0-0078
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	S-0-0076 / S-0-0076	s. Text
MPC:	S-0-0076 / S-0-0076	s. Text
MPE:	S-0-0076 / S-0-0076	s. Text
MPM:	S-0-0076 / S-0-0076	s. Text

## 5.16.37 P-0-4007, Positioning block velocity

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** In operation mode positioning block mode, this parameter is used to define the travel velocity of the max. 64 positioning blocks individually and in different form (list parameter with 64 elements).

See also Functional Description "Positioning Block Mode"

P-0-4007 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
<b>Unit:</b>	S-0-0044	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	S-0-0045 / S-0-0046
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	S-0-0044 / S-0-0044	s. Text
MPC:	S-0-0044 / S-0-0044	s. Text
MPE:	S-0-0044 / S-0-0044	s. Text
MPM:	S-0-0044 / S-0-0044	s. Text

## Product-Specific Parameters

## 5.16.38 P-0-4008, Positioning block acceleration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In operation mode positioning block mode, this parameter is used to define the position acceleration of the max. 64 positioning blocks individually and in different form (→ list parameter with 64 elements).



In conjunction with the corresponding jerk value entered in "P-0-4009, Positioning block jerk ", the positioning acceleration entered in "P-0-4008" defines the parameter content of "P-0-0042, Current position command average value filter order ".

See also Functional Description "Positioning Block Mode"

P-0-4008 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0160 / S-0-0160		s. Text		
	MPC:	S-0-0160 / S-0-0160		s. Text		
	MPE:	S-0-0160 / S-0-0160		s. Text		
	MPM:	S-0-0160 / S-0-0160		s. Text		

## 5.16.39 P-0-4009, Positioning block jerk

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the operation mode "positioning block mode", this parameter is used to define the positioning jerk values of the max. 64 positioning blocks individually and in different form (→ list parameter with 64 elements).



In conjunction with the corresponding jerk value entered in P-0-4009, the positioning acceleration entered in P-0-4008 defines the parameter content of "P-0-0042, Current position command average value filter order".

See also Functional Description "Positioning Block Mode"

## Record of Revisions

Version	Attribute	Comment
GEN-02VRS	Cycl. tra.: no	

P-0-4009 - Attributes	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_MV
	<b>Unit:</b>	S-0-0160	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	S-0-0161 / S-0-0162
	<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	MPB:	S-0-0160 / S-0-0160		s. Text		
	MPC:	S-0-0160 / S-0-0160		s. Text		
	MPE:	S-0-0160 / S-0-0160		s. Text		
	MPM:	S-0-0160 / S-0-0160		s. Text		

## 5.16.40 P-0-4010, Load inertia

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is provided for the (motor-related) load inertia reduced to the motor. It is used for:

- Automatic control loop setting (C1800)
- Sensorless, flux-controlled motor operation (FXC)

If none of the mentioned cases is used, it is not necessary to enter a value! The significance of the value varies, depending on bit 9 of parameter "P-0-4014, Type of construction of motor":

- Load inertia, motor-related (without rotor inertia) for rotary motors
- Load mass (without primary part mass) for linear motors

See also Functional Description "Automatic Setting of Axis Control"

### Use Automatic control loop setting

The load inertia can be automatically determined by executing command "P-0-0162, C1800 Command Drive optimization / command value box". If the axis-side inertia value is exactly known, then this value should be entered in P-0-4010. The load inertia or load mass is essential for optimizing the velocity control loop.

### Sensorless, flux-controlled motor operation (FXC)

In sensorless, flux-controlled motor operation, the value of the motor-related load inertia is essential for setting the frequency loop. Therefore, the motor-related axis-side inertia value must be entered. The value can be available from the machine construction, otherwise it has to be determined by a run-up test.

See also Functional Description "Sensorless Motor Operation, Flux-Controlled"



Automatic control loop setting (C1800) and sensorless, flux-controlled motor operation are mutually exclusive!

### Unit, decimal places

The drive firmware automatically adjusts the unit and decimal places to the type of construction of the motor (rotary or linear) entered in "P-0-4014, Type of construction of motor".

Unit for type of constr. of motor (P-0-4014)		Decimal places for type of constr. of motor (P-0-4014)	
Rotary	Linear	Rotary	Linear
kgm <sup>2</sup>	kg	6	6

Tab.5-331: Unit and Decimal Places of P-0-4010, Depending on P-0-4014

### P-0-4010 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	kgm <sup>2</sup>	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	7
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 1

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0,0000000
<b>MPC:</b>	--- / ---	0,0000000

## Product-Specific Parameters

MPE:	--- / ---	0,0000000
MPM:	--- / ---	0,0000000

## 5.16.41 P-0-4013, Current limit value of demagnetization

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter contains a percent value which is referring to parameter "S-0-0109, Motor peak current" for synchronous motors. If this percentage value is multiplied by the value of "S-0-0109", the result is the electric current limit value. If the electric current limit value is exceeded, the magnets of the synchronous motor risk being permanently demagnetized.

In case the limit value is exceeded, the power output stage of the controller is temporarily disabled to protect the motor, until the electric current has fallen below the limit value again. Warning E8028 is generated in the disabled state.



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

See also Functional Description "Limitations"

P-0-4013 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	%	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4
		Input	min./max.		Default value	
		MPB:	100 / 150		120	
		MPC:	100 / 150		120	
		MPE:	100 / 150		120	
		MPM:	100 / 150		120	

## 5.16.42 P-0-4014, Type of construction of motor

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to inform the controller of activation-relevant features of the connected motor, such as:

- Functional principle
- Type of construction
- Encoder data memory

Product-Specific Parameters

See also Functional Description "General Information on the Operation of Motors with IndraDrive"

Structure

Bit	Designation/function	Comment
8	<b>Functional principle</b> 0: Synchronous 1: Asynchronous	
9	<b>Type of construction</b> 0: Rotary 1: Linear	
10	<b>Encoder data memory</b> 0: Not available 1: Available	
11	<b>Type of construction for synchronous motors</b> 0: Without reluctance torque 1: With reluctance torque	
12	<b>Adjustment of current loop to saturation of quadrature-axis inductance of motor</b> 0: No 1: Yes	
13	<b>"P-0-0640, Cooling type" taken into account</b> 0: P-0-0640 is inactive 1: P-0-0640 is active and has to be adjusted to the realized motor cooling!	
14	<b>Thermal time constant reduced in standstill</b> 0: No reduction 1: Reduction of thermal time constant to half the value (P-0-4034, P-0-4035)	

Tab.5-332: P-0-4014, Type of construction of motor

Use Units, decimal places

For some parameters it is necessary that the drive firmware adjusts the units and decimal places to the type of construction of the motor (rotary or linear). In this case, the respective units and decimal places are indicated directly for the concerning parameter.

**Motors with encoder data memory**

- In the case of Rexroth motors with encoder data memory, the bits of this parameter are automatically set correctly! This is done during the booting process (after switching on the controller) and with every transition to phase 4 (status ready for operation).

**Motors without encoder data memory**

In case of Rexroth motors without encoder data memory, the bits of this parameter are automatically set correctly, when the motor parameters are loaded from the database of the commissioning software "IndraWorks Ds/D/MLD".

**Third-party motors**

## Product-Specific Parameters

If the characteristic of the quadrature-axis inductance of the motor is specified for synchronous third-party motors (manufacturer data for "P-0-4002" and "P-0-4003"), the following applied with regard to bit 12 and bit 11:

- Any possibly existing reluctance property cannot be used for synchronous third-party motors! Determining motor parameter values which are safe to operate for using the reluctance property is impossible for third-party motors, for which reason bit 11 may not be set!
- If, due to lacking bandwidth in the current control loop, the drive is apt to oscillate while the velocity control loop is set or optimized, it should be attempted to set bit 12 to "1". If there is no improvement, reset the bit.

## P-0-4014 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	+	<b>Set-depend.:</b>	Grp. 5
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		s. Text		
<b>MPC:</b>	--- / ---		s. Text		
<b>MPE:</b>	--- / ---		s. Text		
<b>MPM:</b>	--- / ---		s. Text		

## 5.16.43 P-0-4016, Direct-axis inductance of motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

## Function

For synchronous motors, the direct-axis inductance of the motor is entered in this parameter. The direct-axis inductance is the inductance of the d-axis in the field-oriented d-q coordinate system and is also called  $L_d$ . Observe that for the direct-axis inductance of the motor a value is expected that was determined from the inductances of the 3-phase motor model by space vector transformation.



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

See also Functional Description "Third-Party Motors at IndraDrive Controllers"

## P-0-4016 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	mH	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	0,000 / 4294967,295		1,000		
<b>MPC:</b>	0,000 / 4294967,295		1,000		
<b>MPE:</b>	0,000 / 4294967,295		1,000		
<b>MPM:</b>	0,000 / 4294967,295		1,000		

## 5.16.44 P-0-4017, Quadrature-axis inductance of motor

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** For synchronous motors, the quadrature-axis inductance of the motor is entered in this parameter. The quadrature-axis inductance is the inductance of the q-axis in the field-oriented d-q coordinate system and is also called L<sub>q</sub>.

Observe that for the quadrature-axis inductance of the motor a value is expected that was determined from the inductances of the 3-phase motor model by space vector transformation.



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

See also Functional Description "Third-Party Motors at IndraDrive Controllers"

### P-0-4017 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	mH	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0,000 / 4294967,295	1,000
MPC:	0,000 / 4294967,295	1,000
MPE:	0,000 / 4294967,295	1,000
MPM:	0,000 / 4294967,295	1,000

## 5.16.45 P-0-4018, Positioning block delay time

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the positioning block mode, parameter P-0-4018 is used to parameterize a defined delay time between the individual positioning blocks.

See also Functional Description "Positioning Block Mode"

**Use** As this is a list parameter with 64 elements, you can define individual and different delay times at block transition for all 64 positioning blocks.

Observe the following aspects for parameterization:

- The positioning block mode delay time only takes effect for a sequential block with intermediate stop.

## Product-Specific Parameters

- When the programmed target position of the block has been reached, the drive waits for the delay time P-0-4018[n] until the sequential block block[n+1] is started.

## P-0-4018 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 60000	s. Text
MPC:	0 / 60000	s. Text
MPE:	0 / 60000	s. Text
MPM:	0 / 60000	s. Text

## 5.16.46 P-0-4019, Positioning block mode

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In the operation mode "positioning block mode", this parameter is used to define the positioning block mode. It is possible to define the mode for each of the max. 64 available positioning locks individually and in different form.

See also Functional Description "Positioning Block Mode"

**Structure** The following table illustrates the operating principle of the individual bits:

Bit	Designation/function	Comment
1	0 = abs. 1= rel.	
2	Infinite travel in positive direction	
3	Infinite travel in negative direction	
4	Sequential block without halt mode 1	
5	Sequential block without halt mode 2	
6	Sequential block with halt	
7	Sequential block at switch signal	
8	Residual path processing for relative travel blocks	

Tab.5-333: P-0-4019, Positioning block mode



Bit 0 of "P-0-4019" is not relevant for IndraDrive. Bit 1 controls whether if the block is absolute or relative. For reasons of compatibility with Ecodrive, old "parameter settings" are still accepted!

## P-0-4019 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.16.47 P-0-4020, Multi-axis device: Active axes

Allocation	Contained in 16VRS:	«-»	«-»	«MPM»	
	Contained in 17VRS:	«-»	«-»	«MPM»	«-»

Product-Specific Parameters

Contained in 18VRS:	«-»	«-»	«MPM»	«-»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

**Function** This parameter displays which axis (hardware) of a several axes device is active. An axis hardware can be deactivated or switched off via a type of hardware (e.g. the hardware of HCT of the second axis is not equipped) or via the parameter " P-0-4030, Axis configuration for multi-axis device ".

**Structure**

Bit	Designation/function	Comment
0	Hardware axis 1 0: Not active 1: Active	
1	Hardware axis 2 0: Not active 1: Active	
2	Hardware axis 3 0: Not active 1: Active	
3	Hardware axis 4 0: Not active 1: Active	

Tab.5-334: P-0-4020.0.0, multiple-axes device: active axes

**P-0-4020 - Attributes**

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.48 P-0-4021, Baud rate RS-232/485

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** By means of this parameter it is possible to set baud rates (transmission rates) for the serial interface. The required setting depends on the communication partner.

See also Functional Description "Serial Communication"

**Structure**

Baud rate (baud)	Setting in P-0-4021
9600	0
19200	1
38400	2
57600	3

## Product-Specific Parameters

Baud rate (baud)	Setting in P-0-4021
115200	6
	settings 4 and 5 are reserved

Tab.5-335: Baud rate setting

The preset value is 9,600 baud (default value).



All bus nodes must be set to the same baud rate.

## P-0-4021 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	0 / 6		0		
MPC:	0 / 6		0		
MPE:	0 / 6		0		
MPM:	0 / 6		0		

## 5.16.49 P-0-4022, Drive address of serial interface

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«-»	«-»	«-»
	Contained in 18VRS:	«-»	«-»	«-»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** By means of this parameter, the address for the serial interface can be set. This can be done either via the control panel, the serial interface or the master communication interface.



The effective address can be taken either directly from P-0-4022 or from the list "P-0-4031, Overview of device addresses"!

See also Functional Description "Serial Communication"

See also Parameter Description "P-0-4031, Overview of device addresses"

**Use** With the setting P-0-4022 = "256" (default value), the address set in "P-0-4025, Drive address of master communication" is used for serial communication.

## P-0-4022 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	1 / 99		256		
MPC:	1 / 99		256		
MPE:	1 / 99		256		
MPM:	1 / 99		256		

## 5.16.50 P-0-4023, C0400 Communication phase 2 transition

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPC»
Hardware	optional drives card			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** Transition command from operating mode or from phase 3 (P3) to the parameterization mode or phase 2 (P2). The command can only be executed when the drive enable has been disabled.

Product-Specific Parameters

See also Functional Description "Parameters, Basics"

P-0-4023 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.51 P-0-4025, Drive address of master communication

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«-»	«-»	«-»	«-»
	<b>Contained in 18VRS:</b>	«-»	«-»	«-»	«-»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** By means of this parameter, the address for master communication (e.g., SERCOS, Profibus...) can be set.



The effective address can be taken either directly from "S-0-0096, Slave arrangement (SLKN)" or from "P-0-4031, Overview of device addresses"!

See also Functional Description "Serial Communication"

**Use** Observe the following aspects for parameterization:

- The parameter can be set via the control panel, the serial interface or the master communication interface.



With SERCOS, it can only be changed in phase 0, with all other devices in the parameter mode ("PM").

- The entered address does not take immediate effect, but:
  - SERCOS:** Only at the next change of communication phase from "phase 0" to "phase 1" might it therefore be necessary to run up the drive again
  - Field bus and analog/parallel:** at the next change to the operating mode ("OM")
- With the setting "P-0-4022" = "256" (default value), the address set in "P-0-4025, Drive address of master communication" is used for serial communication.

See also Parameter Description "P-0-4031, Overview of device addresses"

See also Parameter Description "S-0-0096, Slave arrangement (SLKN)"

P-0-4025 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	FIX_IDN_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	1 / 99	s. Text
MPC:	1 / 99	s. Text
MPE:	1 / 99	s. Text
MPM:	1 / 99	s. Text

## Product-Specific Parameters

## 5.16.52 P-0-4026, Positioning block selection

Allocation	Contained in 16VRS:		«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:		«MPB»	«MPE»	«MPM»	«MPC»
	Hardware		--			
	Funct. package(s):		closed loop			
	Device parameter:		axis-specific			
Function	Selected positioning block 0 to 63					
	See also Functional Description "Positioning Block Mode"					
P-0-4026 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--
	Input		min./max.		Default value	
	MPB:		0 / 63		---	
	MPC:		0 / 63		---	
	MPE:		0 / 63		---	
	MPM:		0 / 63		---	

## 5.16.53 P-0-4027, Transmission length sercos

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«-»	«-»	«-»		
	Contained in 18VRS:	«-»	«-»	«-»		
	Hardware	optional master communication card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	The length of the optic fiber connected to X20 (Tx) is entered in this parameter.					
	Depending on the entered optic fiber length the required transmitting power of the light source is automatically set. The controller classifies the entered length in one of four ranges.					
	Ranges of length for the connected optic fiber:					
	<ul style="list-style-type: none"><li>• up to 15 m</li><li>• 15 m ... 30 m</li><li>• 30 m ... 45 m</li><li>• more than 45 m and glass fiber</li></ul>					
	See also Functional Description "SERCOS interface"					
P-0-4027 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	P2->P3	Format:	DEC_OV
	Unit:	m	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		20		
	MPC:	--- / ---		20		
	MPE:	--- / ---		20		
	MPM:	--- / ---		20		

## 5.16.54 P-0-4028, Device control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	For devices with analog or parallel master communication, this parameter is used to control the drive. Bit 15 of the parameter must be configured to a digital input.				

Product-Specific Parameters



It is not absolutely necessary to apply the bits 14 and 13; they have 1-signal by default value.

See also Functional Description "Master Communication"

See also Functional Description "Operation Modes"

Structure

Bit	Designation/function	Comment
11/9/8	<b>Command operation mode</b> 000: Primary operation mode 001: Secondary operation mode 1 010: Secondary operation mode 2 011: Secondary operation mode 3 100: Secondary operation mode 4 101: Secondary operation mode 5 110: Secondary operation mode 6 111: Secondary operation mode 7	
13	<b>Drive Halt, 1-0 change</b> Deceleration of drive while maintaining max. acceleration (S-0-0372) (only possible when bits 14 and 15 = 1)	
14	<b>Drive enable</b> 1-0 change: Torque disable without delay (independent of bit 15 or 13)	
15	<b>Drive ON</b> 1-0 change: Best possible deceleration (only possible if bit 14 = 1)	

Tab.5-336: Relevant Bits of P-0-4028, Device control word

P-0-4028 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.55 P-0-4029, Diagnostic report SCSB module

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	optional drives card				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	axis-specific				

**Function** Parameter for reading master communication settings and states (with SERCOS interface).



This parameter is only relevant for the development staff! It is irrelevant for the application side!

P-0-4029 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX

## Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	--- / ---		---		
MPC:	--- / ---		---		
MPE:	--- / ---		---		
MPM:	--- / ---		---		

## 5.16.56 P-0-4030, Axis configuration for multi-axis device

Allocation	Contained in 16VRS:	«-»	«-»	«MPM»
	Contained in 17VRS:	«-»	«-»	«MPM» «-»
	Contained in 18VRS:	«-»	«-»	«MPM» «-»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** This parameter can be used to deactivate the hardware of an axis of a multi-axis device, i.e. the hardware of an axis (output stage, etc.) is not available for the firmware. This reduces the number of present axes of a multi-axis device.

As a result, the assignment of the firmware axis to the hardware axis may change. If the hardware of the second axis is deactivated, there will be the following axis assignment of firmware to existing hardware:

Firmware axis	Hardware axis
1	1
2	3
3	4
(4)	

Tab.5-337: Assignment of Firmware Axis to Hardware Axis

**Function**

If an axis is to be deactivated or reactivated via this parameter, the device must be switched off and on again or "S-0-1350, C6400 reboot command" must be executed after a value has been written to the parameter. Thereafter, the parameters of the existing axes are invalid. As a result, the existing axes must be re-parameterized.

The default setting is activation of all existing axes of a device. At least one axis of a device must remain active.

**Structure**

Bit	Designation/function	Comment
0	<b>Hardware axis 1</b> 0: Do not activate 1: Activate	
1	<b>Hardware axis 2</b> 0: Do not activate 1: Activate	

Product-Specific Parameters

Bit	Designation/function	Comment
2	<b>Hardware axis 3</b> 0: Do not activate 1: Activate	
3	<b>Hardware axis 4</b> 0: Do not activate 1: Activate	

Tab.5-338: Axis Configuration For Multi-Axis Device

P-0-4030 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	FIX_IDN_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0x1 / 0xF	s. Text
<b>MPC:</b>	0x1 / 0xF	s. Text
<b>MPE:</b>	0x1 / 0xF	s. Text
<b>MPM:</b>	0x1 / 0xF	s. Text

## 5.16.57 P-0-4031, Overview of device addresses

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

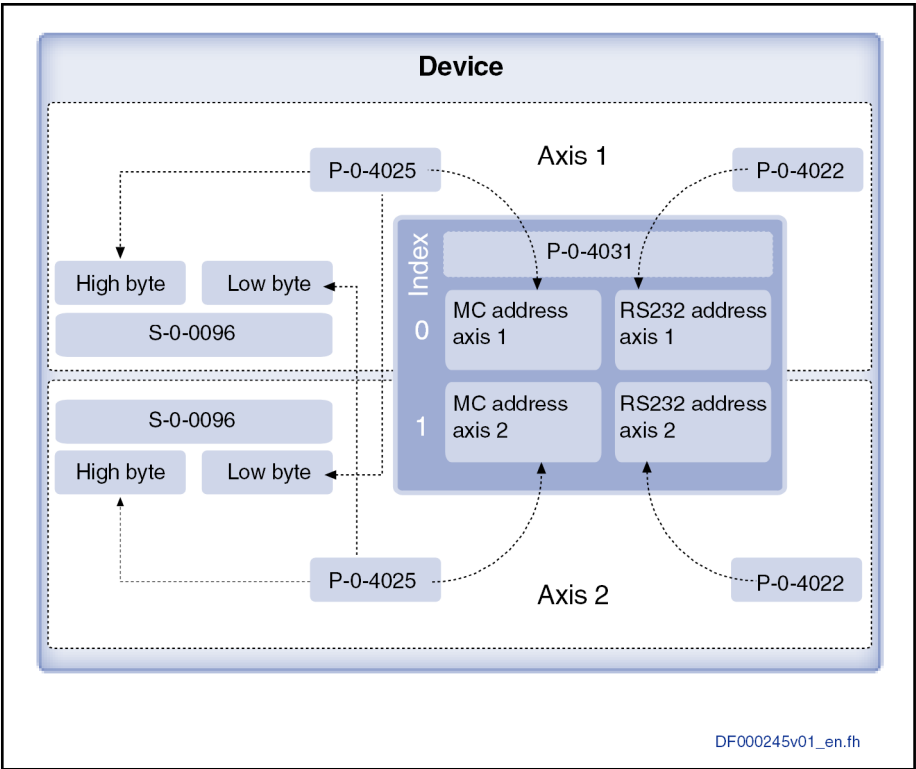
- Function** This parameter is used to display the following addresses in clearly structured and holistic form which is particularly important for multi-axis devices:
- effective drive address of master communication that was set via parameter P-0-4025
  - effective drive address of serial interface that was set via parameter P-0-4022



Especially for multi-axis devices (e.g. HMD01.1) the parameter P-0-4031 provides a clear overview as regards the axis addresses effective in the device.

- Use** As an example of a double-axis device, the figure below illustrates the basic structure and the relationship to the other address parameters (S-0-0096, P-0-4022 and P-0-4025):

Product-Specific Parameters



MC address    master communication address  
*Fig.5-339:    Structure and function of P-0-4031, Overview of device addresses*  
*Example:*

In the following example the parameter settings below were made:

- **axis 1:** (P-0-4022 = 5, P-0-4025 = 5)
- **axis 2:**(P-0-4022 = 8, P-0-4025 = 4)

The resulting parameter content for P-0-4031 is the following:

	High word	Low word
List index (log. axis number)	Effective address of master communication	Effective address of serial interface
0	0x0005	0x0005
1	0x0004	0x0008

*Tab.5-340:    Structure of P-0-4031 (example double-axis module)*



Parameter S-0-0096 would then accordingly contain **0x0504** (axis 1) or **0x0405** (axis 2)!

See also Parameter Description "S-0-0096, Slave arrangement (SLKN)"

P-0-4031 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input		min./max.		Default value	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

## 5.16.58 P-0-4032, Motor type plate data

<b>Allocation</b>	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** For asynchronous third-party motors it is possible via "C3200 Command Calculate motor data" to calculate the values for motor parameters from the type plate data and then the values of the motor control parameters. The activation of C3200 first requires manual input of the motor data from the type plate of the asynchronous motor in the list parameter P-0-4032, Motor type plate data.



When a Rexroth motor is used, the content of P-0-4032 and the command C3200 are irrelevant as for these motors all parameters required for operation are stored in the data base for motor data (DriveBase).

See also Functional Description "Automatic Setting of Motor Control"

**Structure** The individual list elements have the following significance.

List element	Characteristic value of motor	Default value	Unit	Definition
1	rated current	4,000	A <sub>eff</sub>	rms value of the electric current in the motor feed wire (motor phase) at rated load
2	rated voltage	380,000	V <sub>eff</sub>	rms value of the phase-to-phase voltage between the motor terminal pins at rated load
3	rated frequency	50,000	Hz	frequency of the feeding, sinusoidal electric voltage
4	rated speed	925,000	1/min	speed of motor output shaft at rated load
5	power factor cos φ	0,760	1	power factor at rated load
6	rated power	1,500	kW	mechanical power that can be continuously delivered at rated load

Tab.5-341: List elements P-0-4032



"Rated load" means load of the motor output shaft with rated torque when feeding the motor with rated voltage and rated frequency. The rated load point mustn't be in the field weakening range! The power at the output shaft is the rated power!

**Use** Observe the following for parameterizing or inputting the elements:

- All data in P-0-4032 have to describe the same working point of the motor. This working point mustn't be in the field weakening range and should describe the S1 operation (continuous power of the motor).
- All list elements are 32-bit values and have 3 decimal places.

## Product-Specific Parameters

- The list parameter has a fixed length with 6 elements.
- Writing data to the parameter is only possible in phase 2 or 3.
- The data in P-0-4032 do not have a direct influence on motor control: It is only by starting the command C3200 via P-0-4033 that all motor data (equivalent circuit diagram) and motor control parameters are calculated.

<b>P-0-4032 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	0,000 / 250000,000		s. Text		
	<b>MPC:</b>	0,000 / 250000,000		s. Text		
	<b>MPE:</b>	0,000 / 250000,000		s. Text		
	<b>MPM:</b>	0,000 / 250000,000		s. Text		

## 5.16.59 P-0-4033, C3200 Command Calculate motor data

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** For asynchronous third-party motors it is possible via "C3200 Command Calculate motor data" to calculate the values for motor parameters from the type plate data and then the values of the motor control parameters. The activation of C3200 first requires manual input of the motor data from the type plate of the asynchronous motor in the list parameter "P-0-4032, Motor type plate data".



When a Rexroth motor is used, the content of P-0-4032 and the command C3200 are irrelevant as for these motors all parameters required for operation are stored in the data base for motor data (DriveBase).

See also Functional Description "Automatic Setting of Motor Control".

<b>P-0-4033 - Attributes</b>	<b>Function:</b>	Cmd	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
	<b>MPB:</b>	--- / ---		---		
	<b>MPC:</b>	--- / ---		---		
	<b>MPE:</b>	--- / ---		---		
	<b>MPM:</b>	--- / ---		---		

## 5.16.60 P-0-4034, Thermal time constant of winding

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is used to enter the value for the thermal time constant of the motor winding. This is achieved as follows:

- In case of Rexroth motors with encoder data memory, when the control voltage of the drive is switched on.

## Product-Specific Parameters

- In case of Rexroth motors without encoder data memory, manually via the motor database of the commissioning software "IndraWorks Ds/D/MLD".
- Manually in case of third-party motors.

See also Functional Description "Current and Torque/Force Limitation"

**Use** The thermal time constant of the motor winding is the time after which the motor winding has reached 63% of this final temperature if it carries a constant current.



In case of Rexroth motors with selectable cooling type (MSK, MHD, MKD, MKE), the value of "P-0-4034" is independent of the actually implemented cooling type and the associated setting in "P-0-0640, Cooling type"!



The motor temperature model uses a time constant for the heating of the motor winding (P-0-4034) and a time constant for the heating of the motor housing (P-0-4035).

### P-0-4034 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	s	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	0,1 / 3276,7	2,0
MPC:	0,1 / 3276,7	2,0
MPE:	0,1 / 3276,7	2,0
MPM:	0,1 / 3276,7	2,0

## 5.16.61 P-0-4035, Thermal time constant of motor

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** The thermal time constant of the motor is the time after which the motor housing has reached 63% of its final temperature if its cooling type is set to the standard value (see table) and the current in the motor winding is constant.

In the firmware-internal motor temperature model, the value forms the basis for determining the cooling-type-dependent effective motor housing time constant:

- In case of motors with invariable cooling type, the value corresponds to the effective motor housing time constant.
- In case of motors with variable cooling type, the effective motor housing time constant is determined via "P-0-4035" and "P-0-0640, Cooling type".

Motor type	Standard cooling type	Notes
MSK, MHD, MKD, MKE	Non-ventilated	Cooling type variable: "P-0-0640, Cooling type" must be set according to the implemented cooling type
MAD, MAL, 2AD	Ventilated	Cooling type not variable: "P-0-0640, Cooling type" is inactive

## Product-Specific Parameters

Motor type	Standard cooling type	Notes
MAF, ADF, MBS, MBT, 1MB, MLF, LSF	Liquid-cooled	Cooling type not variable: "P-0-0640, Cooling type" is inactive
Third-party motor	Unknown	Is considered to have no variable cooling type: "P-0-0640, Cooling type" is inactive!

Tab.5-342: Standard Cooling Types of Motors



The motor temperature model uses a time constant for the heating of the motor winding (P-0-4034) and a time constant for the heating of the motor housing (P-0-4035).

See also Functional Description "Current and Torque/Force Limitation"

**Use** P-0-4035 is used to enter the value for the thermal time constant of the motor. This is achieved as follows:

- In case of Rexroth motors with encoder data memory, when the control voltage of the drive is switched on.
- In case of Rexroth motors without encoder data memory, manually via the motor database of the commissioning software "IndraWorks Ds/D/MLD".
- Manually in case of third-party motors; the value must be set according to the implemented cooling type.



If "0" is entered for P-0-4035, the motor temperature model only uses the time constant of the motor winding (P-0-4034). The output current of the controller is only limited to the maximum KB current and not to the maximum allowed constant current.

## P-0-4035 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	min	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	0,0 / 3276,7	0,0
MPC:	0,0 / 3276,7	0,0
MPE:	0,0 / 3276,7	0,0
MPM:	0,0 / 3276,7	0,0

## 5.16.62 P-0-4036, Rated motor speed

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter defines the speed above which the field weakening range begins. Voltage reference value is the DC bus voltage DC 540 V (uncontrolled supply at 3xAC 400 V –5%).

## Product-Specific Parameters



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

See also Functional Description "Motor Control"

### P-0-4036 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	rpm	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	4
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0,0000 / 429496,7295	1000,0000
MPC:	0,0000 / 429496,7295	1000,0000
MPE:	0,0000 / 429496,7295	1000,0000
MPM:	0,0000 / 429496,7295	1000,0000

## 5.16.63 P-0-4037, Thermal short-time overload of winding

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to enter the value for the thermal short-time overload factor of the motor winding.

This is achieved as follows:

- In case of Rexroth motors with encoder data memory, when the control voltage of the drive is switched on.
- In case of Rexroth motors without encoder data memory, manually via the commissioning software "IndraWorks Ds/D/MLD".
- Manually in case of third-party motors.

See also Functional Description "Current and Torque/Force Limitation"

**Use** The thermal short-time overload factor of the motor winding has a multiplicative effect on "S-0-0111, Motor current at standstill". It specifies the value to which the motor current is limited with the thermal time constant of the motor winding as long as no other thermal limitation by the thermal time constant of the motor (housing) becomes effective.



In case of Rexroth motors, the value of "S-0-0111" always refers to the standard cooling type of the motor. In case of motors with selectable cooling type (P-0-0640) (MSK, MHD, MKD, MKE), this is always the non-ventilated type.



The motor temperature model uses a time constant for the heating of the motor winding (P-0-4034) and a time constant for the heating of the motor housing (P-0-4035).

## Product-Specific Parameters

## P-0-4037 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	1
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 5

Input	min./max.	Default value
MPB:	1,0 / 4,5	2,2
MPC:	1,0 / 4,5	2,2
MPE:	1,0 / 4,5	2,2
MPM:	1,0 / 4,5	2,2

## 5.16.64 P-0-4039, Stator leakage inductance

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter is only used for operating asynchronous motors and takes effect for current control of the motor.

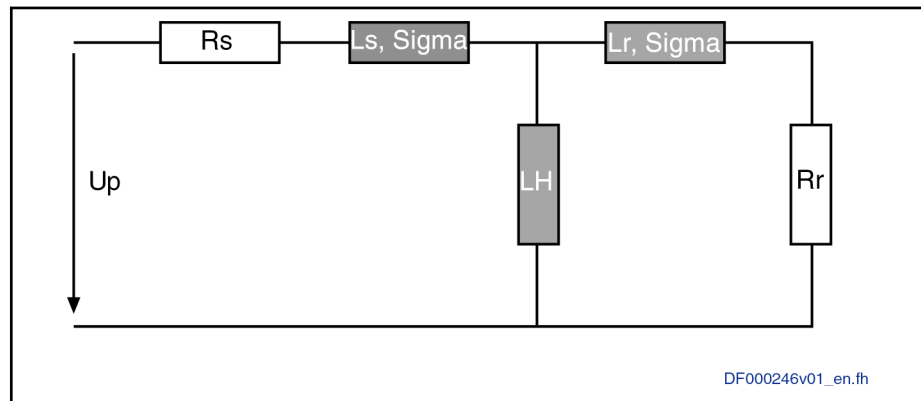
For Rexroth motors this value is stored in the DriveBase.

For third-party motors this parameter is calculated via the command C3200 Command Calculate data for asynchronous motor that is started with P-0-4033.

See also Functional Description "Motor Control"

**Use Technical background:**

The stator leakage inductance  $L_{s,\text{Sigma}}$  is a part of the equivalent circuit diagram that is used for describing an asynchronous machine. The equivalent circuit diagram is the basis for motor control of the asynchronous motor. The indicated values are referring to one winding phase, the approach always implying a start connection. This does not indicate how the windings in the motor are actually wired.



$R_s$	stator resistor
$L_{s,\text{Sigma}}$	stator leakage inductance
$L_H$	magnetizing inductance
$L_{r,\text{Sigma}}$	rotor leakage inductance
$R_r$	rotor resistor

Fig. 5-343: Equivalent circuit diagram of the asynchronous machine

## P-0-4039 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	mH	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0,001 / 4294967,295	5,000
MPC:	0,001 / 4294967,295	5,000

Product-Specific Parameters

MPE:	0,001 / 4294967,295	5,000
MPM:	0,001 / 4294967,295	5,000

## 5.16.65 P-0-4040, Rotor leakage inductance

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is only used for operating asynchronous motors and takes effect for current control of the motor.

For Rexroth motors this value is stored in the DriveBase.

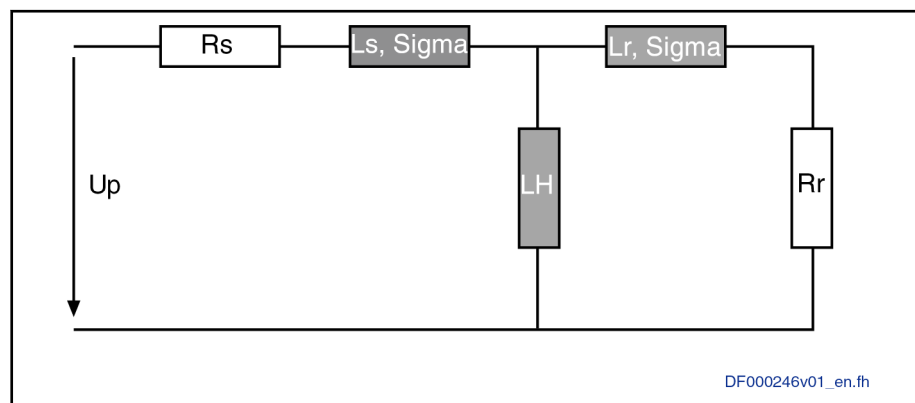
For third-party motors this parameter is calculated via the command C3200 Command Calculate data for asynchronous motor that is started with P-0-4033.

See also Functional Description "Motor Control"

**Use Technical background:**

The rotor leakage inductance  $L_{r,\text{Sigma}}$  is a part of the equivalent circuit diagram that is used for describing an asynchronous machine. The equivalent circuit diagram is the basis for motor control of the asynchronous motor.

The indicated values are referring to one winding phase, the approach always implying a star connection. This does not indicate how the windings in the motor are actually wired.



$R_s$	stator resistor
$L_{s,\text{Sigma}}$	stator leakage inductance
$L_H$	magnetizing inductance
$L_{r,\text{Sigma}}$	rotor leakage inductance
$R_r$	rotor resistor

Fig. 5-344: Equivalent circuit diagram of the asynchronous machine

P-0-4040 - Attributes	Function:	Par	Editable:	PM	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	mH	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

Input	min./max.	Default value
MPB:	0,001 / 4294967,295	5,000
MPC:	0,001 / 4294967,295	5,000
MPE:	0,001 / 4294967,295	5,000
MPM:	0,001 / 4294967,295	5,000

## 5.16.66 P-0-4041, Motor magnetizing inductance

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Product-Specific Parameters

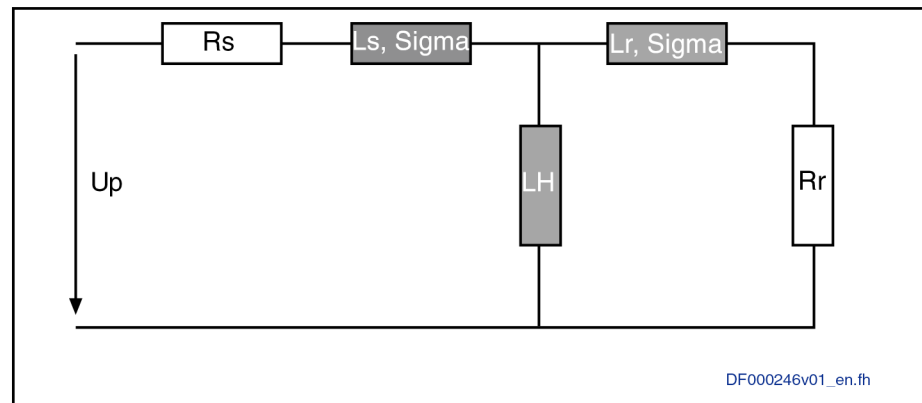
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	--			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** This parameter is only used for operating asynchronous motors and takes effect for current control of the motor.

For Rexroth motors this value is stored in the DriveBase. For third-party motors this parameter is calculated via the command C3200 Command Calculate data for asynchronous motor that is started with P-0-4033.

See also Functional Description "Motor Control"

**Use** The motor magnetizing inductance  $L_H$  is a part of the equivalent circuit diagram that is used for describing an asynchronous machine. The equivalent circuit diagram is the basis for motor control of the asynchronous motor. The indicated values are referring to one winding phase, the approach always implying a start connection. This does not indicate how the windings in the motor are actually wired.



$R_s$	stator resistor
$L_{s,\text{Sigma}}$	stator leakage inductance
$L_H$	magnetizing inductance
$L_{r,\text{Sigma}}$	rotor leakage inductance
$R_r$	rotor resistor

Fig.5-345: Equivalent circuit diagram of the asynchronous machine

## P-0-4041 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
<b>Unit:</b>	mH	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4

Input	min./max.	Default value
MPB:	0,010 / 4294967,295	50,000
MPC:	0,010 / 4294967,295	50,000
MPE:	0,010 / 4294967,295	50,000
MPM:	0,010 / 4294967,295	50,000

## 5.16.67 P-0-4042, Characteristic of motor magnetizing inductance

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This list parameter is only used during operation of asynchronous motors and takes effect during electric current control of the motor.

- The manufacturer provides the characteristic values for Rexroth motors, either via a data sheet or via the commissioning software "IndraWorks Ds/D/MLD".

## Product-Specific Parameters

- In most cases, the characteristic of third-party motors is not known. C3200 which is started with "P-0-4033" is used to make neutral assignments to the list.
- C3600 which is started with "P-0-0565" is used to determine the characteristic of the asynchronous motor and enter it in this list.

See also Functional Description "Motor Control"

**Use** The magnetizing inductance of an asynchronous motor shows already saturation behavior in nominal operation. The value of the motor magnetizing inductance depends on the currently flowing magnetizing current and increases with decreasing current.

List element No. of P-0-4042	Value factor "fLh(n)" (Value range 0.5... 2,0) ( $L_h(n) = fL_h(n) * (P-0-4041)$ )	Reference value
1	$fL_h(\text{No. 1}) \geq fL_h(\text{No. 2})$	0% of P-0-4004 (0.0)
2	$fL_h(\text{No. 2}) \geq fL_h(\text{No. 3})$	20% of P-0-4004 (0.2)
3	$fL_h(\text{No. 3}) \geq fL_h(\text{No. 4})$	40% of P-0-4004 (0.4)
4	$fL_h(\text{No. 4}) \geq fL_h(\text{No. 5})$	60% of P-0-4004 (0.6)
5	$fL_h(\text{No. 5}) \geq fL_h(\text{No. 6})$	80% of P-0-4004 (0.8)
6	1,0	100% of P-0-4004 (1.0)
7	$fL_h(\text{No. 7}) \geq fL_h(\text{No. 6})$	120% of P-0-4004 (1.2)
8	$fL_h(\text{No. 8}) \geq fL_h(\text{No. 7})$	140% of P-0-4004 (1.4)
9	$fL_h(\text{No. 9}) \geq fL_h(\text{No. 8})$	160% of P-0-4004 (1.6)

P-0-4004 Magnetizing current

P-0-4041 Motor magnetizing inductance

Tab.5-346: Characteristic of the Magnetizing Inductance ( $L_h$ ) in Factors ( $fL_h$ ) With Regard to P-0-4041 in Relation to the Flowing Magnetizing Current (%-Value of P-0-4004)

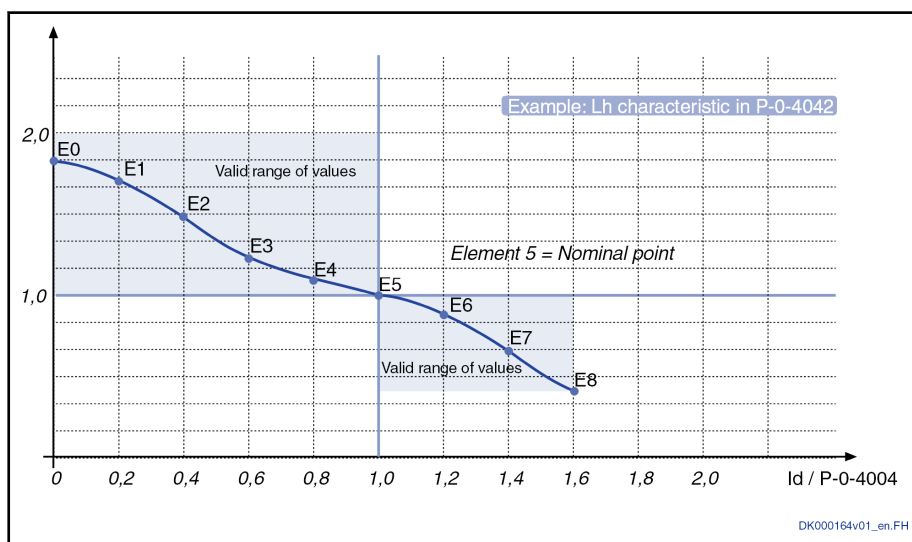


Fig.5-347:  $L_h$  Characteristic of P-0-4042

### P-0-4042 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	3
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	0,500 / 2,000	s. Text
MPC:	0,500 / 2,000	s. Text
MPE:	0,500 / 2,000	s. Text
MPM:	0,500 / 2,000	s. Text

## 5.16.68 P-0-4043, Rotor time constant

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is only active with asynchronous motors. It has considerable influence on the torque generation of the motor. It defines significantly the "slip" under load.



"Slip" is the difference of the rotational frequency of the electric rotary field in the stator divided by the number of pole pairs of the motor, and the mechanical rotational frequency of the rotor.

The value for "P-0-4043" is motor-specific and for asynchronous Rexroth motors is made available via the commissioning software (e.g., IndraWorks) or via the Intranet output of the manufacturer-side data base DriveBase!

P-0-4043 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	ms	Extr. val. ch.:	+	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	Grp. 4

Input	min./max.	Default value
MPB:	0,100 / 10000,000	100,000
MPC:	0,100 / 10000,000	100,000
MPE:	0,100 / 10000,000	100,000
MPM:	0,100 / 10000,000	100,000

## 5.16.69 P-0-4045, Maximum possible continuous current

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter indicates how much current the controller can continuously provide in the present load situation. At the same time, this current is the current to which the continuous current limitation would reduce, if the load situation would continue.

See also Functional Description "Current Limitation Loop"

P-0-4045 - Attributes	Function:	Par	Editable:	--	Data length:	4Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	A eff	Extr. val. ch.:	--	Decim. pl.:	3
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.70 P-0-4046, Effective peak current

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			

## Product-Specific Parameters

**Funct. package(s):** "open loop", "closed loop"  
**Device parameter:** axis-specific

**Function** This parameter displays the maximum current that the controller can temporarily supply to the motor in the active load condition. This is the rms value of the total current, i.e. torque-generating and magnetic-field-generating components are contained!

See also Functional Description "Current Limitation Loop"

**Use** This parameter is calculated and preset by the drive controller when progressing to the operating mode. The dynamic current limitation reduces this value in accordance with the work load of the amplifier or the motor.

This limit value is determined considering the following parameters:

IDN	Name	Unit
S-0-0109	Motor peak current	A eff
S-0-0110	Amplifier peak current	A eff
P-0-4058	Amplifier type data	
P-0-4004	Magnetizing current	A eff

Tab.5-348: Effective peak current, dependencies

### P-0-4046 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	A eff	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	3
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.71 P-0-4048, Stator resistance

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter specifies the winding resistance of the motor between two terminal pins.



The correct value is written to this parameter as follows:

- In case of Rexroth motors with encoder data memory:  
Automatically on switchon of the controller and transition of "PM → OM".
- In case of Rexroth motors without encoder data memory:  
By loading the motor parameters with commissioning software "IndraWorks Ds/D/MLD".
- In case of other motors:  
By manual input according to the manufacturer's specification.

See also Functional Description "Motor, Mechanical Axis System Measuring Systems"

## Product-Specific Parameters

<b>P-0-4048 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Ohm	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	3
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	Grp. 4
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	0,000 / 2000,000		0,000	
		<b>MPC:</b>	0,000 / 2000,000		0,000	
		<b>MPE:</b>	0,000 / 2000,000		0,000	
		<b>MPM:</b>	0,000 / 2000,000		0,000	

## 5.16.72 P-0-4050, Answer delay RS-232/485

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** The RS-485 interface (also in bus mode) works in the semi-duplex mode. The same pair of lines is used for both directions.

The data direction must be changed during the data exchange. In order to give the connected devices (PC or PLC) sufficient time for switching between sending and receiving on their side, the answer time of the drive can be set by means of this parameter.

P-0-4050 defines the minimum time in ms that has to pass after the last character of a telegram has been received via the serial interface, before the first reaction character may be sent. To operate RS-232 this parameter is not required.

The required answer delay depends on the master/PC that is used. In the condition as supplied the value for the answer delay is set to a value with which most of the PCs can normally work without any problem.



When communication problems occur (e.g. "TIMEOUT" message in the commissioning software), the value for the answer delay has to be increased step by step until the problems do not occur any longer. For reasons of safety the limit value established in this way should be given a factor of 1.5 and be entered as the answer delay.

See also Functional Description "Serial Communication"

<b>P-0-4050 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	ms	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	1 / 200		1	
		<b>MPC:</b>	1 / 200		1	
		<b>MPE:</b>	1 / 200		1	
		<b>MPM:</b>	1 / 200		1	

## 5.16.73 P-0-4051, Positioning block acknowledgment

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	closed loop			
	<b>Device parameter:</b>	axis-specific			

**Function** Acknowledgment of the accepted positioning block  
See also Functional Description "Positioning Block Mode"

Product-Specific Parameters

<b>P-0-4051 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
	<b>Input</b>	<b>min./max.</b>			<b>Default value</b>	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.16.74 P-0-4052, Positioning block, last accepted

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Last accepted positioning block (retain data). In the case of sequential block chains, this is the first block with which the sequential block chain was started.					
	See also Functional Description "Positioning Block Mode"					
P-0-4052 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.16.75 P-0-4053, Positioning block, last active

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	--				
	Funct. package(s):	closed loop				
	Device parameter:	axis-specific				
Function	Last accepted positioning block (retain data). For sequential block chains this is the last active block of the sequential block chain. For individual blocks P-0-4052 and P-0-4053 are always equal.					
	See also Functional Description "Positioning Block Mode"					
P-0-4053 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	RE-TAIN_KUNDE	Validity ch.:	--	Format:	DEC_MV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.16.76 P-0-4056, Thermal coefficients HCS04

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«-»
	Contained in 18VRS:	«MPB»	«MPE»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This list parameter contains electric type data describing the power section.				

## Product-Specific Parameters



Type data is defined separately for each power section and is entered once during the manufacturing process. Type data is displayed via this parameter. Changes are neither required nor allowed (write-protected parameter).

## P-0-4056 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	LT_SP	Validity ch.:	PM->OM	Format:	FLOAT
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.77 P-0-4057, Positioning block, input linked blocks

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** Parameter P-0-4057 is an image of the sequential block inputs.  
See also Functional Description "Positioning Block Mode"

## P-0-4057 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.78 P-0-4058, Amplifier type data

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** In order to enable the determination of the amplifier work load, the physical properties of the amplifier must be known to the firmware.

**Characteristic data:**

- thermal insulation data
- continuous amplifier power
- thermal capacities

## P-0-4058 - Attributes

Function:	Par	Editable:	--	Data length:	4Byte var.
Memory:	LT_SP	Validity ch.:	PM->OM	Format:	DEC_MV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	4
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	-214748,3648 / 214748,3647---	---
MPC:	-214748,3648 / 214748,3647---	---
MPE:	-214748,3648 / 214748,3647---	---
MPM:	-214748,3648 / 214748,3647---	---

## 5.16.79 P-0-4059, Electric type data of power section

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This list parameter contains electric type data that are describing the power section.



The type data are individually determined for each power section and are entered one time in the production process. The type data are displayed via this parameter. Changes are not required and not allowed (write-protected parameter)!

### P-0-4059 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte var.
<b>Memory:</b>	LT_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.80 P-0-4060, Positioning block control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** This parameter is used as control word for positioning block mode and has the following structure:

### Parameter structure:

Bit	Designation/function	Comment
0	acceptance of the positioning block selected in P-0-4026 by a 0 → 1 edge  (Is only relevant for parallel interface and field bus I/O mode!)	
1	0: traveling with the velocity of the current positioning block  1: limitation of the velocity to "S-0-0259, Positioning velocity"  Bit 0 is only relevant in positioning block mode!	

Tab.5-349: P-0-4060, Positioning block control word

See also Functional Description "Positioning Block Mode"

### P-0-4060 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0x0 / 0x3	0x2
MPC:	0x0 / 0x3	0x2

## Product-Specific Parameters

MPE:	0x0 / 0x3	0x2
MPM:	0x0 / 0x3	0x2

## 5.16.81 P-0-4061, Positioning block status word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** The parameter contains the status bits that are only valid for the positioning block mode. All other generally valid status bits for positioning are contained in parameter "S-0-0437, Positioning status word".

See also Functional Description "Positioning Block Mode"

**Use** The bits in "P-0-4061" have the following significance:

- **Bit 4:** Bit 4 "end position reached" is set when a positioning block was completed. For sequential block chains the bit is set when the end of the sequential block chain has been reached.

P-0-4061 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.82 P-0-4063, Positioning block deceleration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	closed loop			
	Device parameter:	axis-specific			

**Function** In operation mode positioning block mode, this parameter is used to define the position deceleration of the max. 64 positioning blocks individually and in different form (→ list parameter with 64 elements).



In conjunction with the corresponding jerk value entered in "P-0-4063, Positioning block jerk ", the positioning deceleration entered in "P-0-4008" defines the parameter content of "P-0-0042, Current position command average value filter order".

See also Functional Description "Positioning Block Mode"

P-0-4063 - Attributes	Function:	Par	Editable:	++	Data length:	4Byte var.
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_MV
	Unit:	S-0-0160	Extr. val. ch.:	+	Decim. pl.:	S-0-0161 / S-0-0162
	Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	S-0-0160 / S-0-0160	s. Text
MPC:	S-0-0160 / S-0-0160	s. Text
MPE:	S-0-0160 / S-0-0160	s. Text
MPM:	S-0-0160 / S-0-0160	s. Text

## 5.16.83 P-0-4064, Password level

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»

## Product-Specific Parameters

Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	---			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	axis-specific			

**Function** The user or service staff can use this parameter to read the current password protection. All passwords mentioned in the table are entered via "S-0-0267, Password".

See also Functional Description "Using a Password"

### Structure

Content of P-0-4064	Content of S-0-0267	Description	Parameter acc. to S-0-0279	Management parameter	Remaining parameters
0	"007"	No password available	W, R	R	W, R
1	"\$\$\$"	Customer password available but deactivated	W, R	R	W, R
2	"***"	Customer password available and activated	R	R	W, R
3	"\$\$\$"	Control password entered	W, R	R	W, R

W Write access

R Read access

Tab.5-350: Overview of Password Levels



"Management parameters" are motor parameters (e.g., P-0-3000), device parameters (e.g., P-0-1509, ...), encoder parameters (e.g., P-0-1000, ...), error memories (e.g., P-0-0192, ...), etc.

### P-0-4064 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.16.84 P-0-4065, Active non-volatile memory

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	---			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** The active memory is displayed in this parameter.

See Functional Description "Loading, Storing and Saving Parameters"

## Product-Specific Parameters

P-0-4065 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	ON_BOARD_SP	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.16.85 P-0-4066, Card Identification Data

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«-»	«-»	«-»	«MPC»
	Contained in 18VRS:	«-»	«-»	«-»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** If this parameter contains identification data (CID), the memory card has been initialized successfully. If there is not CID (parameter content 0xFF), there is either no memory card inserted into the slot or successful initialization was not possible.



This parameter is for service purposes only and irrelevant on the application side.

P-0-4066 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	--- / ---		---		
	MPC:	--- / ---		---		
	MPE:	--- / ---		---		
	MPM:	--- / ---		---		

## 5.17 P-0-4068 to P-0-4095 Field Bus and Serial Communication

## 5.17.1 P-0-4068, Field bus: Control word IO

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The parameter "P-0-4068" is used in IO mode as a field bus control word (16 bit). We distinguish the following profile types with freely expandable real-time data and configurable field bus status word:

- "I/O mode - positioning (P-0-4084, Field bus: Profile type = 0xFF82).
- "I/O mode - velocity input " (P-0-4084, Field bus: Profile type = 0xFF92).

See also Functional Description "Supported Profile Types"

**Structure** As a bit list, "P-0-4068" has a profile-type-dependent structure:

Product-Specific Parameters

Bit	Function with I/O Mode positioning	Function with I/O Mode	Comment
0	<b>Controller enable</b> (P-0-0116, bit 15) <b>0 -&gt; 1:</b> controller enable <b>1 -&gt; 0:</b> best possible shutdown acc. to "P-0-0119" <b>(Note:</b> bit 14 of "P-0-0116" is set automatically as soon as the field bus is active!)		
1	<b>Drive-Halt</b> (P-0-0116, bit 13) <b>0 -&gt; 1:</b> Drive start <b>1 -&gt; 0:</b> Drive halt, i.e. the drive is shutdown immediately (Speed command value reset)		
2	<b>Set to zero</b> (S-0-0148) <b>0 -&gt; 1:</b> Start homing command "C6" <b>1 -&gt; 0:</b> End homing command "C6"	<b>Bit 4... 2: run-up stop</b> (P-0-1200)	
3	<b>Strobe</b> (P-0-4060, Bit 0) <b>0-&gt;1:</b> apply travel block	<b>000:</b> Deactivated <b>xx1:</b> always (unconditionally) active <b>x10:</b> only if command value limitation active <b>1x0:</b> only if command value limitation active	
4	<b>Positioning with limited velocity</b> (P-0-4060, Bit 1) <b>1:</b> limited velocity with "positioning velocity" (S-0-0259) as limitation		
5	<b>Clear error</b> (S-0-0099) <b>0 -&gt;1:</b> start error clearing command "C5" <b>1 -&gt; 0:</b> Complete homing command "C5"		

## Product-Specific Parameters

Bit	Function with I/O Mode positioning	Function with I/O Mode	Comment
13-6	<b>Bit 7.6: Positioning / jogging</b> (S-0-0346 Bit 2...1): <b>00:</b> Positioning active, start at change of bit 0, positioning aborted by: <b>01:</b> Infinite travel in positive direction (jog+) <b>10:</b> Infinite travel in negative direction (jog-) <b>11:</b> Stopping the axis (positioning stop)	<b>Bit 10... 6: Activation of a fixed command value</b> (P-0-1200) <b>00000:</b> Command value S-0-0036 active <b>xxxx1:</b> cmd value P-0-1206 element 1 active <b>xxx10:</b> cmd value P-0-1206 element 2 active <b>xx100:</b> cmd value P-0-1206 element 3 active <b>x1000:</b> cmd value P-0-1206 element 4 active <b>10000:</b> cmd value P-0-1206 element 5 active	
	<b>Bit 13... 8: travel block select</b> "Positioning block selection" (P-0-4026, bit 0... 5)	<b>Bit 12... 11: Ramp inputs for motor potentiometer</b> (P-0-1200) <b>00:</b> Command value is maintained <b>01:</b> Command value is increased <b>10:</b> Command value is reduced <b>11:</b> Command value is maintained	
		<b>Bit 13: Inversion of velocity command value</b> (P-0-1200)	
14	—	<b>Enabling for motor potentiometer</b> (P-0-1214) <b>0:</b> disabled (S-0-0036 or fixed command value active) <b>1:</b> Motor potentiometer is active	

Tab.5-351: Structure of P-0-4068

**Use** Observe the following aspects for using the parameter:

- The field bus control word "P-0-4068" cannot be configured and has been preconfigured with the required control bits for the IO mode.
- "P-0-4068" doesn't allow phase switching via a bit, this is why in I/O mode phase switching has to be done by starting the transition commands (C0200, C0400) via the parameter channel.
- When changing from parameter mode to operation mode, a check is run to make sure that the control word is always listed once in "P-0-4081, Field bus: Config. list of cyclic command value data ch. ".



The content of this parameter is only relevant for profile type "I/O-Modus" (P-0-4084 = 0xFF82 and 0xFF92).

## P-0-4068 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT + MDT	Comb. check:	--	Set-depend.:	--

Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.17.2 P-0-4069, Field bus: Module diagnosis

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** Parameter for reading master communication settings and status (in case of field buses).



This parameter is only relevant for development staff. It is of no relevance for the application!

See also Functional Description "PROFIBUS-DP"

P-0-4069 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte var.
	Memory:	--	Validity ch.:	--	Format:	HEX
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.17.3 P-0-4071, Field bus: Length of cyclic command value data channel

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter reflects the number of bytes of the process data channel parameterized in "P-0-4081, Field bus: Config. list of cyclic command value data ch. "

This length does not contain the length parameterized in "P-0-4083, Field bus: Length of parameter channel " of a possibly available parameter channel. The graduation takes place in word boundaries, i.e. possible values are 2, 4, 6,... 32.

P-0-4071 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 32	---
MPC:	--- / ---	---
MPE:	0 / 32	---
MPM:	0 / 32	---

## 5.17.4 P-0-4073, Field bus: Diagnostic message

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

## Product-Specific Parameters

**Function** In this parameter, the status of the field bus status machine is stored in plain text. The diagnostic message depends on the field bus used and is according to the designations used in the standard.

See also Functional Description "PROFIBUS"

**Use** **Significance of diagnostic message texts with PROFIBUS DP**

Display texts for PROFIBUS master communication:

Text	Significance
"OFFLINE":	Initialization value of the diagnostic message.
"Power-On":	A PROFIBUS card has been recognized as master communication and the hardware is checked.
"Baud-Search":	The hardware is okay; the PROFIBUS is monitored in order to recognize the baud rate used.
"Wait-Prm":	The baud rate has been found, the drive waits for a parameterization telegram of the master that contains its IDN (contained in the device data sheet).
"Wait-Cfg":	The IndraDrive device has received a valid parameterization telegram and now waits for the configuration telegram in which the master tells the drive which modules it is expecting for input/output configuration.
"Data-Exch WD+":	The drive received a valid configuration, it exchanges real-time data with the master and the communication is monitored by a watchdog.
"Data-Exch WD-":	The drive received a valid configuration, it exchanges real-time data with the master and the communication is not monitored by a watchdog.

Tab.5-352: Significance of the entries in parameter P-0-4073



The states "Data-Exch WD+" and "Data-Exch WD-" are additionally signaled by H30 being lit!

**Significance of diagnostic message texts with PROFINET/EtherNet/IP (MultiEthernet-Interface)**

Display texts for PROFINET/EtherNet/IP master communication:

Text	Significance
<b>INIT:</b> Initialize after BootUp	MultiEthernet-Interface is in boot-up.
<b>NO IP:</b> IP-Adress not configured	The IP address settings are not valid.
<b>DUP IP:</b> IP-Adress conflicted	The "Duplicate-IP-Adress-Check" showed that the IP address which was set already exists in the network.
<b>ERROR:</b> error while startup	MultiEthernet-Interface has detected a fatal error.
<b>NO IO:</b> no IO communication after Bootup	The master/controller has not built an I/O connection

Product-Specific Parameters

<b>CONF DIFF:</b> configuration different	The configuration of a cyclic telegram is different between drive and master/controller.
<b>RUN:</b> Data Exchange activ	The I/O connection has been established without error.
<b>IDLE:</b> Master in Stop-Mode	A cyclic connection had exist and was set into the idle state by the master/controller.
<b>CLOSED:</b> closed from Master	A cyclic connection had exist and was completed by the master/controller.
<b>TIMEOUT:</b> Master-Slave timed out	A cyclic connection had still exist, but no data exchange took place within the threshold monitoring
<b>Watchdog:</b> FKM option	The MultiEthernet interface is overloaded and cannot transfer the I/O data to the drive.
<b>Watchdog:</b> IndraDrive	The IndraDrive is overloaded and cannot transfer the I/O data to the MultiEthernet interface.

Tab.5-353: Plain text and meaning of the entries within parameter P-0-4073 at PROFINET and EtherNet/IP

### Meaning of diagnostic texts at CANopen

Display texts at CANopen master communication (from MPx17V06)

Diagnostic message	Significance
CANopen: Offline	CANopen task is initialized.
CANopen: Auto Baudrate Detection	Drive searches baud rate.
CANopen: Initialised	Initialization was run after switch-on or after a reset.
CANopen: Initialised CAN-Warning	In status "Initialised", too many errors were detected on CAN bus, CAN interface is in status "Warning". This status mostly means that boot-up telegram could not be transmitted. Possible causes: Drive (currently) is only node at bus or there is node with different baud rate at bus.
CANopen: pre-operational	Device changes automatically from state "Initialized" into "Pre-operational". Boot-up telegram was transmitted, as soon as baud rate was detected (or a fixed baud rate was entered). SDO communication is possible from this state.
CANopen: Pre-Operational CAN-Warning	In status "Pre-Operational", too many errors were detected on CAN bus, CAN interface is in status "Warning".
CANopen: operational	Drive exchanges cyclic data (see "List of transfer modes").
CANopen: Operational (only producer)	By received heartbeat telegram, master detected that heartbeat transmitter does not send any PDO due to network status.
CANopen: Operational CAN-Warning	In status "Operational", too many errors were detected on CAN bus, CAN interface is in status "Warning".
CANopen: stopped	Drive is in status "Stopped". In this status, drive only receives NMT commands. It is now possible to change basic communication parameters, such as baud rate or address.

## Product-Specific Parameters

CANopen: Stopped CAN-Warning	In status "Stopped", too many errors were detected on CAN bus, CAN interface is in status "Warning".
CANopen: BUS-OFF	CAN interface detected too many transmission errors and received incorrect telegrams. Possible causes are, among other things, disturbances on bus cable, short circuits, interruptions of bus cable or nodes with different baud rates at bus.
CANopen: BUS-OFF (RxCounter = 0)	CAN interface detected too many transmission errors. Most likely there wasn't any telegram received or received telegrams were not error-free.

Tab.5-354: Overview of diagnostic messages for CANopen communication

## P-0-4073 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	1Byte var.
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	ASCII
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.17.5 P-0-4074, Field bus: Data format

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Parameter "P-0-4074, Field bus: Data format" is used to swap the data content word by word if there are 32-bit values in the process data channel.

The default value of the parameter is zero and should only be modified in special cases.

See also Functional Description "PROFIBUS-DP"

See also Functional Description "PROFINET"

## P-0-4074 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	0x0 / 0x1	0x0
MPC:	0x0 / 0x1	0x0
MPE:	0x0 / 0x1	0x0
MPM:	0x0 / 0x1	0x0

## 5.17.6 P-0-4075, Field bus: Watchdog

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter is used to store the watchdog time in ms which the master delivers in the parameterizing telegram. If the master communication is interrupted for an interval exceeding this time, a communication error is generated.

## P-0-4075 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV

Product-Specific Parameters

Unit:	ms	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.		Default value		
MPB:	---		---		
MPC:	---		---		
MPE:	---		---		
MPM:	---		---		

## 5.17.7 P-0-4076, Field bus: Process data - updating clock

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»	
	Hardware	optional drives card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	Up to MPx-16: Field bus: cycle time (Tcyc)					
	The content of "P-0-4076" defines the time intervals at which the cyclic real-time data (command values and actual values) is processed in the field bus drive.					
	See also Functional Description "PROFIBUS-DP"					
	See also Functional Description "PROFINET"					
	See also Functional Description "CANopen Interface"					
	See also Functional Description "EtherNet/IP Interface"					
Use	Allowed input values in "P-0-4076":					
	<ul style="list-style-type: none"><li>• Minimum "Field bus: Process data - updating clock (Tcyc)": 2 ms</li><li>• Minimum "Field bus: Process data updating clock (Tcyc)" for MPC: 0.5 ms</li><li>• Time intervals of the allowed inputs: 1 ms</li><li>• Maximum "Field bus: Process data - updating clock (Tcyc)": 65 ms</li></ul>					
P-0-4076 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
	Unit:	us	Extr. val. ch.:	+	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.		Default value		
	MPB:	500 / 65000		2000		
	MPC:	500 / 65000		2000		
	MPE:	500 / 65000		2000		
	MPM:	1000 / 65000		2000		

## 5.17.8 P-0-4077, Field bus: Control word

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	Parameter "P-0-4077" is used as field bus control word for PRC profiles "Freely configurable mode" (0xFFFE) and "Freely configurable mode "operation mode neutral" (0xFFFD).				



The significance and function of the control bits cannot be configured and are defined by the profile selection!

See also Functional Description "Supported Profile Types"

## Product-Specific Parameters

Structure	Bit	Designation/function	Comment
	0	<b>Command value acceptance</b> Upon a change (S-0-0346, bit 0) - a positioning block is activated, or - the command position is applied.	Not supported in profile 0xFFFFD (see P-0-4084)
	1	<b>Operating mode setting</b> 0->1: Change to operating mode 1->0: Change to parameterization mode	
	2	<b>Moving to zero (S-0-0148)</b> 0->1: Start homing command "C6" 1->0: Exit homing command "C6"	Not supported in profile 0xFFFFD (see P-0-4084)
	3	<b>Absolute / relative (S-0-0346, bit 3)</b> (only effective when using "Positioning command value" (S-0-0282)) 0: "S-0-0282, Positioning command value" is processed as absolute target position in the drive 1: "S-0-0282, Positioning command value" is processed as relative travel path in the drive	Not supported in profile 0xFFFFD (see P-0-4084)
	4	<b>Immediate block change (S-0-0346, bit 5)</b> (only effective when using "S-0-0282, Positioning command value") 0: "S-0-0282, Positioning command value" is only applied after the last active target position was reached 1: "S-0-0282, Positioning command value" is applied immediately on toggling of command value acceptance	Not supported in profile 0xFFFFD (see P-0-4084)
	5	<b>Clear error (S-0-0099)</b> 0->1: Start error clearing command "C5" 1->0: Exit command "C5"	
	7/6	<b>Positioning/jogging (S-0-0346 bit 2 + S-0-0346 bit 1)</b> Positioning activated by: 00: Positioning active, started by changing bit 0 Positioning aborted by: 01: Infinite travel in positive direction (jog+) 10: Infinite travel in negative direction (jog-) 11: Stopping the axis (positioning stop)	Not supported in profile 0xFFFFD (see P-0-4084)
	9/8	<b>Command operation mode (with SERCOS: S-0-0134, bit 8... 9)</b> 00: Primary operation mode 01: Secondary oper. mode 1 (e.g., jogging) 10: Secondary oper. mode 2 11: Secondary oper. mode 3	
	12	<b>IPOSYNC</b> Interpolator clock (only in cycl. pos. control): Toggles when new command values are transmitted	

Product-Specific Parameters

Bit	Designation/function	Comment
13	<b>Drive Halt (P-0-0116, bit 13)</b> 0-> 1: Drive start 1-> 0: Drive Halt, i.e., the drive is immediately decelerated (speed command value reset!)	
14	<b>Drive enable (P-0-0116, bit 14)</b> Irrespective of P-0-4077, bit 14 of "P-0-0116" is automatically set internally as soon as field bus communication is active.	
15	<b>Drive ON (P-0-0116, bit 15)</b> 0->1: Drive enable 1->0: Best possible deceleration according to "P-0-0119"	

Tab.5-355: P-0-4077: Field bus: Control word



The parameter may not be parameterized at the same time as "P-0-4068, Field bus: Control word IO" in "P-0-4081, Field bus: Config. list of cyclic command value data ch.". In addition, parameter "P-0-4077" (if used) must always be the first in parameter "P-0-4081".

P-0-4077 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT + MDT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
<b>Input</b>	<b>min./max.</b>		<b>Default value</b>		
<b>MPB:</b>	--- / ---		---		
<b>MPC:</b>	--- / ---		---		
<b>MPE:</b>	--- / ---		---		
<b>MPM:</b>	--- / ---		---		

## 5.17.9 P-0-4078, Field bus: Status word

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** "P-0-4078" is used as status word for feedback of the drive status to the field bus master in the case of field bus drives that are operated in the freely configurable profile type (P-04084 = 0xFFFE).



The configuration of "P-0-4078" cannot be changed, i.e. the bit assignment cannot be parameterized.

In parameter "P--0--4080" must the parameter "P--0--4078" (when using), be on the first place.

See also Functional Description "Supported Profile Types"

**Structure** The individual bits of the parameter have the following significance:

## Product-Specific Parameters

Bit	Designation/function	Comment
1/0	<b>Operating mode acknowledgment</b> <b>10:</b> Operating mode <b>01:</b> Not relevant <b>00:</b> Parameter mode	
2	<b>In reference (status of reference encoder)</b> (S-0-0403, Bit 0) actual position value (encoder 1 or 2) is <b>0:</b> Relative <b>1:</b> Homed	
3	<b>In standstill (S-0-0331, bit 0)</b> <b>1:</b> Actual velocity   < standstill window S-0-0040  < S-0-0124	
4	<b>Command value reached for ...</b> <b>... Velocity control</b> <b>1:</b> Command speed reached (S-0-0330, bit 0) <b>... Cyclic position control</b> <b>1:</b> In position (S-0-0336, bit 0) <b>... Drive-internal interpolation</b>  <b>1:</b>  (S-0-0258) - (S-0-0051/53)  S-0-0057 (S-0-0437, Bit 1) <b>... Drive-controlled positioning:</b> <b>1:</b>  (S-0-0430) - (S-0-0051/53)  S-0-0057 and in "position" (S-0-0336, Bit 0) and "Nfeedback = 0" (S-0-0331, Bit 0); (S-0-0437, Bit 2) <b>... Positioning block mode</b> <b>1:</b> "End position reached" P-0-4061, Bit 4) Other operation modes: 1. Target position attained" (S-0-0342, Bit 0)	
5	<b>Command change bit</b> <b>1:</b> If command status has changed <b>0:</b> If command status has not changed	
6	<b>Operating mode error</b> <b>1:</b> Error in transition command <b>0:</b> No error in transition command	
7	<b>Status of command value processing</b> <b>1:</b> Drive does not follow command value input (e.g., when Drive Halt is active) <b>0:</b> Drive follows command value input (e.g., "AF" active)	

Product-Specific Parameters

Bit	Designation/function	Comment
9/8	<b>Actual operation mode (P-0-0116 Bit 8...9)</b> 00: Primary operation mode 01: Secondary oper. mode 1 10: Secondary oper. mode 2 11: Secondary oper. mode 3	
10	<b>Command value acknowledgment</b> By toggling the bit (S-0-0419, Bit 0), the drive acknowledges the acceptance of the "positioning command value" (S-0-0282).	
11	<b>Class 3 diagnostics message (cf. S-0-0013)</b> The bit is set if a class 3 diagnostics message is present.	
12	<b>Class 2 diagnostics warning (cf. S-0-0012)</b> The bit is set if a class 2 diagnostics warning is present.	
13	<b>Class 1 diagnostics drive error (cf. S-0-0011)</b> The bit is set if a class 1 diagnostics error is present (drive interlock).	
15/14	<b>Ready for operation (P-0-0116, Bit 14/15)</b> 00: Not ready for power on (e.g. "P2") 01: Ready for power on ("bb") 10: Control section and power section ready for op. ("Ab") 11: In operation, with torque (e.g. "AF")	

Tab.5-356: P-0-4078, Field bus: Status word

P-0-4078 - Attributes

Function:	Par	Editable:	--	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	AT	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.17.10 P-0-4079, Field bus: Baud rate

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	optional drives card				
Funct. package(s):	"open loop", "closed loop"				
Device parameter:	device-specific				

**Function** This parameter contains the active baud rate of the field bus interface. There are the following cases:

- **PROFIBUS DP:** The baud rate used by the field bus is automatically determined and displayed in this parameter.
- **DeviceNet and CANopen:** The baud rate used by the field bus is set in parameter "P-0-4079".

## Product-Specific Parameters



By entering a baud rate of "0", automatic baud rate detection can be activated. In exceptional cases, however, this might not work correctly so that we recommend manual input.

See also Functional Description "PROFIBUS-DP"

See also Functional Description "CANopen Interface"

See also Functional Description "DeviceNet Interface"

**P-0-4079 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	4Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
<b>Unit:</b>	kBaud	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	2
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	0,00
MPC:	--- / ---	0,00
MPE:	--- / ---	0,00
MPM:	--- / ---	0,00

**5.17.11 P-0-4080, Field bus: Config. list of cyclic actual value data ch.**

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to configure the process input data channel (slave-master, i.e., "AT") irrespective of the field bus used.

**Use** The only operating data that can be entered in parameter "P-0-4080" is the operating data listed in parameter "S-0-0187, List of configurable data in the AT". Otherwise, transition command error "C0231 Field bus: IDN for cycl. actual val. not configurable" is generated. Based on parameter "P-0-4080", the field-bus-specific configuration of the real-time data channel is generated for the slave-master direction. By reading the field-bus-specific object or by reading "P-0-4080", the master can obtain information on the position of the individual real-time data (parameters or objects) at the field bus. Changes in parameter "P-0-4080" only take effect after progression of the drive to operating mode.

**P-0-4080 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

**5.17.12 P-0-4081, Field bus: Config. list of cyclic command value data ch.**

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter is used to configure the process output data channel (master-slave, i.e., "MDT") irrespective of the field bus used.

**Use** The only operating data that can be entered in parameter "P-0-4081" is the operating data listed in parameter "S-0-0188, List of configurable data in the MDT". Otherwise, transition command error "C0229 Field bus: IDN for cycl.

## Product-Specific Parameters

command val. not configurable" is generated. Based on parameter "P-0-4081", the field-bus-specific configuration of the real-time data channel is generated for the master-slave direction. By reading the field-bus-specific object or by reading "P-0-4081", the master can obtain information on the position of the individual real-time data (parameters or objects) at the field bus. Changes in parameter "P-0-4081" only take effect after progression of the drive to operating mode.

<b>P-0-4081 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	4Byte var.
	<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	IDN
	<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	--- / ---		s. Text	
		<b>MPC:</b>	--- / ---		s. Text	
		<b>MPE:</b>	--- / ---		s. Text	
		<b>MPM:</b>	--- / ---		s. Text	

### 5.17.13 P-0-4082, Field bus: Length of cyclic actual value data channel

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** This parameter reflects the number of bytes of the process data channel parameterized in P-0-4080, Field bus: Config. list of cyclic actual value data ch.

This length does not contain the length parameterized in "P-0-4083, Field bus: Length of parameter channel" of a possibly available parameter channel. The graduation takes place in word boundaries, i.e. possible values are 2, 4, 6,... 32.

<b>P-0-4082 - Attributes</b>	<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
	<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	DEC_OV
	<b>Unit:</b>	Byte	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
	<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--
		<b>Input</b>	<b>min./max.</b>		<b>Default value</b>	
		<b>MPB:</b>	0 / 32		---	
		<b>MPC:</b>	--- / ---		---	
		<b>MPE:</b>	0 / 32		---	
		<b>MPM:</b>	0 / 32		---	

### 5.17.14 P-0-4083, Parameter channel: Length

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	optional drives card			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	device-specific			

**Function** This parameters shows the length of the parameter channel. In addition to the transmission of real-time data (also called process data), communication via a field bus also requires transmission of parameters that are not linked to a real-time cycle. In case of PROFIBUS and PROFINET, this data can be exchanged via a parameter channel.

See also Functional Description "PROFINET"

See also Functional Description "PROFIBUS-DP"

**Use** The parameter channel is set by selecting the appropriate I/O modules in the configuration software of the PROFIBUS. The following parameter channel modules can be selected:

ParamCh EIDN: Is used to access EIDN parameters (length: 6 words).

## Product-Specific Parameters

ParamCh IDN: Is used to access IDN parameters/EIDN replacement parameters (length: 5 words).

ParamCh not used: No parameter channel selected (length: 0 words).

The set length is displayed in parameter "P-0-4083" in bytes after the drive has reached the "Data-Exch" status.

In MPx-16VRS, this parameter serves to define the length of the parameter channel when PROFINET is used. As of MPx-17VRS, the length is defined by configuring parameter "P-0-4083.0.1, Parameter channel: Configuration" when PROFINET is used.



The parameter channel module must always be fitted to the first slot.

## P-0-4083 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	DEC_OV
Unit:	Byte	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 16	---
MPC:	0 / 16	---
MPE:	0 / 16	---
MPM:	0 / 16	---

## 5.17.15 P-0-4083.0.1, Parameter channel: Configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Replacement parameter "P-0-2339" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter can be used to configure the parameter channel.

## Structure

Content of P-0-4083.0.1	Designation/function	Comment
0	Deactivated	The parameter channel is deactivated.
1	IDN access	The parameter channel is used to access IDN parameters of the drive.
2	EIDN access	IDN and EIDN parameters can be accessed via "EIDN parameter channel access".

Tab.5-357: Options of P-0-4083.0.1, Parameter channel: Connection setup

## P-0-4083.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 2	0
MPC:	0 / 2	0
MPE:	0 / 2	0
MPM:	0 / 2	0

## 5.17.16 P-0-4084, Field bus: Profile type

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»

## Product-Specific Parameters

<b>Hardware</b>	optional drives card
<b>Funct. package(s):</b>	"open loop", "closed loop"
<b>Device parameter:</b>	axis-specific

- Function** The setting of "P-0-4084" involves
- Profile-dependent interpretation of the control and status words
  - Selection of the primary operation mode set in the drive
  - Configuration of the real-time data channel (unless freely configurable)

See also Functional Description "Profile Types"

**Use** The following settings can be made:

**0x0000:** No profile has been selected (as of MPx-17)

**0xFF82:** I/O mode "positioning" (with configurable real-time data)

**0xFF92:** I/O mode "preset velocity" (with configurable real-time data)

**0xFFFFD:** Freely configurable mode "operation mode neutral"

**0xFFFFE:** Freely configurable mode



Changes in parameter "P-0-4084, Field bus: Profile type" are only effective after switchover to operating mode (phase 4).

### P-0-4084 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	PM	<b>Data length:</b>	2Byte
<b>Memory:</b>	PARAM_SP	<b>Validity ch.:</b>	PM->OM	<b>Format:</b>	HEX
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	0xFF82
<b>MPC:</b>	--- / ---	0xFF82
<b>MPE:</b>	--- / ---	0xFF82
<b>MPM:</b>	--- / ---	0xFF82

## 5.17.17 P-0-4085, C4700 Command Activate easy startup mode

<b>Allocation</b>	<b>Contained in 16VRS:</b>	«MPB»	«MPE»	«MPM»	
	<b>Contained in 17VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Contained in 18VRS:</b>	«MPB»	«MPE»	«MPM»	«MPC»
	<b>Hardware</b>	--			
	<b>Funct. package(s):</b>	"open loop", "closed loop"			
	<b>Device parameter:</b>	axis-specific			

**Function** **P-0-4088, Master communication: Drive configuration : bit 5 = 0:**

The drive configuration switches in the parameter mode and reconfigures the I/O according to the described configuration. The configuration is not stored. By deactivating the command, the originally I/O configuration and the originally master communication are active again.

**P-0-4088, Master communication: Drive configuration : bit 5 = 1:**

The drive does not reconfigures the I/O assignment.

Is the drive in parameter mode, it switches automatically into the operation mode. The master communication is active again., by deactivating the command.

### P-0-4085 - Attributes

<b>Function:</b>	Cmd	<b>Editable:</b>	++	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	+	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	0x0 / 0x3	---
<b>MPC:</b>	0x0 / 0x3	---

## Product-Specific Parameters

MPE:	0x0 / 0x3	---
MPM:	0x0 / 0x3	---

## 5.17.18 P-0-4086, Master communication status

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** This parameter contains important status information regarding the current state of master communication or device control. Dependent thereof some control information for handling the communication phase switch, as well as for enabling the hardware inputs for drive enable and drive halt, is controlled.



The parameter cannot be written by the user, but is therefore used for diagnostic message.

See also Functional Description "Initial Start in Easy Startup Mode"

See also Functional Description "Device Control and State Machine"

See also Functional Description: "Master communication"

## Structure

Bit	Designation/function	Comment
0	<b>communication phase switching</b> 0: not allowed, i.e. executing the transition command does not cause the communication phase to be switched 1: allowed, i.e. executing the transition command causes the communication phase to be switched	
2	<b>phase progression after control voltage ON</b> 0: no phase progression after control voltage ON 1: phase progression after control voltage ON	
3	<b>Master communication synchronizes the drive</b> 0: No 1: yes, master communication synchronizes the drive	
4	reserved (for internal use)	
8	<b>easy startup mode active</b> 0: normal operation (NO) 1: easy startup mode active	

Tab.5-358: Master communication status

## P-0-4086 - Attributes

<b>Function:</b>	Par	<b>Editable:</b>	--	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	AT	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

Product-Specific Parameters

## 5.17.19 P-0-4087, Baud rate sercos

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»		
	Contained in 17VRS:	«-»	«-»	«-»	«-»	
	Contained in 18VRS:	«-»	«-»	«-»	«-»	
	Hardware	optional master communication card				
	Funct. package(s):	"open loop", "closed loop"				
	Device parameter:	device-specific				
Function	The baud rate setting of the SERCOS interface is displayed in this parameter. The drives automatically recognize the baud rate preset by the master and set their baud rates accordingly.  See also Functional Description "PROFIBUS-DP"					
P-0-4087 - Attributes	Function:	Par	Editable:	++	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	Mbaud	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
	Input	min./max.			Default value	
	MPB:	--- / ---			---	
	MPC:	--- / ---			---	
	MPE:	--- / ---			---	
	MPM:	--- / ---			---	

## 5.17.20 P-0-4088, Master communication: Drive configuration

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			
Function	This parameter contains the configuration bits of master communication or device control. It is used to configure the functions and the behavior of the master communication interface.				
Structure	The parameter has the following structure:				

Bit	Designation/function	Comment
0	<b>Connection of the operating states of the axis to the communication phases sercos and EtherCAT (SoE):</b> <b>0:</b> With communication phase 4 transition check (S-0-0128), the axis is automatically switched to operation mode (communication phase is connected to axis control; S-0-0128 internally starts S-0-0422). <b>1:</b> Switching of communication phase does not automatically lead to initialization of the axis, i.e., the axis remains in parameterization mode. <b>Field bus/analog operation:</b> <b>0:</b> Device carries out axis initialization independently of the bus communication, i.e., the axis is automatically switched to operating mode (OM). <b>1:</b> Device does not automatically carry out axis initialization. The axis remains in parameterization mode (PM).	
2/1	<b>Reaction to failure of cyclic communication (bus failure, bus stop and PLC stop)</b> <b>00:</b> Bus failure as error (F4xxx) and config. error reaction of the drive (P-0-0119) <b>01:</b> Bus failure as warning (E4xxx) and last command value input is retained <b>11:</b> Bus failure as warning with automatic switching to setting-up mode (local mode) <b>10:</b> Reserved	

## Product-Specific Parameters

3	<b>Readiness for operation without active master communication</b> Only relevant for sercos. EtherCat SoE does not allow initializing the axis without active master communication. With all other master communication interfaces, the axis is always initialized automatically. <b>0:</b> Readiness for operation only possible with active sercos master (remote operation). Axis initialization is not carried out automatically. The axis is triggered with the "communication phase 4 transition check" command by the sercos interface. <b>1:</b> Readiness for operation even without sercos communication, i.e., the axis automatically switches to operation mode when the control voltage is switched on even if there is no sercos communication (automatic initialization of the axis). This is required for temporary operation of a sercos device with MLD as the only control unit. As soon as sercos communication becomes active, the sercos interface assumes the control of the axis. This means that on activation of the sercos interface, the master presets communication phase 0.	
5	<b>Autom. I/O configuration for setting-up mode</b> <b>0:</b> Digital inputs are configured automatically (permanent command value memory, drive enable). For this reason, operation of the axis is only possible via the dig. inputs. Control with the commissioning tool (IndraWorks) is impossible. <b>1:</b> No automatic configuration. For this reason, the axis can be controlled and moved in the setting-up mode via the commissioning tool (IndraWorks).	
7	<b>Selection of PLL algorithm for synchronous master communication</b> <b>0:</b> Hard-synchronous PLL control (default), (sercos II) <b>1:</b> Soft-synchronous PLL control (sercos, CANopen)	
8	<b>PLL offset for CANopen</b> <b>0:</b> PLL offset switched off (default) <b>1:</b> PLL offset activated	As of MPx-16V06
11	<b>Cyclic event type for CANopen:</b> <b>0:</b> ChangeOfState (default) <b>1:</b> Cyclic	As of MPx-17V02
12	<b>Timing for CANopen:</b> <b>0:</b> Timing complying with standard (DS301) (default) <b>1:</b> Manufacturer-specific timing	As of MPx-17V10 As of MPx-18V02

Tab.5-359: P-0-4088, Master communication: Drive configuration

**Use** Consider the following cases when configuring the bits:

**Bit 0:** It makes sense to set bit 0, if the axis is to be parameterized by the control unit before initialization is carried out.

**Bits 2/1:** These bits can be used to define how the drive behaves in case a communication error occurs (bus failure, bus stop and PLC stop). The last valid command values received can be frozen, which makes sense, for example, in process technology, or it is possible to automatically change to a flexible local mode and move the drive via digital/analog I/Os.

**Bit 8:** When an IndraDrive device is set as Sync producer in the network, the PLL can be offset via this bit in order to balance the telegram runtime of the Sync telegram and thereby synchronize the Sync consumer and Sync producer in a better way.

**Bit 11:** When the acyclic CANopen transmission types are set (0, 254) and event type "ChangeOfState" is selected, the PDO is sent only in case of a change. However, the only parameters that are monitored are those in

Product-Specific Parameters

"P-0-3613". If event type "Cyclic" is selected, transmission of the PDO is triggered with process data updating clock (P-0-4076).

P-0-4088 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	BIN
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.17.21 P-0-4089.0.1, Master communication: Protocol

Allocation

Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
Hardware	---			
Funct. package(s):	"open loop", "closed loop"			
Device parameter:	device-specific			

Function

Replacement parameter "P-0-2310" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter is used to select the master communication protocols which the hardware supports.

Example:

- **With Profibus hardware available:** The only options that can be selected are "Not active" and "Profibus".
- **With Multi-Ethernet hardware available:** The only options that can be selected are "Not active", "EtherNet/IP™", "PROFINET®", "EtherCAT®", and "sercos".
- **No master communication hardware available:** Only "no master communication hardware available" is displayed

Make the setting by means of the corresponding number according to the following table:

number	Selected Master Communication
1	No master communication hardware available
2	Master communication not active
3	EtherNet/IP™
4	PROFINET®
5	EtherCAT®
6	sercos
16	PROFIBUS®
18	CANopen (as of MPx-17)



The setting is only applied after the drive has been restarted.

P-0-4089.0.1 - Attributes

Function:	Par	Editable:	PM	Data length:	4Byte
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	0 / 22	---
MPC:	0 / 19	---

## Product-Specific Parameters

MPE:	0 / 22	---
MPM:	0 / 22	---

## 5.17.22 P-0-4089.0.2, Master communication: Device name

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Replacement parameter "P-0-2311" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains an unequivocal device name which is used for master communication. A device can be identified by this name. This is the "station name" in case of PROFINET.

**Structure**

The device name must be unequivocal within an installation.

The following device name requirements must be met:

- No more than 240 characters (letters, numerals, hyphen or dot)
- The length of a character string between two dots may not exceed 63 characters.
- No special characters except for hyphens (umlauts, brackets, underscore, slash, blank, etc.).
- Neither the first nor the last character of the device name may be "-".
- The device name may not have format n.n.n.n (n = 0...999).
- The device name may not begin with string "port-xyz-" (x,y,z = 0...9).

## P-0-4089.0.2 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	ASCII
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

## 5.17.23 P-0-4089.0.3, Device Address

Allocation	Contained in 16VRS:	«-»	«-»	«-»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** This parameter is used to identify the device in case of remote address assignment and for master communication with device addressing.

If an address selector switch is available, the value set via this switch is displayed. This value cannot be changed. In case of EtherCAT, the value is applied as 2nd address during booting.

## P-0-4089.0.3 - Attributes

Function:	Par	Editable:	PM	Data length:	2Byte
Memory:	PARAM_SP	Validity ch.:	--	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	+	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	1 / 512	1
MPC:	1 / 512	1

Product-Specific Parameters

MPE:	1 / 512	1
MPM:	1 / 512	1

## 5.17.24 P-0-4089.0.4, Active Device Address

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	--		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** In case of EtherCAT, this parameter displays the effective device address depending on the addressing method. In case of EtherCAT, either the "Configured Station Address" or the "Configured Station Alias" is displayed. In case of all other buses, the value set here in parameter "P-0-4089.0.3" is displayed.

P-0-4089.0.4 - Attributes	Function:	Par	Editable:	--	Data length:	2Byte
	Memory:	--	Validity ch.:	--	Format:	DEC_OV
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.17.25 P-0-4089.0.5, Master communication: Configuration

Allocation	Contained in 16VRS:	«-»	«-»	«-»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Replacement parameter "P-0-2318" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

The parameter contains configuration bits of the master communication. It is used to configure the functions and the behavior of the master communication interface.

**Structure** The parameter has the following structure:

Bit	Designation/function	Comment
0	<b>PLL synchronization</b> <b>0:</b> PLL is synchronized by the Sync signal of the master communication <b>1:</b> PLL is not synchronized by the Sync signal of the master communication	As of MPx17VRS

Tab.5-360: P-0-4089.0.5, Master communication: Configuration

**Use** Consider the following cases when configuring the bits:

**Bit 0:** Setting bit 0 only makes sense if the control is to synchronize the axis via the master communication. This mode absolutely essential for all synchronous operation modes. If this mode is used, the Sync signal of the master communication must have a relatively low jitter (< 30 µs). Otherwise, synchronization errors will occur.

P-0-4089.0.5 - Attributes	Function:	Par	Editable:	PM	Data length:	2Byte
	Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	BIN
	Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
	Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

## Product-Specific Parameters

Input	min./max.	Default value
MPB:	--- / ---	0x0
MPC:	--- / ---	0x0
MPE:	--- / ---	0x0
MPM:	--- / ---	0x0

## 5.17.26 P-0-4089.0.10, Master communication: MAC address device

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Replacement parameter "P-0-2312" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains the MAC address of master communication via the Multi-Ethernet card which is required within the scope of Ethernet communication. This address is used by all Ethernet-based field buses. With PROFINET, this address has the function of the "device MAC address". The MAC address (Media Access Control) is used for unequivocal identification for the Ethernet communication in the network.



The MAC address has been permanently assigned to the hardware and cannot be modified!

## P-0-4089.0.10 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.17.27 P-0-4089.0.11, Master communication: MAC address Port1

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Replacement parameter "P-0-2313" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains the MAC address of master communication via the Multi-Ethernet card which is required within the scope of PROFINET communication. This address is only used for PROFINET as "MAC address Port 1". It is required for topology identification.



The MAC address has been permanently assigned to the hardware and cannot be modified!

## P-0-4089.0.11 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---

Product-Specific Parameters

MPE:	---	/	---	---
MPM:	---	/	---	---

## 5.17.28 P-0-4089.0.12, Master communication: MAC address Port2

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Replacement parameter "P-0-2314" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains the MAC address of master communication via the Multi-Ethernet card which is required within the scope of PROFINET communication. This address is only used for PROFINET as "MAC address Port 2". It is required for topology identification.



The MAC address has been permanently assigned to the hardware and cannot be modified!

### P-0-4089.0.12 - Attributes

Function:	Par	Editable:	--	Data length:	1Byte var.
Memory:	I2C_OPM_SP	Validity ch.:	PM->OM	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.	Default value
MPB:	--- / ---	---
MPC:	--- / ---	---
MPE:	--- / ---	---
MPM:	--- / ---	---

## 5.17.29 P-0-4089.0.13, Master communication: IP address

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Replacement parameter "P-0-2315" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains the IP address which is required within the scope of IP communication for the Ethernet-based master communication (EtherNet/IP and PROFINET).

The IP address (Internet Protocol) is used to clearly identify a node in the network.



Parameter changes do not become effective before the 24-volt supply of the drive is switched on again.

**Structure** The IP address is a list parameter with the following structure:

Product-Specific Parameters

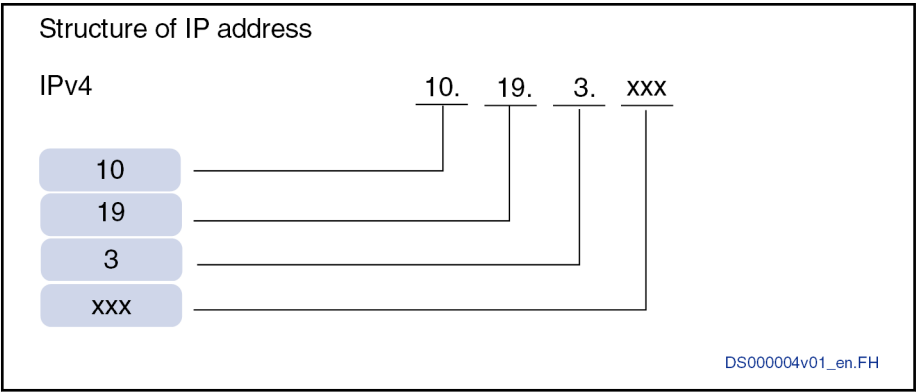


Fig.5-361: "P-0-4089.0.13, Master communication: IP address"

P-0-4089.0.13 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--


Input	min./max.	Default value
MPB:	--- / ---	s. Text
MPC:	--- / ---	s. Text
MPE:	--- / ---	s. Text
MPM:	--- / ---	s. Text

5.17.30 P-0-4089.0.14, Master communication: Network mask

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»
	Hardware	optional drives card		
	Funct. package(s):	"open loop", "closed loop"		
	Device parameter:	device-specific		

**Function** Replacement parameter "P-0-2316" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains the network mask which is required within the scope of IP communication for the Ethernet-based master communication (EtherNet/IP and PROFINET). The network mask is used to distinguish between the network and device parts.

 Parameter changes do not become effective before the 24-volt supply of the drive is switched on again.

**Structure** The network mask is a list parameter with the following structure:

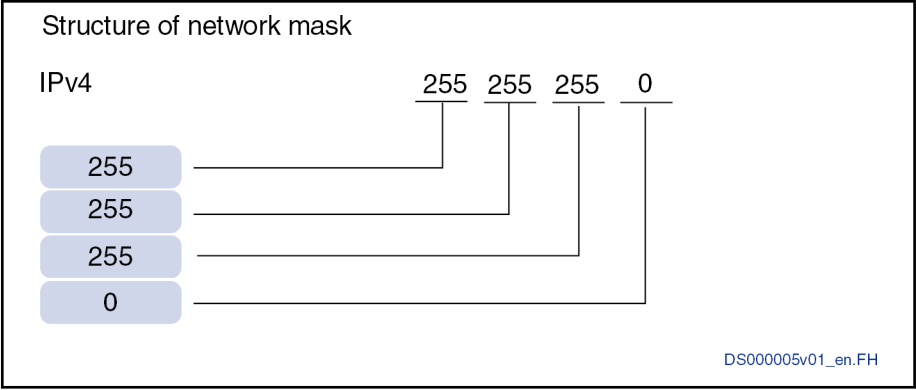


Fig.5-362: P-0-4089.0.14, Master communication: Network mask

P-0-4089.0.14 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV

Product-Specific Parameters

Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--
Input	min./max.			Default value	
MPB:	--- / ---			s. Text	
MPC:	--- / ---			s. Text	
MPE:	--- / ---			s. Text	
MPM:	--- / ---			s. Text	

### 5.17.31 P-0-4089.0.15, Master communication: Gateway address

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	optional drives card			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

**Function** Replacement parameter "P-0-2317" is to be used for communication interfaces which do not support any 32-bit ident numbers (EIDN).

This parameter contains the gateway address which is required within the scope of IP communication for the Ethernet-based master communication (EtherNet/IP and PROFINET).

When an IP package (Internet Protocol) is transmitted, the network part of the target IP address and the network mask are compared. If they do not match, the IP package is transmitted to the gateway IP address.



Parameter changes do not become effective before the 24-volt supply of the drive is switched on again.

**Structure** The gateway address is a list parameter with the following structure:

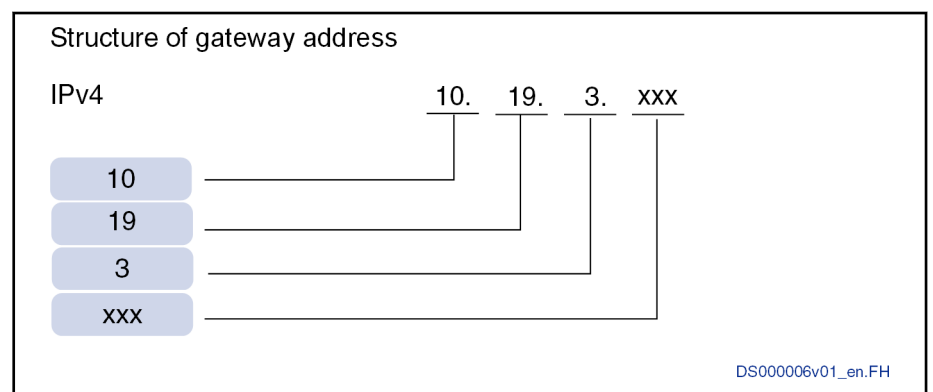


Fig. 5-363: P-0-4089.0.15, Master communication: Gateway address

#### P-0-4089.0.15 - Attributes

Function:	Par	Editable:	PM	Data length:	1Byte var.
Memory:	PARAM_SP	Validity ch.:	PM->OM	Format:	DEC_OV
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	--	Set-depend.:	--

Input	min./max.			Default value	
MPB:	--- / ---			s. Text	
MPC:	--- / ---			s. Text	
MPE:	--- / ---			s. Text	
MPM:	--- / ---			s. Text	

### 5.17.32 P-0-4089.0.127, Master communication: Master debugging

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	device-specific			

## Product-Specific Parameters

**Function** This parameter is used for the commissioning of SERCOS III master communications. It allows switching off individual monitoring functions for debug operation.

**P-0-4089.0.127 - Attributes**

<b>Function:</b>	Par	<b>Editable:</b>	P2	<b>Data length:</b>	2Byte
<b>Memory:</b>	--	<b>Validity ch.:</b>	--	<b>Format:</b>	BIN
<b>Unit:</b>	--	<b>Extr. val. ch.:</b>	--	<b>Decim. pl.:</b>	0
<b>Cycl. tra.:</b>	--	<b>Comb. check:</b>	--	<b>Set-depend.:</b>	--

Input	min./max.	Default value
<b>MPB:</b>	--- / ---	---
<b>MPC:</b>	--- / ---	---
<b>MPE:</b>	--- / ---	---
<b>MPM:</b>	--- / ---	---

**5.17.33 P-0-4090, Configuration for loading default values**

Allocation	Contained in 16VRS:	«MPB»	«MPE»	«MPM»	
	Contained in 17VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Contained in 18VRS:	«MPB»	«MPE»	«MPM»	«MPC»
	Hardware	--			
	Funct. package(s):	"open loop", "closed loop"			
	Device parameter:	axis-specific			

**Function** The effects of command "S-0-0262, C07\_x Load defaults procedure command" depend on the configuration that is set in "P-0-4090" when the command is started.

See also Functional Description "Default Settings in the Motor Encoder Data Memory [Load Default Values (Motor-Spec. Controller Values)]"

**Structure** The nibbles of the parameter have the following significance:

Product-Specific Parameters

Nibble	Designation/ Function	Load default values (Motor-spec. controller val- ues)	Load default values (Factory settings)	As of MPx-17VRS: Load default values (MLD)	Activate field bus pro- file settings	As of MPx-18VRS: Load default values (SMO)
□□□■ <sub>hex</sub>	<b>Command selection</b>					
	0x0000: Load mo- tor-specific control- ler values	<b>C0700</b>				
	0x0001: Load facto- ry settings		<b>C0750</b>			
	0x0002: Load MLD default values (as of MP-17VRS)			<b>C0730</b>		
	0x0004: Activate field bus profile set- tings				<b>C0740</b>	
	0x0005: Load SMO default values (as of MPx-18VRS)					<b>C0720</b>
□■□□ <sub>hex</sub>	<b>Scaling of command execution on "load- ing factory settings"</b>		0x0011: <b>Master Communication</b> The master communication param- eters are not set to their default values.			
			0x0021: (As of MPx-17VRS) <b>IndraMotion MLD</b> The MLD parameters are <b>not</b> set to their default values.			
			0x0041: <b>Engineering interface</b> The engineering interface parameters are <b>not</b> set to their default values.			
			0x0081: (As of MPx-17VRS) <b>CCD group</b> The parameters for configuring the CCD group are <b>not</b> set to their default values.			
			0x0101: (As of MPx-18VRS) <b>Safe Motion (SMO)</b> The SMO parameters are <b>not</b> set to their default values.			
■□□□ <sub>hex</sub>	Reserved					

Tab.5-364: Significance of the Nibbles in P-0-4090

**Use** The following settings can be made:

## Product-Specific Parameters

Value of P-0-4090	Effect	Display	Diagnostic message name	Diagnosis No.	Comment
0x0000 (default)	Load motor-specific control loop parameter values	C07_0	Load defaults proced. command (motor-spec. controller val.)	C0700	
0x0005	Set SMO parameters to default values	C07_2	SMO: Load defaults procedure command	C0720	As of MPx-18VRS
0x0002	Set entire drive PLC to default values (RE6) incl. deletion of boot project	C07_3	Load defaults procedure command (MLD)	C0730	As of MPx-17VRS
0x0004	Set parameters depending on field bus profile to default values	C07_4	Command Activate field bus profile settings	C0740	

Tab.5-365: Values for P-0-4090

Product-Specific Parameters

Value of P-0-4090	Safe Motion (SMO) S-0-18xx; P-0-2464 - P-0-2551; P-0-32xx; P-0-33xx	Master communication S-0-0001 - S-0-0024; S-0-0089/S-0-0097/S-0-0098; S-0-0301 - S-0-0307; S-0-0413 - S-0-0416; S-0-1002 - S-0-1061; P-0-0399; P-0-2303 - P-0-2318; P-0-2339; P-0-3610 - P-0-3612; P-0-4025/P-0-4027; P-0-4083 - P-0-4089	IndraMotion MLD P-0-13xx; P-0-14xx; P-0-2404/ P-0-2405	Engineering interface P-0-1531 - P-0-533; P-0-4021/P-0-4022/ P-0-4050/P-0-4095	CCD group P-0-16xx - P-0-18xx
0x0001	✓	✓	✓	✓	✓
0x0011	✓	–	✓	✓	✓
0x0021	✓	✓	–	✓	✓
0x0031	✓	–	–	✓	✓
0x0041	✓	✓	✓	–	✓
0x0051	✓	–	✓	–	✓
0x0061	✓	✓	–	–	✓
0x0071	✓	–	–	–	✓
0x0081	✓	✓	✓	✓	–
0x0091	✓	–	✓	✓	–
0x00A1	✓	✓	–	✓	–
0x00B1	✓	–	–	✓	–
0x00C1	✓	✓	✓	–	–
0x00D1	✓	–	✓	–	–
0x00E1	✓	✓	–	–	–
0x00F1	✓	–	–	–	–
0x0101	–	✓	✓	✓	✓
0x0111	–	–	✓	✓	✓
0x0121	–	✓	–	✓	✓
0x0131	–	–	–	✓	✓
0x0141	–	✓	✓	–	✓
0x0151	–	–	✓	–	✓
0x0161	–	✓	–	–	✓
0x0171	–	–	–	–	✓
0x0181	–	✓	✓	✓	–
0x0191	–	–	✓	✓	–
0x01A1	–	✓	–	✓	–
0x01B1	–	–	–	✓	–
0x01C1	–	✓	✓	–	–
0x01D1	–	–	✓	–	–
0x01E1	–	✓	–	–	–
0x01F1	–	–	–	–	–

**Legend:**

–: The parameters are **not** set to their default values

✓: The parameters are set to their default values

Tab.5-366: Values for P-0-4090

Product-Specific Parameters



After "S-0-0262, C07\_x Load defaults procedure command" is completed, parameter "P-0-4090" is reset to "0".

P-0-4090 - Attributes

Function:	Par	Editable:	++	Data length:	2Byte
Memory:	--	Validity ch.:	--	Format:	HEX
Unit:	--	Extr. val. ch.:	--	Decim. pl.:	0
Cycl. tra.:	--	Comb. check:	+	Set-depend.:	--
Input		min./max.		Default value	
MPB:		--- / ---		---	
MPC:		--- / ---		---	
MPE:		--- / ---		---	
MPM:		--- / ---		---	

## 6 Appendix

### 6.1 Field Bus Objects

#### 6.1.1 CANopen Interface

##### Specified CANopen Communication Objects (0x1000 to 0x1FFF)

Index	Subindex/ subnumber	Description			Parameter
1000h	00h	Parameter- Name = De- vice Type DefaultVal- ue = 0x00FF0192	ObjectType = 0x7 AccessType = ro	DataType = 0x7	0x00FF0192
1001h	00h	Parameter- Name = Error Regis- ter	ObjectType = 0x7 AccessType = ro	DataType = 0x5	
1018h	5	Parameter- Name = Identity Ob- ject	ObjectType = 0x9		
	00h	Parameter- Name = Number Of Entries DefaultVal- ue = 4	AccessType = ro	DataType = 0x5	
	01h	Parameter- Name = Vendor ID DefaultVal- ue = 0x24	AccessType = ro	DataType = 0x7	36
	02h	Parameter- Name = Product Code DefaultVal- ue = 0x4	AccessType = ro	DataType = 0x7	4
	03h	Parameter- Name = Re- vision Num- ber	AccessType = ro	DataType = 0x7	P-0-1509: element 5 (release)
	04h	Parameter- Name = Se- rial Number	AccessType = ro	DataType = 0x7	P-0-1509: element 3 (serial num- ber)

Tab.6-1: Specified CANopen objects

## Appendix

### Other CANopen Communication Objects

For other CANopen communication objects, see EDS files.

## 7 Service and Support

Our worldwide service network provides an optimized and efficient support. Our experts offer you advice and assistance should you have any queries. You can contact us **24/7**.

**Service Germany** Our technology-oriented Competence Center in Lohr, Germany, is responsible for all your service-related queries for electric drive and controls.

Contact the **Service Helpdesk & Hotline** under:

Phone: **+49 9352 40 5060**  
Fax: **+49 9352 18 4941**  
E-mail: [service.svc@boschrexroth.de](mailto:service.svc@boschrexroth.de)  
Internet: <http://www.boschrexroth.com>

Additional information on service, repair (e.g. delivery addresses) and training can be found on our internet sites.

**Service worldwide** Outside Germany, please contact your local service office first. For hotline numbers, refer to the sales office addresses on the internet.

**Preparing information** To be able to help you more quickly and efficiently, please have the following information ready:

- Detailed description of malfunction and circumstances resulting in the malfunction
- Type plate name of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your email address)



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## Notes

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