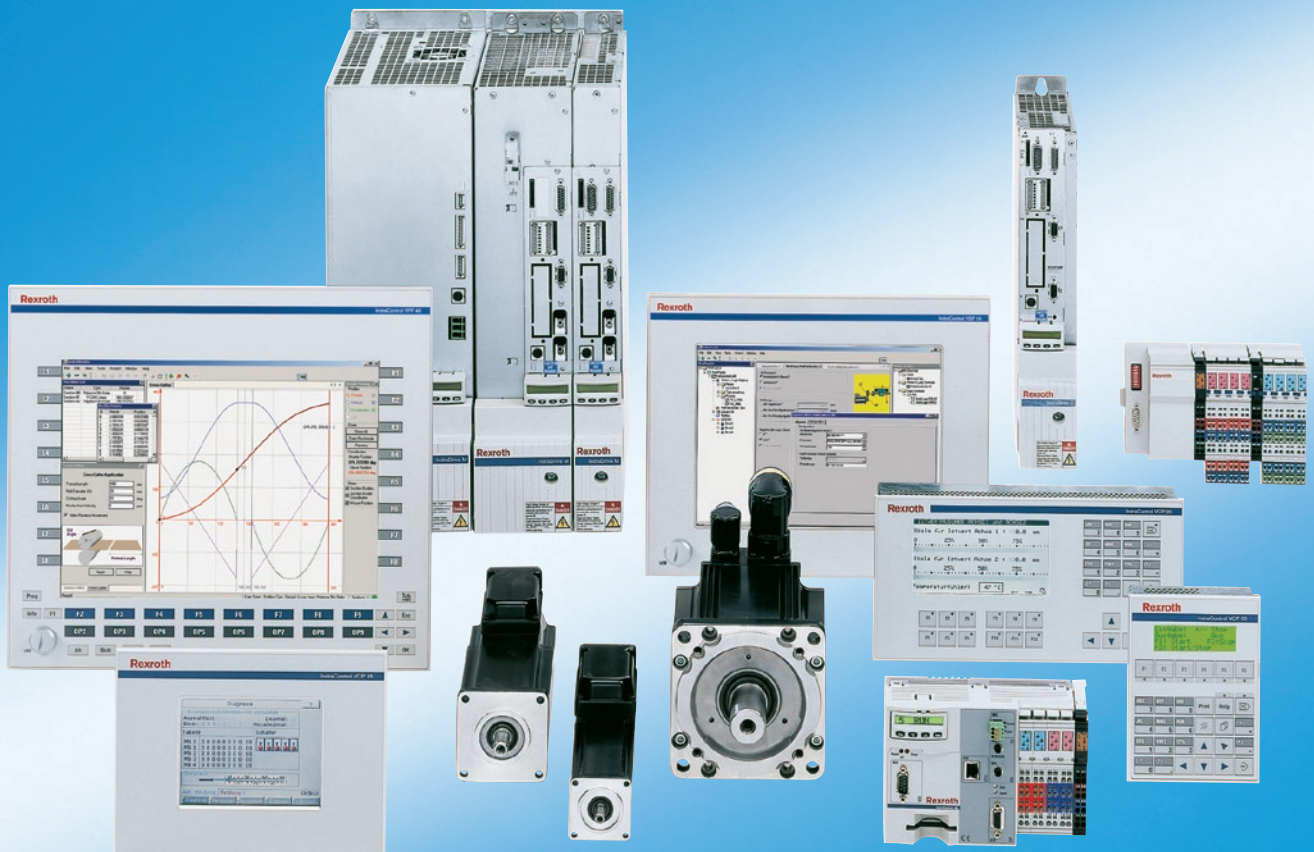


Rexroth IndraMotion MLC02VRS Axis And Control Parameters

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Edition 01

Parameter Description



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1 Parameterizing and Programming

1.1 Programming with PLCopen

General goal of PLCopen

The fundamental idea of PLCopen confirms therein, to give the user of the PLC access to controlled drives for controlled movement operations **with the possibilities according to the programming philosophy of the PLC.**

Interaction between parameters and function blocks

From the view of the **drive technics** (motion), data assigned to a drive, like actual values, limit values, command values, controller parameters and the like are designated as **parameter**. Depending on the utilization of the parameter, they are provided for read- and/or write access. The data type of the respective parameter is e.g. specified by the SERCOS-Standard. See also

- Axis parameters, page 1-15
- Control parameters, page 1-97 and
- A- and C-Parameters overlay S- and P-Parameters, page 1-12.

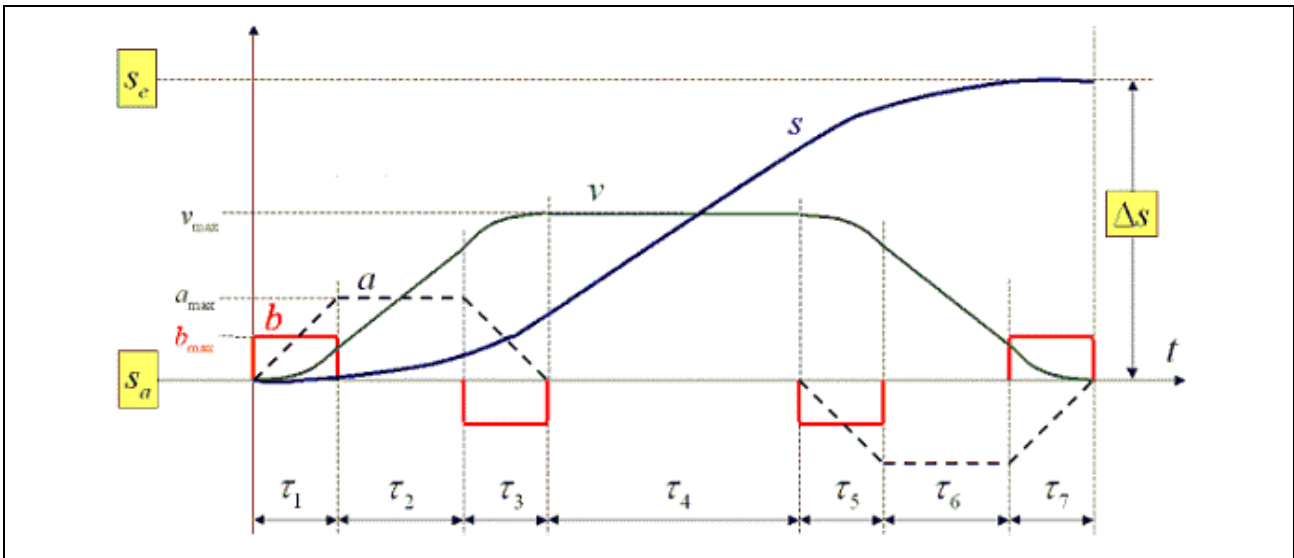
From **view of the PLC technics** it is about **variables** which represent the content of the parameter as a data type based on EN 6 1131-3 .

Typical PLC-utilization of motion data formats

	1ByteVar	2Byte	2ByteVar	4Byte	4ByteVar
BINARY		WORD		DWORD	
UINT_HEX		UINT	list	UDINT	
UINT_DEC		UINT	list	UDINT	
INT_DEC		INT	list	DINT	
TEXT	STRING				
UINT_IDN		single	list		
MLC_IDN				single	list
FLOAT				REAL	list

Fig. 1-1: PLC-utilization of the MLC data formats

The transfer of values from the PLC to the drive and from the drive to the PLC should be considered nearer:



v_{max} : user-predetermined maximum value of the velocity
 a_{max} : user-predetermined maximum value of the acceleration
 b_{max} : user-predetermined maximum value of the jerk

Fig. 1-2: Movement from point S_a to point S_e

The movement from point S_a to point S_e . should be controlled by the PLC. As additional informations, the maximum values of velocity, acceleration, and if necessary deceleration and jerk, predetermined by the user, are required. These values must of course be lower than the permitted maximum values of the drive.

Note: The limitation to the permitted values of the drive is always ensured automatically.

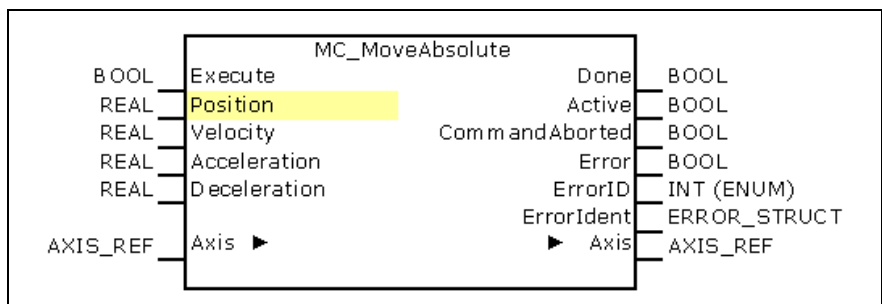


Fig. 1-3: PLCopen block MC_MoveAbsolute

With rising edge at input "Execute" the actual input values at the block instance are accepted into the "Commanded"-Parameter:

- Position: "A-0-2200, Commanded position"
- Velocity: "A-0-2202, Commanded velocity"
- Acceleration: "A-0-2203, Commanded acceleration"
- Deceleration: "A-0-2204, Commanded deceleration"

With **MC_MoveAbsolute** the "A-0-2200, Commanded position" is copied to the "A-0-2201, Commanded target position".

A declaration of the command jerk is not required by the block, here the value of parameter "A-0-2205, Commanded jerk" is accepted without alteration.

The calculation of the complete movement process takes place after getting the values from the inputs of the function block instance into the A-Parameters and their transfer to the S- and P-Parameters of the drive

with IndraDrive at SERCOS interfaces on the drive (see also A- and C-Parameters overlay S- and P-Parameters, page 1-12

- or -

the calculation is designated for drives at fieldbuses on the control.

Libraries

The blocks for movement control are available in the PLC-Programmingsystem **IndraLogic**. They are contained in the libraries of the targets "**IndraMotion_MLC_L40_02VRS**"

- RIL_CommonTypes, ML_Base - common data types
- ML_PLCOpen - blocks + required data types

The description of the individual blocks and data types are available

- in IndraLogic /1/, /2/ as Online-Help and as
- Rexroth IndraMotion MLC, library description /23/ as pdf.

Simple examples for the use are displayed in section "Rexroth IndraMotion MLC - FirstSteps" /25/.

Further Documentation

No.	Title	Designation
/1/	Rexroth IndraControl L40, Project Planning Manual	DOK-CONTRL-IC*L40*****-PR02-EN-P
/2/	IndraLogic L40, System Description, Operating and Programming Guide, here error messages	DOK-CONTRL-IC*L40*****-AW01-EN-P
/10/	Rexroth IndraDrive, Firmware for Drive Controllers, MPH-03, MPB-03, MPD-03, Functional Description	DOK-INDRV*-MP*-03VRS**-FK01-EN-P
/11/	Rexroth IndraDrive, Firmware for Drive Controllers, MPH-04, MPB-04, MPD-04, Functional Description	DOK-INDRV*-MP*-04VRS**-FK01-EN-P
/12/	Rexroth IndraDrive, Drive Controllers, MPx-02; MPx-03; MPx-04, Parameter Description	DOK-INDRV*-GEN-**VRS**-PA03-EN-P
/13/	Rexroth IndraDrive, MPx02, MPx03, MPx04 and HMV, Troubleshooting Guide	DOK-INDRV*-GEN-**VRS-WA03-EN-P
/20/	Rexroth IndraMotion MLC; Functional Description	DOK-IM*MLC-SYSTEM**V02-FK01-EN-P
/21/	Rexroth IndraMotion MLC; Axis and Control Parameters	DOK-IM*MLC-A*C*PAR*V02-PA01-EN-P
/22/	Rexroth IndraMotion MLC, Diagnostics, Troubleshooting Guide	DOK-IM*MLC-DIAGN***V02-WA01-DE-P
/23/	Rexroth IndraMotion MLC; PLCopen Function Blocks, Functions and Data	DOK-IM*MLC-PLCOPEN*V02-FK01-EN-P
/24/	Rexroth IndraMotion MLC; Function Modules	DOK-IM*MLC-FM*****V02-FK01-EN-P
/25/	Rexroth IndraMotion MLC; First Steps	DOK-IM*MLC-F*STEP**V02-KB01-EN-P

Fig. 1-4: Further documentation

1.2 MLC Parameters

Document Structure

	IndraMotion MLC has two different types of parameters at its disposal. As a body, these parameters are classified as system parameters.
C parameters	The C parameters entail the control functions. Each C parameter occurs only once in a IndraMotion MLC system.
A parameters	The A parameters entail the axis functions. Each A parameter occurs only once in an axis. Because not every axis type supports all parameters, the scope of application is specified in the parameter descriptions. If an axis contains components that are parameterized by S- and P-Parameters, so the firmware takes over the information transfer from the A- to the S-, resp. P-Parameters, or getting the information of the S- or P-Parameters for the A-Parameter.
S parameters	The S-Parameters correspond to the standard parameters specified in the SERCOS interface norm.
P parameters	The P-Parameters are by Bosch Rexroth defined manufacturer- or product specific parameters in terms of the SERCOS interface norm. Each system parameter is clearly identified by its identnumber.

The description of the individual parameters is divided in two sections:

General description

This section contains the feature or meaning of the parameter and tips for setting parameters.

Description of attributes

The characteristic values or features listed here help to classify the parameter. They are necessary for a complete description of the parameter. However, they are not required to get a general idea of the meaning of the parameter.

Definitions

	The following abbreviations are used:
Name, germ.	Parameter name in german.
Data length:	<p>2BYTE - the data length for the operating data is 2 bytes.</p> <p>4BYTE - the data length for the operating data is 4 bytes.</p> <p>1BYTE_VAR - this is a piece of operating data of variable length (list). The length of a data unit is 1 byte.</p> <p>2BYTE_VAR - this is a piece of operating data of variable length (list). The length of a data unit is 2 bytes.</p> <p>4BYTE_VAR - this is a piece of operating data of variable length (list). The length of a data unit is 4 bytes.</p>
Format:	<p>BINARY - the display format for the operating data should be binary.</p> <p>UINT_HEX - the display format for the operating data should be hexadecimal.</p> <p>UINT_DEC - the display format for the operating data should be decimal without a sign.</p>

INT_DEC - the display format for the operating data should be decimal with a sign.

TEXT - the operating data is an ASCII string.

UINT_IDN - the operating data is an SERCOS ID number (IDN), 2 Byte.

MLC_IDN - the operating data is an MLC ID number (IDN), 4 Byte.

FLOAT - the operating data is a floating point number .

Editability: **READ_ONLY** - the operating data cannot be edited.

P0 – the data is changeable in the motion component of operation mode "P0".

P2 – the data is changeable in the motion component of operation mode "P2" – Parameterization mode.

(P2+Stop) - the data is changeable in the motion component of operation mode "P2" – Parameterization mode. Additionally the PLC-Component must be in "Stop".

BB – the data is changeable in the motion component of operation mode "BB" – Operation mode.

P0, P2, BB – the data is always changeable.

Memory: **RAM** - the operating date is not stored when switching off.

NVRAM - the operating date is automatically stored in a non-volatile RAM.

FLASH - the operating date is buffered in the FLASH of the controller.

Validity check: **no** - the operating data is not checked for validity.

yes - the operating data is checked for validity.

Extreme value check: **no** - the operating data is not checked for its extreme values when it is written to.

yes - the operating data is checked for its extreme values when it is written to.

Combination check: **no** - the operating data is not checked (bitwise) for a valid combination with other parameter values when it is written to.

yes - the operating data is checked (bitwise) for a valid combination with other parameter values when it is written to.

Cyclic transmittable: **no** - the operating data cannot be configured as cyclical data in the master data telegram or in the drive telegram.

AT - the operating data can be configured as cyclical data in the drive telegram.

MDT - the operating data can be configured as cyclical data in the master data telegram.

Default Value: The default value indicates the value of the parameter loaded into fixed memory with the current version of firmware installed on the drive following the PL program load command and prior to user edits or loading saved parameter files.

Default Value HNC: The default value indicates the value of the parameter of a HNC axis loaded into fixed memory with the current version of firmware installed on the drive following the PL program load command and prior to user edits or loading saved parameter files.

1.3 Overview: Axis Types - A-Parameters

The following table gives an overview which axis type supports which A-Parameters. The table is supplemented by the summary Overview: User-configurable Data Container, page 1-9.

Parameter	Virtual	Real	HNC	Link	Encoder
A-0-0001 - Logical axis number, page 1-15	X	X	X	X	X
A-0-0002 - Axis name, page 1-15	X	X	X	X	X
A-0-0004 - Axis type, page 1-15	X	X	X	X	X
A-0-0005 - Drive address, page 1-16		X	X		X
A-0-0006 - Drive type, page 1-16		X	X		X
A-0-0007 - Axis configuration, page 1-17		X	X		
A-0-0008 - Link axis - master axis selection, page 1-17				X	
A-0-0010 - List of all A parameters, page 1-18	X	X	X	X	X
A-0-0011 - List of all invalid A parameters, page 1-19	X	X	X	X	X
A-0-0012 - Checksum of A parameters, page 1-20	X	X	X	X	X
A-0-0013 - IDN list of checksum A parameter, page 1-20	X	X	X	X	X
A-0-0014 - List of not transmitted A parameters, page 1-20	X	X	X		
A-0-0020 - Axis diagnostic message, page 1-22	X	X	X	X	X
A-0-0021 - Axis status, page 1-22	X	X	X	X	X
A-0-0022 - Extended axis status, page 1-24	X	X	X	X	X
A-0-0023 - Axis diagnostic number, page 1-25	X	X	X	X	X
A-0-0024 - Axis condition, page 1-25		X	X	X	X
A-0-0026 - Drive telegram error counter, page 1-26		X	X		X
A-0-0028 - Travel range limit, page 1-27	X	X	X		
A-0-0029 - Position polarity, page 1-27	X	X	X		
A-0-0030 - Positive position limit, page 1-28	X	X	X		
A-0-0031 - Negative position limit, page 1-29	X	X	X		
A-0-0032 - Positive velocity limit, page 1-29	X	X	X		
A-0-0033 - Negative velocity limit, page 1-30	X	X	X		
A-0-0034 - Bipolar acceleration limit, page 1-30	X	X	X		
A-0-0036 - Bipolar jerk limit, page 1-31	X	X	X		
A-0-0038 - Bipolar torque/force limit, page 1-31		X	X		
A-0-0045 - Modulo value, page 1-32	X	X		X	X
A-0-0046 - Slave drive feed travel, page 1-33	X	X			
A-0-0050 - Torque/force data scaling type, page 1-33		X	X		
A-0-0051 - Torque/force data scaling factor, page 1-34		X	X		
A-0-0052 - Torque/force data scaling exponent, page 1-35		X	X		

Fig. 1-5: Use of A-parameters

Parameter	Virtual	Real	HNC	Link	Encoder
A-0-0053 - Acceleration data scaling type, page 1-35	X	X	X		
A-0-0054 - Acceleration data scaling factor, page 1-36		X	X		
A-0-0055 - Acceleration data scaling exponent, page 1-37		X	X		
A-0-0056 - Velocity data scaling type, page 1-37	X	X	X	X	X
A-0-0057 - Velocity data scaling factor, page 1-38		X	X		
A-0-0058 - Velocity data scaling exponent, page 1-39		X	X		
A-0-0059 - Position data scaling type, page 1-39	X	X	X	X	X
A-0-0060 - Linear position data scaling factor, page 1-41		X	X		
A-0-0061 - Linear position data scaling exponent, page 1-41		X	X		
A-0-0062 - Rotational position resolution, page 1-42		X	X		
A-0-0063 - Temperature data scaling type, page 1-43		X	X		
A-0-0100 - Actual position, page 1-43	X	X	X	X	X
A-0-0102 - Actual velocity, page 1-44	X	X	X	X	X
A-0-0103 - Actual acceleration, page 1-44	X	X	X		
A-0-0108 - Actual position, incremental, page 1-46	X	X	X	X	X
A-0-0110 - Actual torque/force, page 1-46		X	X		
A-0-0150 - Interpolated position, page 1-47	X	X	X		
A-0-0152 - Interpolated velocity, page 1-47	X	X	X		
A-0-0200 - Default Address Master Axis, page 1-47		X			
A-0-0203 - Direction, page 1-48	X	X	X		
A-0-0216 - Jerk, page 1-50	X	X	X		
A-0-0219 - Positioning window for shortest way, page 1-50	X	X			
A-0-0222 - Standstill window, page 1-51	X	X	X	X	X
A-0-0223 - Velocity window, page 1-51	X	X	X		
A-0-0224 - Emergency deceleration, page 1-51	X	X	X		
A-0-0300 - Master position, page 1-52		X			
A-0-0302 - Master velocity, page 1-52		X			
A-0-0500...A-0-0599 see Overview: User-configurable Data Container, page 1-9					
A-0-0622 - Position synchronization window, page 1-72		X			
A-0-0623 - Velocity synchronization window, page 1-74		X			
A-0-1000 - Command: axis base parameter load, page 1-74	X	X	X	X	X
A-0-1030 - Command: clear all axis errors, page 1-75	X	X	X	X	X
A-0-2200 - Commanded position, page 1-76	X	X	X		
A-0-2201 - Commanded target position, page 1-76	X	X	X		
A-0-2202 - Commanded velocity, page 1-77	X	X	X		
A-0-2203 - Commanded acceleration, page 1-78	X	X	X		
A-0-2204 - Commanded deceleration, page 1-79	X	X	X		
A-0-2205 - Commanded jerk, page 1-80	X	X	X		
A-0-2207 - Commanded direction, page 1-81	X	X			
A-0-2208 - Cyclic commanded position, page 1-81	X	X	X		

Fig. 1-6: Use of A-parameters

Parameter	Virtual	Real	HNC	Link	Encoder
A-0-2700 - Master control number, page 1-83		X			
A-0-2701 - Master axis number, page 1-83		X			
A-0-2710 - Additive master position command value, page 1-84		X			
A-0-2720 - Master drive gear input revolutions, page 1-84		X			
A-0-2721 - Master drive gear output revolutions, page 1-85		X			
A-0-2722 - Gear ratio fine adjust, page 1-86		X			
A-0-2740 - Cam table preselection, page 1-86		X			
A-0-2741 - Cam Shaft Distance, page 1-87		X			
A-0-2792 - Synchronization init window for modulo format, page 1-87		X			
A-0-2793 - Synchronization direction, page 1-89		X			
A-0-2794 - Synchronization mode, page 1-89		X			
A-0-2795 - Position window, page 1-91	X	X	X		
A-0-2800 - Encoder configuration, page 1-92				X	X
A-0-2801 - Encoder status, page 1-92				X	X
A-0-2802 - Encoder gear numerator, page 1-93				X	X
A-0-2803 - Encoder gear denominator, page 1-93				X	X
A-0-2804 - Encoder filter type, page 1-94				X	X
A-0-2805 - Encoder filter cutoff frequency, page 1-94				X	X
A-0-2806 - Encoder reference position, page 1-95				X	X
A-0-2807 - Command set absolute measuring, page 1-95				X	X
A-0-2808 - Encoder position offset, page 1-96				X	X

Fig. 1-7: Use of A-parameters

1.4 Overview: User-configurable Data Container

Via the following A-Parameters the user can organize the transfer of setpoints and actual values between control and the individual axes.

Parameter	Real	HNC
A-0-0500 - Configuration user defined commanded data A, page 1-53	X	X
A-0-0502 - Configuration user defined commanded data B, page 1-53	X	X
A-0-0504 - Configuration user defined commanded data C, page 1-54	X	X
A-0-0506 - Configuration user defined commanded data D, page 1-54	X	X
A-0-0520 - Configuration user defined actual data A, page 1-55	X	X
A-0-0522 - Configuration user defined actual data B, page 1-55	X	X
A-0-0524 - Configuration user defined actual data C, page 1-56	X	X
A-0-0526 - Configuration user defined actual data D, page 1-56	X	X
A-0-0540 - Configuration user defined commanded data bit A, page 1-57	X	X
A-0-0541 - Configuration user defined commanded data bit number A, page 1-57	X	X
A-0-0542 - User defined commanded data bit number A, page 1-58	X	X
A-0-0543 - Configuration user defined commanded data bit B, page 1-58	X	X
A-0-0544 - Configuration user defined commanded data bit number B, page 1-59	X	X
A-0-0545 - User defined commanded data bit number B, page 1-60	X	X
A-0-0546 - Configuration user defined commanded data bit C, page 1-60	X	X
A-0-0547 - Configuration user defined commanded data bit number C, page 1-61	X	X
A-0-0548 - User defined commanded data bit number C, page 1-61	X	X
A-0-0549 - Configuration user defined commanded data bit D, page 1-62	X	X
A-0-0550 - Configuration user defined commanded data bit number D, page 1-63	X	X
A-0-0551 - User defined commanded data bit number D, page 1-63	X	X
A-0-0560 - Configuration user defined actual data bit A, page 1-64	X	X
A-0-0561 - Configuration user defined actual data bit number A, page 1-64	X	X
A-0-0562 - User defined actual data bit number A, page 1-65	X	X
A-0-0563 - Configuration user defined actual data bit B, page 1-65	X	X
A-0-0564 - Configuration user defined actual data bit number B, page 1-66	X	X
A-0-0565 - User defined actual data bit number B, page 1-66	X	X
A-0-0566 - Configuration user defined actual data bit C, page 1-67	X	X
A-0-0567 - Configuration user defined actual data bit number C, page 1-67	X	X
A-0-0568 - User defined actual data bit number C, page 1-68	X	X
A-0-0569 - Configuration user defined actual data bit D, page 1-69	X	X
A-0-0570 - Configuration user defined actual data bit number D, page 1-69	X	X
A-0-0571 - User defined actual data bit number D, page 1-70	X	X
A-0-0596 - List of free configurable parameter in the MDT, page 1-70	X	X
A-0-0597 - List of free configurable parameter in the AT, page 1-71	X	X
A-0-0598 - List of configurable parameter in signal control word, page 1-71	X	X
A-0-0599 - List of configurable parameter in signal status word, page 1-72	X	X

Fig. 1-8: User-configurable Data Container

1.5 Overview: Diagnostics - A- and C-Parameters

Following parameters are used for diagnostics purposes.

Parameter
A-0-0020 - Axis diagnostic message, page 1-22
A-0-0021 - Axis status, page 1-22
A-0-0022 - Extended axis status, page 1-24
A-0-0023 - Axis diagnostic number, page 1-25
A-0-0024 - Axis condition, page 1-25
A-0-0026 - Drive telegram error counter, page 1-26
C-0-0001 - Language selection, page 1-97
C-0-0620 - Diagnosis recorder index, page 1-128
C-0-0621 - Indexed diagnosis message, page 1-130
C-0-0622 - Amount of diagnosis messages, page 1-130
C-0-0623 - Last reset message, page 1-130
C-0-0624 - Absolute index, page 1-131
C-0-0625 - Display message, page 1-131
C-0-0626 - Diagnosis, page 1-131
C-0-0627 - Diagnosis number, page 1-132
C-0-0650 - Diagnosis status word, page 1-132
C-0-0711 - MLC-link - MDT error counter, page 1-138
C-0-0714 - MLC-link - status function modul, page 1-140

Fig. 1-9: Parameters used for diagnostics

1.6 Overview: Commands - A- and C-Parameters

Following table gives an overview of the parameters which release a command.

Parameter
A-0-1000 - Command: axis base parameter load, page 1-74
A-0-1030 - Command: clear all axis errors, page 1-75
C-0-1000 - Command: control base parameter load, page 1-141
C-0-1001 - Command: load motion control parameters from FW-module, page 1-141
C-0-1002 - Command: store motion control parameters in FW-module, page 1-142
C-0-1009 - Command: Get Extended Drive Info, page 1-143
C-0-1010 - Command: export parameter, page 1-144
C-0-1011 - Command: import parameter, page 1-144
C-0-1020 - Command: reboot after firmware update, page 1-144
C-0-1021 - Command: firmware reset, page 1-145
C-0-1030 - Command: clear all control errors, page 1-146
C-0-1050 - Command reset list maximal and minimal time values, page 1-146
C-0-1051 - Command: Reset Parameter C-0-0416 und C-0-0417, page 1-148

Fig. 1-10: Command parameters

1.7 Overview: Control Link - A- and C-Parameters

Following table gives an overview of the A-Parameters which are created for the link axes, and C-Parameters which are required for the buildup of a link.

Parameter
A-0-0001 - Logical axis number, page 1-15
A-0-0002 - Axis name, page 1-15
A-0-0004 - Axis type, page 1-15
A-0-0008 - Link axis - master axis selection, page 1-17
A-0-0010 - List of all A parameters, page 1-18
A-0-0011 - List of all invalid A parameters, page 1-19
A-0-0012 - Checksum of A parameters, page 1-20
A-0-0013 - IDN list of checksum A parameter, page 1-20
A-0-0020 - Axis diagnostic message, page 1-22
A-0-0021 - Axis status, page 1-22
A-0-0022 - Extended axis status, page 1-24
A-0-0023 - Axis diagnostic number, page 1-25
A-0-0024 - Axis condition, page 1-25
A-0-0045 - Modulo value, page 1-32
A-0-0056 - Velocity data scaling type, page 1-37
A-0-0059 - Position data scaling type, page 1-39
A-0-0100 - Actual position, page 1-43
A-0-0102 - Actual velocity, page 1-44
A-0-0108 - Actual position, incremental, page 1-46
A-0-0222 - Standstill window, page 1-51
A-0-1000 - Command: axis base parameter load, page 1-74
A-0-1030 - Command: clear all axis errors, page 1-75
A-0-2800 - Encoder configuration, page 1-92
A-0-2801 - Encoder status, page 1-92
A-0-2802 - Encoder gear numerator, page 1-93
A-0-2803 - Encoder gear denominator, page 1-93
A-0-2804 - Encoder filter type, page 1-94
A-0-2805 - Encoder filter cutoff frequency, page 1-94
A-0-2806 - Encoder reference position, page 1-95
A-0-2807 - Command set absolute measuring, page 1-95
A-0-2808 - Encoder position offset, page 1-96
C-0-0484 - Axes configuration list, page 1-125
C-0-0700 - MLC-link - desired cycle time (T _{cyc}), page 1-133
C-0-0701 - MLC-link - configuration functional modes, page 1-133
C-0-0702 - MLC-link - configuration fiber optic cable lengths, page 1-134
C-0-0703 - MLC-link - configuration master axes, page 1-135
C-0-0704 - MLC-link - desired binary input values, page 1-135

C-0-0705 - MLC-link - calibration dead time compensation, page 1-136
C-0-0710 - MLC-link - actual cycle time (T _{cyc}), page 1-138
C-0-0711 - MLC-link - MDT error counter, page 1-138
C-0-0712 - MLC-link - status link data, page 1-139
C-0-0713 - MLC-link - status binary inputs, page 1-139
C-0-0714 - MLC-link - status function modul, page 1-140

Fig. 1-11: A- and C-parameters for MLC link

1.8 A- and C-Parameters overlay S- and P-Parameters

During the configuration process the values of the A- and C-Parameters are copied if necessary to the associated S- and P-Parameters. This may take place either for the complete operation datum or with bit bars for selected ranges.

That means for the user, that he cannot write the assigned S- or P-Parameter directly, because the values become overwritten- also during runtime.

The given list below shows the dependencies:

Parameter	overlays
A-0-0021 - Axis status, page 1-22	see AT configuration
A-0-0022 - Extended axis status, page 1-24	see AT configuration
A-0-0023 - Axis diagnostic number, page 1-25	S-0-0390
A-0-0028 - Travel range limit, page 1-27	P-0-0090
A-0-0029 - Position polarity, page 1-27	S-0-0055
A-0-0030 - Positive position limit, page 1-28	S-0-0049
A-0-0031 - Negative position limit, page 1-29	S-0-0050
A-0-0032 - Positive velocity limit, page 1-29	S-0-0038, S-0-0091
A-0-0033 - Negative velocity limit, page 1-30	S-0-0039, S-0-0091
A-0-0034 - Bipolar acceleration limit, page 1-30	S-0-0138
A-0-0036 - Bipolar jerk limit, page 1-31	S-0-0349
A-0-0038 - Bipolar torque/force limit, page 1-31	S-0-0092, S-0-0082, S-0-0083
A-0-0045 - Modulo value, page 1-32	S-0-0103
A-0-0046 - Slave drive feed travel, page 1-33	P-0-0159
A-0-0050 - Torque/force data scaling type, page 1-33	S-0-0086
A-0-0051 - Torque/force data scaling factor, page 1-34	S-0-0093
A-0-0052 - Torque/force data scaling exponent, page 1-35	S-0-0094
A-0-0053 - Acceleration data scaling type, page 1-35	S-0-0160
A-0-0054 - Acceleration data scaling factor, page 1-36	S-0-0161
A-0-0055 - Acceleration data scaling exponent, page 1-37	S-0-0162
A-0-0056 - Velocity data scaling type, page 1-37	S-0-0044
A-0-0057 - Velocity data scaling factor, page 1-38	S-0-0045
A-0-0058 - Velocity data scaling exponent, page 1-39	S-0-0046
A-0-0059 - Position data scaling type, page 1-39	S-0-0076
A-0-0060 - Linear position data scaling factor, page 1-41	S-0-0077

A-0-0061 - Linear position data scaling exponent, page 1-41	S-0-0078
A-0-0062 - Rotational position resolution, page 1-42	S-0-0079
A-0-0063 - Temperature data scaling type, page 1-43	S-0-0208
A-0-0100 - Actual position, page 1-43	S-0-0386
A-0-0102 - Actual velocity, page 1-44	S-0-0040
A-0-0103 - Actual acceleration, page 1-44	S-0-0164
A-0-0110 - Actual torque/force, page 1-46	S-0-0084
A-0-0150 - Interpolated position, page 1-47	P-0-0434
A-0-0152 - Interpolated velocity, page 1-47	P-0-0048
A-0-0203 - Direction, page 1-48	S-0-0145, Bit 4 & 5, after MC_MoveAbsolute invocation
A-0-0216 - Jerk, page 1-50	S-0-0193
A-0-0219 - Positioning window for shortest way, page 1-50	S-0-0418
A-0-0222 - Standstill window, page 1-51	S-0-0124
A-0-0223 - Velocity window, page 1-51	S-0-0157
A-0-0224 - Emergency deceleration, page 1-51	S-0-0372
A-0-0500 - Configuration user defined commanded data A, page 1-53	S-0-0024
A-0-0502 - Configuration user defined commanded data B, page 1-53	S-0-0024
A-0-0504 - Configuration user defined commanded data C, page 1-54	S-0-0024
A-0-0506 - Configuration user defined commanded data D, page 1-54	S-0-0024
A-0-0520 - Configuration user defined actual data A, page 1-55	S-0-0016
A-0-0522 - Configuration user defined actual data B, page 1-55	S-0-0016
A-0-0524 - Configuration user defined actual data C, page 1-56	S-0-0016
A-0-0526 - Configuration user defined actual data D, page 1-56	S-0-0016
A-0-0540 - Configuration user defined commanded data bit A, page 1-57	S-0-0027
A-0-0541 - Configuration user defined commanded data bit number A, page 1-57	S-0-0329
A-0-0542 - User defined commanded data bit number A, page 1-58	S-0-0145
A-0-0543 - Configuration user defined commanded data bit B, page 1-58	S-0-0027
A-0-0544 - Configuration user defined commanded data bit number B, page 1-59	S-0-0329
A-0-0545 - User defined commanded data bit number B, page 1-60	S-0-0145
A-0-0546 - Configuration user defined commanded data bit C, page 1-60	S-0-0027
A-0-0547 - Configuration user defined commanded data bit number C, page 1-61	S-0-0329
A-0-0548 - User defined commanded data bit number C, page 1-61	S-0-0145
A-0-0549 - Configuration user defined commanded data bit D, page 1-62	S-0-0027
A-0-0550 - Configuration user defined commanded data bit number D, page 1-63	S-0-0329
A-0-0551 - User defined commanded data bit number D, page 1-63	S-0-0145
A-0-0560 - Configuration user defined actual data bit A, page 1-64	S-0-0026
A-0-0561 - Configuration user defined actual data bit number A, page 1-64	S-0-0328
A-0-0562 - User defined actual data bit number A, page 1-65	S-0-0144
A-0-0563 - Configuration user defined actual data bit B, page 1-65	S-0-0026
A-0-0564 - Configuration user defined actual data bit number B, page 1-66	S-0-0328
A-0-0565 - User defined actual data bit number B, page 1-66	S-0-0144
A-0-0566 - Configuration user defined actual data bit C, page 1-67	S-0-0026

A-0-0567 - Configuration user defined actual data bit number C, page 1-67	S-0-0328
A-0-0568 - User defined actual data bit number C, page 1-68	S-0-0144
A-0-0569 - Configuration user defined actual data bit D, page 1-69	S-0-0026
A-0-0570 - Configuration user defined actual data bit number D, page 1-69	S-0-0328
A-0-0571 - User defined actual data bit number D, page 1-70	S-0-0144
A-0-0596 - List of free configurable parameter in the MDT, page 1-70	S-0-0188
A-0-0597 - List of free configurable parameter in the AT, page 1-71	S-0-0187
A-0-0598 - List of configurable parameter in signal control word, page 1-71	S-0-0399
A-0-0599 - List of configurable parameter in signal status word, page 1-72	S-0-0398
A-0-0622 - Position synchronization window, page 1-72	S-0-0228
A-0-0623 - Velocity synchronization window, page 1-74	S-0-0183
A-0-1000 - Command: axis base parameter load, page 1-74	S-0-0262
A-0-1030 - Command: clear all axis errors, page 1-75	S-0-0099
A-0-2200 - Commanded position, page 1-76	S-0-0282, after FB invocation
A-0-2201 - Commanded target position, page 1-76	S-0-0430, after FB invocation
A-0-2202 - Commanded velocity, page 1-77	S-0-0259, after FB invocation
A-0-2203 - Commanded acceleration, page 1-78	S-0-0260, after FB invocation
A-0-2204 - Commanded deceleration, page 1-79	S-0-0359, after FB invocation
A-0-2205 - Commanded jerk, page 1-80	S-0-0193, after FB invocation
A-0-2207 - Commanded direction, page 1-81	S-0-0145, Bit 4 & 5, after MC_MoveAbsolute invocation
A-0-2208 - Cyclic commanded position, page 1-81	S-0-0047, after FB invocation
A-0-2720 - Master drive gear input revolutions, page 1-84	P-0-0156
A-0-2721 - Master drive gear output revolutions, page 1-85	P-0-0157
A-0-2722 - Gear ratio fine adjust, page 1-86	P-0-0083
A-0-2730 - Angle offset begin of profile	P-0-0061
A-0-2740 - Cam table preselection, page 1-86	P-0-0088
A-0-2741 - Cam Shaft Distance, page 1-87	P-0-0093
A-0-2750 - Slave, additive position command value	S-0-0048
A-0-2761 - Slave, additive velocity command value	S-0-0037
A-0-2792 - Synchronization init window for modulo format, page 1-87	P-0-0151
A-0-2793 - Synchronization direction, page 1-89	P-0-0154
A-0-2794 - Synchronization mode, page 1-89	P-0-0155
A-0-2795 - Position window, page 1-91	S-0-0057
C-0-0063 - Temperature data scaling type - Controller, page 1-106	S-0-0208
C-0-0400 - Desired MC cycle time (Tcyc), page 1-115	S-0-0001
C-0-0402 - Power Up Cycle Time, page 1-116	S-0-0002
C-0-1030 - Command: clear all control errors, page 1-146	S-0-0099

Fig. 1-12: A- and C-Parameters overlay S- and P-Parameters (2006-06-10)

1.9 Axis Parameters

A-0-0001 - Logical axis number

Name, germ.: Logische Achsnummer

This parameter shows the actual logical axis number.

A-0-0001 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	---			

A-0-0002 - Axis name

Name, germ.: Achsbezeichnung

A descriptive name text for the axis can be stored in this parameter (e.g., swivel axis). It has no functional significance.

A-0-0002 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	1BYTE_VAR, TEXT	PLC:	STRING	
Memory:	FLASH	Editability:	P2, BB	
Cyc. transmittable:	no	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x00 / 0xFF			
Default value:	"Axis name"			

A-0-0004 - Axis type

Name, germ.: Achstyp

This parameter shows the current axis configuration.

Bit	Designation/function	Comment
2..0	reserved	
6..3	Axis types 0001: real axis/ HNC axis 0010: virtual axis 0100: encoder axis 1000: link axis	
15..7	reserved	

Examples: 0x08 real axis

0x10 virtual axis
 0x20 encoder axis
 0x40 link axis

A-0-0004 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	---			

A-0-0005 - Drive address

Name, germ.: Antriebsadresse

This parameter shows the configured drive address for the axis. The drive with this address is associated to this axis.

Real axis

0: Invalid drive address
 1..99: Drive address

Encoder axis

0: Invalid drive address
 1..99: Encoder drive address

A-0-0005 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	---			

A-0-0006 - Drive type

Name, germ.: Antriebstyp

This parameter shows the detected drive type.

Possible entries are:

- "Not supported drive type"
- "IndraDrive MPH"
- "IndraDrive MPB"

- "IndraDrive MPD"
- "HNC 3x"

A-0-0006 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	no	no
Function:	PARAMETER	Unit:	--	
MLC:	1BYTE_VAR, TEXT	PLC:	STRING	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x00 / 0xFF			
Default value:	"Drive not in ring"			

A-0-0007 - Axis configuration

Name, germ.: Achskonfiguration

This parameter describes the axis configuration.

Bit	Designation/function	Comment
0	Following error 0: position control - with following error 1: position control - lagless	
1	Position feedback value 0: Position feedback1 value is active 1: Position feedback2 value is active	
31..2	reserved	

A-0-0007 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, BINARY	PLC:	DWORD	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x00 / 0x03			
Default value:	0x01			

A-0-0008 - Link axis - master axis selection

Name, germ.: Verbundachse - Auswahl Masterachse

In this parameter the control address of the link participant is determined as well as adjusted. This settings determine which master axis of the link participant is required.

This parameter is a list parameter with the following structure:

- Element 1: Selection control address
- Element 2: Selection master axis

Selection control address:

1...64: Control address of a link participant

Depending on "MLC-Link - Desired cycle time (Tcyc)" (C-0-0700) the following maximum values for the control address are permitted. This maximum value is checked when switching to operating mode:

Link cycletime	Maximum control address
2000 µs	16
4000 µs	32
8000 µs	64

Maximum control address

Selection master axis:

Master axis A (element 2=1)

Corresponds to the first axis in the link data of the selected link participant

Master axis B (element 2=2)

Corresponds to the second axis in the link data of the selected link participant

Note: Generally the axis addresses of the master axes in the link do not correspond to the local addresses of the master axes of the selected participant. So here is consciously spoken of master axis A and master axis B.

A-0-0008 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	no	no	yes
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-	
Memory:	FLASH	Editability:	P0, P2	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 64			
Default value:	0			

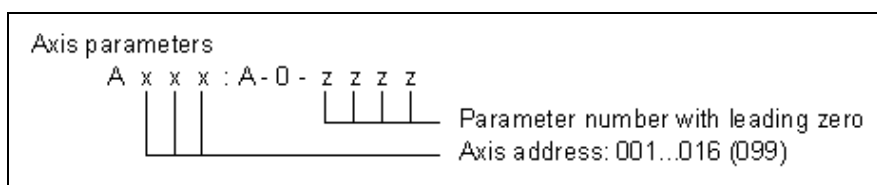
A-0-0010 - List of all A parameters

Name, germ.: Liste aller A-Parameter

This list includes all A parameters of the axis. The entries are in ID number format.

The entries are sorted according to definition and how they belong together, but not according to ID number or alphabetically.

The A parameters of the axis are stored in the order of these entries.



Example A001: A-0-0004 - axis 1; parameter A-0-0004

A-0-0010 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 268505087			
Default value:	---			

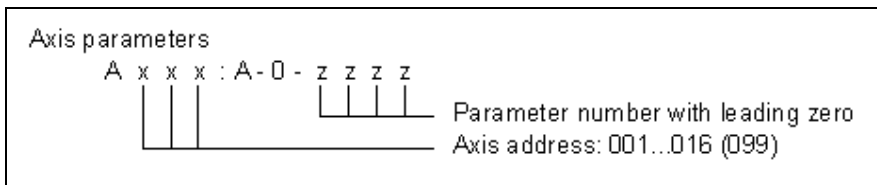
A-0-0011 - List of all invalid A parameters

Name, germ.: Liste der ungültigen A-Parameter

This list shows the all A parameters which are detected as illegal

- during the MLC checksum test, e.g., following a firmware update, or
- during the MLC plausibility test, e.g., as a result of an illegal operating mode.

The entries are in ID number format.



Example A001: A-0-0004 - axis 1; parameter A-0-0004

A-0-0011 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 268505087			
Default value:	---			

A-0-0012 - Checksum of A parameters

Name, germ.: Prüfsumme über alle A-Parameter

When reading this parameter the checksum is generated by all A parameter values the IDNs of which are listed in parameter „IDN list of checksum A parameter“ (A-0-0013).

A-0-0012 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, UINT_DEC	PLC:	UDINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	---			

A-0-0013 - IDN list of checksum A parameter

Name, germ.: IDN-Liste der A-Prüfsummenparameter

The IDNs of those A parameters the checksum of which is to be generated are entered in this parameter.

The checksum generation is triggered with the reading of the "Checksum of A parameters" (A-0-0012). In the condition as supplied this does not yet contain any IDNs.

A-0-0013 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	no	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 4095			
Default value:	---			

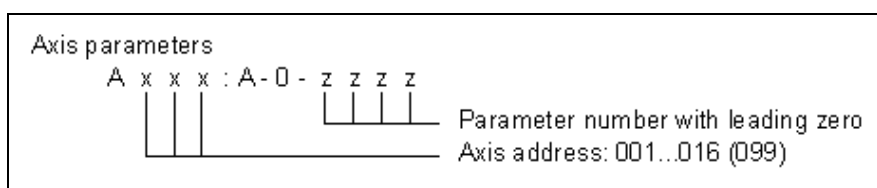
A-0-0014 - List of not transmitted A parameters

Name, germ.: Liste der nicht übertragenen A-Parameter

This list shows all A parameters, which could not be transmitted to the target S parameters.

E.g.: The scope of a S parameter became smaller after scaling modification. The A parameter does not fit into the new scope.

The ID number format is used for all entries.



Example A001: A-0-0004 - Axis 1; Parameter A-0-0004

A-0-0014 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	---			

A-0-0020 - Axis diagnostic message

Name, germ.: Achsdiagnosemeldung

If the bit 8 or the bit 9 of the parameter "Axis status" (A-0-0021) is set to 1, this parameter shows the actual axis diagnostic message.

A-0-0020 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	1BYTE_VAR, TEXT	PLC:	STRING	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x00 / 0xFF			
Default value:	"No messages now available"			

A-0-0021 - Axis status

Name, germ.: Achsstatus

This parameter describes the actual value of the status of the axis.

Bit	Designation/function	Comment
0	Active cam table bit 0	
1	Active cam table bit 1	
2	// reserved: active cam table bit 2	
3	Cmd cam shaft distance active	
4	Axis Cmd velocity = actual velocity	
5	Axis velocity <= A-0-0222 (standstill)	
6	Axis cmd position = actual position	
7	Axis is in synchronization	
8	Axis reports warning	
9	Axis reports error	
10	Axis is relative / in homing	
11	Axis cmd torque/force = actual torque/force	
12	Axis is in operation mode (P4)	

13	Axis is ready for power to the amplifier (bb)	
14	Axis is ready for power to the engine (Ab)	
15	Axis has power on (AH_AF)	
16	Command active	
17	Error reaction in progress	

Note: With encoder or link axes only bit 5 and bit 10 are supported.

Bit 1, 0: With bits 0/1 of this parameter the drive reports, from which cam table the table values are taken from.

- 00 – Cam table 1 active, (P-0-0072)
- 01 – Cam table 2 active, (P-0-0092)
- 10 – Cam table 3 active, (P-0-0080)
- 11 – Cam table 4 active, (P-0-0081).

Bit 2: reserved for cam table selection

Bit 3: Distance active/accepted, copy of bit "Status word for synchronous operating modes" (P-0-0089, bit5) from the drive

Bit 4: Axis commanded velocity = Axis actual velocity

For any commanded velocity value, the actual velocity value (A-0-0102) is within the range, which is predetermined by the "Velocity window" (A-0-0223).

Bit 5: Axis actual velocity <= "Velocity window" (A-0-0222), Standstill

For the commanded velocity value zero, the actual velocity value (A-0-0102) is within the range, which is predetermined by the "Standstill window" (A-0-0222).

Bit 6: Axis commanded position = Axis actual position

For any commanded position, the actual position value (A-0-0100) is within the range, which is predetermined by the "Position window" (A-0-2795), and in position.

Bit 7: Axis is synchronized

The axis follows the master (master axis) in velocity control (MC_GearIn) or in position control (MB_GearInPos).

Bit 8: Axis indicates a warning

In operation the drive control unit performs monitorings. Some monitorings are dependent on the used operating mode and/or parameter settings. If a condition is detected which still allows proper operation, however further on exists and would lead to an error in the further process, a warning is generated.

Note: Several warnings lead at non-observance not to an error.

Bit 9 Axis indicates error

Dependent on the used operating mode and several parameter settings, the drive control unit performs monitorings. If a condition is detected which allows no proper operation, the drive control unit generates an error.

Bit 10 0 – Position actual value relative

1 – Position actual value referenced

Bit 11 Torque/Force commanded value = Actual torque/force

The actual torque/force of a (hydraulic) drive is equivalent to the predetermined torque/force commanded value.

"Torque-/Force commanded value" (S-0-0084), "Torque-/Force commanded value, additive" (S-0-0085)

"Actual torque/force" (S-0-0086) resp. "Actual torque/force" (A-0-0110).

Bit 12 Axis is in operating mode (P4)

Bit 13 "bb" - Axis is ready for power connection

The diagnostic "Ready for power connection" (A0000013) signals, that the drive is provided with control voltage and no error exists.

Drive is ready for power connection.

Note: This condition is indicated at the control panel by the display "bb" (ready for operation).

Bit 14 "Ab" - Control- and power unit ready for operation

The diagnostic "Control- and power unit ready for operation" (A0000012) signals, that the drive is provided with control voltage, and the power is connected. Drive is ready for power hand-over.

Note: This condition is indicated at the control panel by the display "Ab" (Drive ready).

Bit 15 "AH_AF" - Drive Hold, Drive Release

The drive hold function is used for setting still an axis with a defined acceleration and a defined jerk.

"Drive Release" means, that the drive is released in the desired operating mode. Diagnostics (A0000100...A0000211)

Bit 16 Command active

The bit is set to 1 as soon as the command is started in the axis and as long as it is active.

Bit 17 Error reaction in progress

The axes are stopped with presetted deceleration, parameter "Emergency deceleration (A-0-0224)". The bit is set to 1 during the axes ramp down, the bit is set to 0 as soon as the axes stand still.

A-0-0021 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, BINARY	PLC:	DWORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0022 - Extended axis status

Name, germ.: Erweiterter Achsstatus

This parameter describes the actual state of the axis based on the PLCopen state diagram. The single bits show the states of the state diagram.

Bit	Designation/function	Comment
0	Axis is in "Errorstop"	
1	Axis is in "Stopping"	
2	Axis is in "Homing"	
3	Axis got power	
4	Axis is in "Discrete Motion"	
5	Axis is in "Continuous Motion"	
6	Axis is in "Synchronized Motion"	
7	Axis is in "StandStill"	
8	Axis is in "Coordinated Motion"	
15..9	reserved	

A-0-0022 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, BINARY	PLC:	DWORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0023 - Axis diagnostic number

Name, germ.: Achsdiagnosenummer

If the bit 8 or the bit 9 of the parameter "Axis status" (A-0-0021) is set to 1, this parameter shows the actual axis diagnostic number.

A-0-0023 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, UINT_HEX	PLC:	UDINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0			

A-0-0024 - Axis condition

Name, germ.: Achszustand

This parameter allows to activate, park or deactivate a real- or encoder axis.

The appropriate values are:

0 – Axis is active

- 1 – Axis is parked
- 2 – Axis is deactivated

Setting this parameter influences the state of the connected drive. If the drive is connected to another axis at the same time, so parameter A-0-0024 is adjusted in the second axis.

Example: Axis 1: Real axis, connected to drive 1

Axis 2: Encoder axis, connected to drive 1

If parameter A-0-0024 is changed in axis 1, the parameter is set in axis 2 at the same time.

If one axis is deactivated, no access to S- or P-Parameters is possible. A-Parameters can be read or written further on. With a parked axis, access to all parameters is further on possible.

If an axis is parked, the command "Parking axis" is activated in the drive. The description of this function can be found in the drive help.

Parked and deactivated axes cannot be moved by the PLC. The data in AxisData-Structure are not updated.

If the axis is configured in parameter C-0-0703 "MLC-Link-Configuration master axes", all data in its link are marked as invalid.

A-0-0024 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	no	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, UINT_HEX	PLC:	UDINT	
Memory:	RAM	Editability:	P0, P2	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 2			
Default value:	0			

A-0-0026 - Drive telegram error counter

Name, germ.: Telegrammfehlerzähler Antrieb

This parameter counts all invalid drive bus slave telegrams (AT) in operation mode. If two ATs fail in direct succession, then error "Double AT missing" (F80B0004) is generated.

The "AT error counter" only counts up to 65535 and then stands. It takes a while to reach this value, if a transmission has a great deal of interference.

Writing into it, resets the counter.

A-0-0026 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	---			

A-0-0028 - Travel range limit

Name, germ.: Fahrbereichsgrenzscharter-Parameter

This parameter defines the signal behavior of the travel range limit switch inputs and the behavior of the drive with regard to exceeded travel ranges.

Bit	Function	Comment
0	Signal behavior travel range limit switch inputs (real axes, only) 0: not inverted, 24 V => travel range is exceeded 1: inverted, 0 V => travel range is exceeded	
1	Activation of travel range limit switch (real axes, only) 0: no 1: yes	
2	Handling when travel range exceeded 0: as error (acc. to error reaction) 1: as fatal warning (shutdown)	
3..15	reserved	

A-0-0028 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	NVRAM	Editability:	P0, P2, BB	
Cyc. transmittable:	no	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0x00 / 0x07			
Default value:	0x00			

A-0-0029 - Position polarity

Name, germ.: Lage-Polaritäten

Bit 4 of this parameter is used to activate or deactivate software position limits, "Positive position limit" (A-0-0030) and "Negative position limit" (A-0-0031).

Bit	Designation/function	Comment
3..0	reserved	
4	Position limits 0: inactive 1: active	
15..5	reserved	

A-0-0029 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0030 - Positive position limit

Name, germ.: Lage-Grenzwert positiv

The positive position limit describes the maximum extent of travel in the positive direction.

The position limit is active only when all position data refers to the homing point, i.e., the axis is homed ("Axis status" (A-0-0021), bit 10 is set to 1).

If a "Commanded position" (A-0-2200) beyond the positive position limit is set for the axis, then the axis sets error bit "Axis status" (A-0-0021), bit 9) and generates the error "Target position out of travel range" (F2112053).

If the "Actual position" (A-0-0100) is exceeded the "positive position limit" (A-0-0030) or the "negative position limit" (A-0-0031) the axis sets error bit ("Axis status" (A-0-0021), bit 9) and generates the error "Positive travel limit exceeded" (F2116029) or "Negative travel limit exceeded" (F2116030).

See also the functional description: "Axis Limits".

A-0-0030 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-2147483647.0 / 2147483647.0			
Default value:	36000.0			
Default HNC	1200.0			

A-0-0031 - Negative position limit

Name, germ.: Lage-Grenzwert negativ

The negative position limit describes the maximum extent of travel in the negative direction.

The position limit is active only when all position data refers to the homing point, i.e., the axis is homed ("Axis status" (A-0-0021), bit 10 is set to 1).

If a "Commanded Position" (A-0-2200) beyond the negative position limit is set for the axis, then the axis sets error bit ("Axis status" (A-0-0021), bit 9) and generates the error "Commanded position out of travel range" (F2112053).

If the "Actual position" (A-0-0100) is exceeded the "positive position limit" (A-0-0030) or the "negative position limit" (A-0-0031) the axis sets error bit ("Axis status" (A-0-0021), bit 9) and generates the error "Positive travel limit exceeded" (F2116029) or "Negative travel limit exceeded" (F2116030).

See also the functional description: "Axis Limits".

A-0-0031 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-2147483647.0 / 2147483647.0			
Default value:	-36000.0			
Default HNC	-1200.0			

A-0-0032 - Positive velocity limit

Name, germ.: Geschwindigkeits-Grenzwert positiv

The "positive velocity limit" describes the maximum permissible velocity in the positive direction.

Warning If the "Actual velocity" (A-0-0102) is exceeded the "Positive velocity limit" (A-0-0032) or the "Negative velocity limit" (A-0-0033) the axis sets warning bit ("Axis status" (A-0-0021), bit 8) and generates the warning "Velocity > Limit A-0-0032/ A-0-0033" (E0112063).

The entered value generates the maximum value for all other speed parameters (in the positive direction).

A-0-0032 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-2147483647.0 / 2147483647.0			
Default value:	1000.0			

A-0-0033 - Negative velocity limit

Name, germ.: Geschwindigkeits-Grenzwert negativ

The "negative velocity limit" describes the maximum permissible velocity in the negative direction.

Warning If the "Actual velocity" (A-0-0102) is exceeded the "Positive velocity limit" (A-0-0032) or the "Negative velocity limit" (A-0-0033) the axis sets warning bit ("Axis status" (A-0-0021, bit 8)) and generates the warning "Velocity > Limit A-0-0032/ A-0-0033" (E0112063).

The entered value generates the maximum value for all other speed parameters (in the negative direction).

A-0-0033 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-2147483647.0 / 2147483647.0			
Default value:	-1000.0			

A-0-0034 - Bipolar acceleration limit

Name, germ.: Beschleunigungs-Grenzwert bipolar

The bipolar acceleration limit describes the maximum permissible acceleration, symmetrical in both directions acceleration and deceleration).

Warning If the "Actual acceleration" (A-0-0103) is exceeded the "Bipolar acceleration limit" (A-0-0034) the axis sets warning bit ("Axis status" (A-0-0021), bit 8) and generates the warning "Maximum acceleration exceeded" (E0112039).

A-0-0034 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0053	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	100.0			

A-0-0036 - Bipolar jerk limit

Name, germ.: Ruck-Grenzwert bipolar

The bipolar jerk limit value, in the operating 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 position control.

Note: The bipolar jerk limit value limits the change in acceleration per time for "Drive Halt" and the commands that are generating their own position command values. The value "0" switches the jerk filter off!

A-0-0036 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0053	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	370.0			

A-0-0038 - Bipolar torque/force limit

Name, germ.: Drehmoment/Kraft-Grenzwert bipolar

By this parameter it is possible to limit the torque/force command value to allowed maximum values in order to protect the mechanical components.

The parameter acts in a bipolar way, 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 controller output and the command value components from acceleration-dependent feedforwards ("Acceleration feedforward gain" (S-0-0348), "Velocity control loop: acceleration feedforward" (P-0-1126)).

The unit of (A-0-0038) depends on the scaling that has been set.

See also Parameter Description "Torque/force data scaling type" (A-0-0050).

Note: The effective limit value is displayed in "Effective torque/force command value" (P-0-0049). This value can be limited with regard to (A-0-0038), due to a lower value in "Torque/force peak limit" (P-0-0109) or due to a current limit by the respective work load of amplifier or motor.

If in stationary operation (constant speed) a lower torque than in the case of acceleration processes is to be made available to the drive, this can be achieved by appropriate values of "Torque/force limit value positive" (S-0-0082) and "Torque/force limit value negative" (S-0-0083) in conjunction with acceleration feedforward (S-0-0348 or P-0-1126).

The bipolar torque/force limit value also acts on "Positive stop drive procedure command" (C1300), the value of (A-0-0038/ S-0-0092) is a criterion for the acknowledgment of (C1300).

See also Functional Description "Torque/Force Limitation"

See also Functional Description "Torque/Force Control".

A-0-0038 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	A-0-0050	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0.0 / 2147483647.0			
Default value:	100.0			

A-0-0045 - Modulo value

Name, germ.: Modulwert

When the modulo format was set (Parameter "Position data scaling type" (A-0-0059, Bit 7)), the modulo value determines at which numeric value the position data overflow to 0.

See also Functional Description "Modulo Processing".

A-0-0045 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	yes	yes	yes
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0.0 / 2147483647.0			
Default value:	360.0			

A-0-0046 - Slave drive feed travel

Name, germ.: Vorschubweg Folgeantrieb

Note: The function and significance of this parameter depends on the operating mode!

Velocity Synchronization

The parameter A-0-0046 Slave drive feed travel is used in the "velocity synchronization" mode with linear velocity scaling for converting the rotary master axis velocity to the linear slave axis velocity.

$$\text{slave axis velocity} = \text{A-0-2652} * \text{A-0-0046}$$

A-0-2652 - Effective master axis velocity (rpm)

A-0-0046 - Slave drive feed travel (mm/rev)

slave axis velocity (mm/min)

Synchronous Operating Mode with Outer Position Control Loop (Phase Synchronization, Cam Shaft...)

With linear scaling, the slave axis moves by the feed travel, per output revolution of the master drive gear (including fine adjust), parameterized in (A-0-0046).

An output revolution of the master drive gear corresponds to a change by 2^{20} after division of master axis positions by "Master drive gear input revolutions" (A-0-2720), multiplication with "Master drive gear output revolutions" (A-0-2721) and multiplication with the factor (1+"Gear ratio fine adjust" (A-0-2722)).

Observe the following restrictions:

- In the "cam shaft" mode, A-0-0046 only takes effect in the linear gear reduction component.
- In the case of linear modulo scaling, for the synchronous operating modes with outer position control loop, the parameter A-0-0045, Modulo value, assumes the task of parameter A-0-0046.

A-0-0046 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	10.0			

A-0-0050 - Torque/force data scaling type

Name, germ.: Wichtungsart für Drehmoment-/Kraftdaten

The unit and reference of the torque/force data of a drive are set by this parameter:

- percentage-based scaling (% of reference value, see below)
- rotary scaling (Nm, inlbf), in preparation
- linear scaling (N, lbf), in preparation

Bit	Designation/function	Comment
2-0	scaling type 0 0 0: percentage-based scaling 0 0 1: linear scaling (force) 0 1 0: rotary scaling (torque)	
4	unit for force 0: newton [N] 1: pound-force [lbf] unit for torque 0: newtonmeter [Nm] 1: inch pound-force [inlbf]	
5	reserved	
6	data reference 0: at the motor shaft 1: at the load	
15-7	reserved	

Torque/force data scaling type

Note: Freely parameterizable scaling (parameter scaling) is impossible for the torque/force data!

Calculating the Reference Value

In the case of percentage-based scaling, a reference value (100%-value) for torque/force data is required.

$\text{reference value} = \text{motor current at standstill (S-0-0111)} * \text{torque/force constant (P-0-0051)} * \text{cooling type factor (dep. on P-0-0640)}$
--

Calculating the reference value for torque/force data

See also Functional Description "Scaling of Physical Data"

At present, only the percentage-based scaling for torque/force data is supported.

The data reference is preselected to the load (bit 6 = TRUE).

A-0-0050 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	yes	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x40			

A-0-0051 - Torque/force data scaling factor

Name, germ.: Wichtungs-Faktor für Drehmoment-/Kraftdaten

The scaling factor for all torque/force data in the axis is set in this parameter.

The parameter has no meaning at the present time, because only percentage-based scaling can be set for torque and force data. Therefore, only the value 1 is suitable.

A-0-0051 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	1 / 1			
Default value:	1			

A-0-0052 - Torque/force data scaling exponent

Name, germ.: Wichtungs-Exponent für Drehmoment-/Kraftdaten

The scaling exponent for all torque/force data in the drive is set in this parameter.

The parameter has no meaning at the present time, because only percentage-based scaling can be set for torque and force data.

Therefore, only the value -1 is suitable.

A-0-0052 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, INT_DEC	PLC:	INT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-1 / -1			
Default value:	-1			

A-0-0053 - Acceleration data scaling type

Name, germ.: Wichtungsart für Beschleunigungsdaten

As described below, it is possible to set different scaling types for the acceleration data in the axis.

The scaling type of the acceleration data determines in which format and which reference the acceleration data are exchanged between the axis and the control unit or user interface.

The values of the acceleration data parameters, e.g. "Bipolar acceleration limit" (A-0-0034), are displayed by the axis with the scaling that has been set.

The scaling setting is normally preset by the control unit.

The following settings can be made:

Bit	Designation/function	Comment
2..0	Scaling type 001: linear scaling 010: rotatory scaling 011: ramp up time	
3	Preselection 0: preferred scaling 1: parameter scaling	
4	Unit of measure for linear scaling 0: meter [m] 1: inch [in] Unit of measure for rotatory scaling 0: angle degrees 1: reserved	
5	Unit of time 0: seconds*seconds [s ²] 1: reserved	
6	Data reference 0: to the motor 1: to the load	
15..7	reserved	

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

- Acceleration data scaling factor (A-0-0054)
- Acceleration data scaling exponent (A-0-0055)

In the case of parameter scaling, the scaling is realized by inputting the desired parameter values.

See also Functional Description "Scaling of Physical Data".

A-0-0053 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	yes	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x42			
Default HNC	0x41			

A-0-0054 - Acceleration data scaling factor

Name, germ.: Wichtungs-Faktor für Beschleunigungsdaten

In the case of parameter scaling "Acceleration data scaling type" (A-0-0053) the scaling factor and the decimal format (the decimal place) of the acceleration data parameters are determined with this parameter and with "Acceleration data scaling exponent" (A-0-0055).

If preferred scaling is selected in "Acceleration data scaling type" (A-0-0053) the values in "Acceleration data scaling factor" (A-0-0054) and with "Acceleration data scaling exponent" (A-0-0055) are set automatically by the axis.

See also Functional Description "Scaling of Physical Data"

A-0-0054 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	1 / 65535			
Default value:	1			

A-0-0055 - Acceleration data scaling exponent

Name, germ.: Wichtungs-Exponent für Beschleunigungsdaten

In the case of parameter scaling "Acceleration data scaling type" (A-0-0053, bit 3=1) the scaling factor and the decimal format (the decimal place) of the acceleration data parameters are determined with this parameter and with "Acceleration data scaling factor" (A-0-0054).

If preferred scaling is selected in "Acceleration data scaling type" (A-0-0053) the values in "Acceleration data scaling factor" (A-0-0054) and with "Acceleration data scaling exponent" (A-0-0055) are set automatically by the axis.

See also Functional Description "Scaling of Physical Data"

A-0-0055 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, INT_DEC	PLC:	INT	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-15 / 0			
Default value:	-4			

A-0-0056 - Velocity data scaling type

Name, germ.: Wichtungsart für Geschwindigkeitsdaten

The scaling type of the velocity data determines in which format and which reference the velocity data are exchanged between the axis and the control unit or user interface.

The values of the velocity data parameters, e.g. "Actual velocity" (A-0-0102), are displayed by the axis with the scaling that has been set.

The following settings can be made:

Bit	Designation/function	Comment
2..0	Scaling type	

	001: linear scaling 010: rotatory scaling	
3	Preselection 0: preferred scaling 1: parameter scaling	
4	Unit of measure for linear scaling 0: meter [m] 1: inch [in] Unit of measure for rotatory scaling 0: revolution 1: reserved	
5	Unit of time 0: minutes [min] 1: seconds	
6	Data reference 0: to the motor 1: to the load	
15..7	reserved	

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

- Velocity data scaling factor (A-0-0057)
- Velocity data scaling exponent (A-0-0058)

In the case of parameter scaling, the scaling is realized by inputting the desired parameter values.

See also Functional Description "Scaling of Physical Data".

A-0-0056 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	yes	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x42			
Default HNC	0x41			

A-0-0057 - Velocity data scaling factor

Name, germ.: Wichtungs-Faktor für Geschwindigkeitsdaten

In the case of parameter scaling "Velocity data scaling type" (A-0-0056) the scaling factor and the decimal format (the decimal place) of the velocity data parameters are determined with this parameter and with "Velocity data scaling exponent" (A-0-0058).

If preferred scaling is selected in "Velocity data scaling type" (A-0-0056, bit 3= 1) the values in "Velocity data scaling factor" (A-0-0057) and with "Velocity data scaling exponent" (A-0-0058) are set automatically by the axis.

See also Functional Description "Scaling of Physical Data"

A-0-0057 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	1 / 65535			
Default value:	1			

A-0-0058 - Velocity data scaling exponent

Name, germ.: Wichtungs-Exponent für Geschwindigkeitsdaten

In the case of parameter scaling "Velocity data scaling type" (A-0-0056, Bit 3= 1) the scaling factor and the decimal format (the decimal place) of the velocity data parameters are determined with this parameter and with "Velocity data scaling factor" (A-0-0057).

If preferred scaling is selected in "Velocity data scaling type" (A-0-0056, Bit 3= 0) the values in "Velocity data scaling factor" (A-0-0057) and with "Velocity data scaling exponent" (A-0-0058) are set automatically by the axis.

See also Functional Description "Scaling of Physical Data"

A-0-0058 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, INT_DEC	PLC:	INT	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-15 / 0			
Default value:	-4			

A-0-0059 - Position data scaling type

Name, germ.: Wichtungsart für Lagedaten

The scaling type of the position data determines in which format and which reference the position data are exchanged between the axis and the control unit or user interface.

The values of the position data parameters "Actual position value", (A-0-0100) are displayed by the drive with the scaling that has been set. The scaling setting is normally preset by the control unit.

The following settings can be made:

Bit	Designation/function	Comment
2..0	Scaling type 001: linear scaling	

	010: rotatory scaling	
3	Preselection 0: preferred scaling 1: parameter scaling	
4	Unit of measure for linear scaling 0: meter [m] 1: inch [in] Unit of measure for rotatory scaling 0: angle degrees 1: reserved	
5	reserved	
6	Data reference 0: to the motor 1: to the load	
7	Processing format 0: absolute 1: modulo	
15..8	reserved	

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

- "Linear position data scaling factor" A-0-0060),
- "Linear position data scaling exponent" A-0-0061,
- "Rotational position resolution" (A-0-0062)

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

Note: See also example in the case of "Linear position data scaling exponent" (A-0-0060).

See also Functional Description "Scaling of Physical Data".

A-0-0059 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	yes	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0xC2			
Default HNC	0x41			

A-0-0060 - Linear position data scaling factor

Name, germ.: Wichtungs-Faktor für translatorische Lagedaten

In the case of linear parameter scaling (see A-0-0059) the scaling factor and the decimal format (the decimal place) of the position data

parameters are determined with this parameter and with "Linear position data scaling exponent" (A-0-0061).

If preferred scaling is selected in "Position data scaling type" (A-0-0059, Bit 3= 0), the values in A-0-0060 and A-0-0061 are set automatically by the axis.

In the case of parameter scaling "Position data scaling type" (A-0-0059, Bit 3= 1) the scaling factor and the decimal format (the decimal place) of the velocity data parameters are determined with A-0-0060 and A-0-0061.

Physical actual position of the axis equals 0.12m (meters).

Example A) Selected scaling = linear preferred scaling

(A-0-0060= 1, A-0-0061= -7).

The result of this is the value 1200000 for "Actual position value" (A-0-0100) (with the mm unit and 4 decimal places).

Example B) Selected scaling = linear parameter scaling

(A-0-0060= 3, A-0-0061= -7).

The result of this is the value 400000 for "Actual position value" (A-0-0100) (with the mm unit and 4 decimal places).

See also Functional Description "Scaling of Physical Data"

A-0-0060 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	1 / 65535			
Default value:	1			

A-0-0061 - Linear position data scaling exponent

Name, germ.: Wichtungs-Exponent für translatorische Lagedaten

In the case of linear parameter scaling (A-0-0059, bits 0..2 = 001) the scaling factor and the decimal format (the decimal place) of the position data parameters are determined with this parameter and with "Linear position data scaling factor" (A-0-0060).

If **preferred scaling** is selected in "Position data scaling type" (A-0-0059, Bit 3= 0), the values in "Linear position data scaling factor" (A-0-0060) and "Linear position data scaling exponent" (A-0-0061) are set by the axis.

In the case of **parameter scaling** (A-0-0059, Bit 3= 1), the scaling is realized by inputting the desired values in the mentioned parameters.

Note: See also example in the case of "Linear position data scaling exponent" (A-0-0060).

Note: See also example in the case of "Linear position data scaling factor" (A-0-0060).

See also Functional Description "Scaling of Physical Data"

A-0-0061 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, INT_DEC	PLC:	INT	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-15 / 0			
Default value:	-7			

A-0-0062 - Rotational position resolution

Name, germ.: Rotations-Lageauflösung

In the case of rotary parameter scaling (see A-0-0059, Bit 2..0= 010), the smallest angle value is determined with this parameter for the rotary position data parameters.

$$\text{Smallest angle} = 360 \text{ degrees} / \text{Rotational position resolution}$$

The smallest angle value can refer to the motor or the load (A-0-0059, bit 6).

If rotary preferred scaling is set (see A-0-0059), the value in "Rotational position resolution" (A-0-0062), is fixed to 3.600.000. The smallest angle value is therefore fixed to 0,0001 degree of angle for all rotary position data.

See also Functional Description "Scaling of Physical Data"

A-0-0062 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, UINT_DEC	PLC:	UDINT	
Memory:	FLASH	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	1 / 4294967295			
Default value:	3600000			

A-0-0063 - Temperature data scaling type

Name, germ.: Wichtungsart für Temperaturdaten

In this scaling mode, temperature can be set to either °C (Celsius) or F (Fahrenheit).

Scaling of temperature equals 0.1°C or 0.1 F.

Bit	Designation/function	Comment
0	Temperature data scaling type	

	0: Grad Celsius [°C] 1: Fahrenheit [F]	
15..1	reserved	

A-0-0063 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	FLASH	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0100 - Actual position

Name, germ.: Positions-Istwert

This parameter displays the actual position of the axis and is valid in all operating modes of the axis.

- In case of a **virtual axis** this value is the output position of the virtual axis.
- In case of a **real axis/ HNC axis** this value is received from the following axis and displays the actual position from the active encoder. (see also dialog window "Motor encoder – Application type", "Optional encoder").
- In case of a **encoder axis** this value is the output position of the encoder axis.
- **Link axis:** The values comes from the position output of the addressed axis in "Link axis - Selection Master axis" (A-0-0008).
 - A-0-0008: indicates the control address of the searched axis and the information whether it is master axis A or B of this control.
 - The parameter "MLC-Link - Configuration master axes" (C-0-0703) of the control specified in A-0-0008 must be analyzed: the first axis number corresponds to master axis A, the second axis number corresponds to master axis B.

A-0-0100 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	---			

A-0-0102 - Actual velocity

Name, germ.: Geschwindigkeits-Istwert

This parameter displays the actual velocity of the axis and is valid in all operating modes of the axis.

- In case of a **virtual axis** this value is the output velocity of the virtual axis.
- In case of a **real axis/ HNC axis** this value is received from the following axis and displays the actual velocity from the active encoder ("Axis configuration" (A-0-0007, bit 1)).
- In case of a **encoder axis** this value is the output velocity of the encoder axis.
- **Link axis:** The value comes from the velocity calculation of the addressed axis in "Link axis - Selection master axis" (A-0-0008) based on the transmitted data for the position actual value.
 - A-0-0008: indicates the control address of the searched axis and the information, whether it is master axis A or B of this control.
 - The parameter "MLC-Link - Configuration master axes" (C-0-0703) of the control specified in A-0-0008 must be analyzed: the first axis number corresponds to master axis A, the second axis number corresponds to master axis B.

A-0-0102 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-0103 - Actual acceleration

Name, germ.: Beschleunigungs-Istwert

This parameter is an actual velocity value of the motor encoder that is differentiated and filtered during 4 ms.

- In case of a **virtual axis** this value is the output acceleration of the virtual axis.
- In case of a **real axis** this value is received from the following axis and displays the actual acceleration from the active encoder.

A-0-0103 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0053	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-0108 - Actual position, incremental

Name, germ.: Positions-Istwert, inkrementell

This parameter shows the "Actual position" (A-0-0100) of the axis in increments.

This parameter is to be send via the MLC-Link once an axis is configured as a master axis in parameter C-0-0703 "MLC-Link - Configuration master axes".

A-0-0108 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, UINT_DEC	PLC:	UDINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT&MDT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 4294967295			
Default value:	0			

A-0-0110 - Actual torque/force

Name, germ.: Drehmoment/Kraft-Istwert

This parameter displays the actual torque/force of the axis and is valid in all operating modes of the axis.

In case of a **real axis/ HNC axis** this value is received from the following axis and displays the actual torque/force from the axis.

A-0-0110 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	A-0-0050	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-0150 - Interpolated position

Name, germ.: Interpolierte Position

For a jerk-free motion the position setpoints are fine-interpolated. This parameter displays the value of the interpolated position. It is valid for all operation modes of the axis.

A-0-0150 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-0152 - Interpolated velocity

Name, germ.: Interpolierte Geschwindigkeit

For a jerk-free motion the velocity setpoints are fine-interpolated. This parameter displays the value of the interpolated velocity. It is valid for all operation modes of the axis.

A-0-0152 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-0200 - Default Address Master Axis

Name, germ.: Defaultadresse Masterachse

This parameter contains the logical address of the master axis which is transferred into the master position of the real axis outside of state ‚Synchronized Motion‘ (Bit 6 A-0-0022 ‚Extended axis status“ equal 0).

- The content "0" deactivates the function. No master axis will be activated.
- This parameter is only available for real axes.

Note: The parameter ‚Default address master axis‘ can only be changed if no axis is in ‚AF‘ state.

A-0-0200 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P0, P2, BB	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 16			
Default value:	0			

A-0-0203 - Direction

Name, germ.: Bewegungsrichtung

This parameter defines the standard direction value for the axis in case, if the function block doesn't support the direction.

It's value is copied to the parameter "Commanded direction" (A-0-2207) after the positive transition of the "execute" input of a PLCopen function block instance.

Bit	Designation/function	Comment
1..0	Direction 0 0: shortest distance 0 1: positive direction (catch up) 1 0: negative direction (slow down)	
15..2	reserved	

- **Shortest distance** - the target position is approached on the shortest distance.
- **Positive direction, catch up** – the target is reached by rotation in positive direction with reference to the main motion direction.
- **Negative direction, slow down** - the target is reached by rotation in negative direction with reference to the main motion direction.

If the shortest distance to absolute synchronization, however, is smaller than "Synchronization init window for modulo format" (A-0-2792), the shortest distance is traveled and the preset synchronization direction is ignored.

A-0-0203 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	yes	Extr. value check:	no	
Min/Max value:	0x00 / 0x02			
Default value:	0x00			

A-0-0216 - Jerk

Name, germ.: Ruck

This parameter defines the standard jerk value for the axis in case, if the function block doesn't support the jerk.

It is influenced by the parameter "Acceleration data scaling type" (A-0-0053).

Its value is copied to the parameter "Commanded jerk" (A-0-2205) after the positive transition of the "execute" input of a PLCopen function block instance.

A-0-0216 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0053	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	370.0			

A-0-0219 - Positioning window for shortest way

Name, germ.: Positionsfenster für kürzesten Weg

This parameter defines the position window for shortest way value for the axis in case, if the function block doesn't support the position window for shortest way.

In positioning target positions are approached on the shortest way or in parameterized preferred direction "Commanded direction" (A-0-2207). The effective preferred direction within a limited angle range is suspended with the position window: If the difference of the actual axis position and the new target position is smaller than the position window, then it is positioned on the shortest way.

The parameter is influenced by parameter "Position data scaling type" (A-0-0059).

A-0-0219 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	1.0			

A-0-0222 - Standstill window

Name, germ.: Stillstandsfenster

To recognize the motor or axis standstill a threshold value for the velocity is entered in this parameter.

If the absolute value of the actual velocity value falls below this threshold the controller recognizes a standstill.

In the case of standstill "Axis status" (A-0-0021, bit 5) is set, "Axis velocity \leq (A-0-0222), Standstill".

A-0-0222 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	10.0			

A-0-0223 - Velocity window

Name, germ.: Geschwindigkeitsfenster

The velocity window is related to the absolute value of the "commanded velocity" (A-0-2202).

If the actual velocity value is within the calculated velocity window, the axis sets "Axis status" (A-0-0021, bit 4) (Commanded velocity = Actual velocity)

A-0-0223 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	10.0			

A-0-0224 - Emergency deceleration

Name, germ.: Schnellhalt-Verzögerung

In this parameter you have to set with which maximum deceleration value a drive is shut down in the case of

- speed command value reset with ramp

The unit of this parameter is determined by "Acceleration data scaling type" (A-0-0053).

See also Functional Description: "Error response"

A-0-0224 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0053	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	50.0			

A-0-0300 - Master position

Name, germ.: Master, Lageistwert

This parameter shows the actual position value of the master axis. The master axis is defined by "Master control number" (A-0-2700) and "Master axis number" (A-0-2701).

A-0-0300 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-0302 - Master velocity

Name, germ.: Master, Geschwindigkeitswert

The parameter shows the actual velocity value of the master axis. The master axis is defined by "Master control number" (A-0-2700) and "Master axis number" (A-0-2701).

A-0-0302 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-0500 - Configuration user defined commanded data A

Name, germ.: Konfiguration benutzerdefinierter Sollwert A

Within the master data telegram, four container (A /B /C /D) with the size of four bytes are reserved for the user to transmit command data to an axis.

This parameter is used to configure a parameter which is transmitted cyclically from the control to the drive in container "A".

The parameter "List of free configurable parameter in the MDT" (A-0-0596) contains the parameter, which can be transmitted.

A-0-0500 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	(P2+Stop)	
Cyc. transmittable:	AT & MDT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0502 - Configuration user defined commanded data B

Name, germ.: Konfiguration benutzerdefinierter Sollwert B

Within the master data telegram, four container (A /B /C /D) with the size of four bytes are reserved for the user to transmit command data to an axis.

This parameter is used to configure a parameter which is transmitted cyclically from the control to the drive in container "B".

The parameter "List of free configurable parameter in the MDT" (A-0-0596) contains the parameter, which can be transmitted.

A-0-0502 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	(P2+Stop)	
Cyc. transmittable:	AT & MDT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0504 - Configuration user defined commanded data C

Name, germ.: Konfiguration benutzerdefinierter Sollwert C

Within the master data telegram, four container (A /B /C /D) with the size of four bytes are reserved for the user to transmit command data to an axis.

This parameter is used to configure a parameter which is transmitted cyclically from the control to the drive in container "C".

The parameter "List of free configurable parameter in the MDT" (A-0-0596) contains the parameter, which can be transmitted.

A-0-0504 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	(P2+Stop)	
Cyc. transmittable:	AT & MDT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0506 - Configuration user defined commanded data D

Name, germ.: Konfiguration benutzerdefinierter Sollwert D

Within the master data telegram, four container (A /B /C /D) with the size of four bytes are reserved for the user to transmit command data to an axis.

This parameter is used to configure a parameter which is transmitted cyclically from the control to the drive in container "D".

The parameter "List of free configurable parameter in the MDT" (A-0-0596) contains the parameter, which can be transmitted.

A-0-0506 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	(P2+Stop)	
Cyc. transmittable:	AT & MDT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0520 - Configuration user defined actual data A

Name, germ.: Konfiguration benutzerdefinierter Istwert A

Within the drive telegram, four container (A /B /C /D) with the size of four bytes are reserved for the user to transmit actual data of an axis to the control.

This parameter is used to configure a parameter which is transmitted cyclically from the drive to the control in container „A“.

The parameter "List of free configurable parameter in the AT" (A-0-0597) contains the parameter, which can be transmitted.

A-0-0520 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	(P2+Stop)	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0522 - Configuration user defined actual data B

Name, germ.: Konfiguration benutzerdefinierter Istwert B

Within the drive telegram, four container (A /B /C /D) with the size of four bytes are reserved for the user to transmit actual data of an axis to the control.

This parameter is used to configure a parameter which is transmitted cyclically from the drive to the control in container "B".

The parameter "List of free configurable parameter in the AT" (A-0-0597) contains the parameter, which can be transmitted.

A-0-0522 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	(P2+Stop)	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0524 - Configuration user defined actual data C

Name, germ.: Konfiguration benutzerdefinierter Istwert C

Within the drive telegram, four container (A /B /C /D) with the size of four bytes are reserved for the user to transmit actual data of an axis to the control.

This parameter is used to configure a parameter which is transmitted cyclically from the drive to the control in container "C".

The parameter "List of free configurable parameter in the AT" (A-0-0597) contains the parameter, which can be transmitted.

A-0-0524 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	(P2+Stop)	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0526 - Configuration user defined actual data D

Name, germ.: Konfiguration benutzerdefinierter Istwert D

Within the drive telegram, four container (A /B /C /D) with the size of four bytes are reserved for the user to transmit actual data of an axis to the control.

This parameter is used to configure a parameter which is transmitted cyclically from the drive to the control in container "D".

The parameter "List of free configurable parameter in the AT" (A-0-0597) contains the parameter, which can be transmitted.

A-0-0526 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	(P2+Stop)	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0540 - Configuration user defined commanded data bit A

Name, germ.: Konfiguration benutzerdefinierter Sollwert Bit A

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0540) defines the parameter of the drive
- (A-0-0541) defines the bit number of the parameter of the drive,
- (A-0-0542) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0540 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0541 - Configuration user defined commanded data bit number A

Name, germ.: Konfiguration benutzerdefinierter Sollwert Bit Nummer A

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0540) defines the parameter of the drive
- (A-0-0541) defines the bit number of the parameter of the drive,
- (A-0-0542) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0541 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 32			
Default value:	0			

A-0-0542 - User defined commanded data bit number A

Name, germ.: Benutzerdefinierter Sollwert Bit Nummer A

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0540) defines the parameter of the drive
- (A-0-0541) defines the bit number of the parameter of the drive,
- (A-0-0542) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0542 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	P2, BB	
Cyc. transmittable:	MDT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x00 / 0x01			
Default value:	0x00			

A-0-0543 - Configuration user defined commanded data bit B

Name, germ.: Konfiguration benutzerdefinierter Sollwert Bit B

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0543) defines the parameter of the drive
- (A-0-0544) defines the bit number of the parameter of the drive,
- (A-0-0545) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0543 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0544 - Configuration user defined commanded data bit number B

Name, germ.: Konfiguration benutzerdefinierter Sollwert Bit Nummer B

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0543) defines the parameter of the drive
- (A-0-0544) defines the bit number of the parameter of the drive,
- (A-0-0545) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0544 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 32			
Default value:	0			

A-0-0545 - User defined commanded data bit number B

Name, germ.: Benutzerdefinierter Sollwert Bit Nummer B

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0543) defines the parameter of the drive
- (A-0-0544) defines the bit number of the parameter of the drive,
- (A-0-0545) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0545 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	P2, BB	
Cyc. transmittable:	MDT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x00 / 0x01			
Default value:	0x00			

A-0-0546 - Configuration user defined commanded data bit C

Name, germ.: Konfiguration benutzerdefinierter Sollwert Bit C

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0546) defines the parameter of the drive
- (A-0-0547) defines the bit number of the parameter of the drive,
- (A-0-0548) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0546 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0547 - Configuration user defined commanded data bit number C

Name, germ.: Konfiguration benutzerdefinierter Sollwert Bit Nummer C

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0546) defines the parameter of the drive
- (A-0-0547) defines the bit number of the parameter of the drive,
- (A-0-0548) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0547 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 32			
Default value:	0			

A-0-0548 - User defined commanded data bit number C

Name, germ.: Benutzerdefinierter Sollwert Bit Nummer C

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0546) defines the parameter of the drive
- (A-0-0547) defines the bit number of the parameter of the drive,
- (A-0-0548) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0548 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	P2, BB	
Cyc. transmittable:	MDT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0549 - Configuration user defined commanded data bit D

Name, germ.: Konfiguration benutzerdefinierter Sollwert Bit D

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0549) defines the parameter of the drive
- (A-0-0550) defines the bit number of the parameter of the drive,
- (A-0-0551) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0549 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0550 - Configuration user defined commanded data bit number D

Name, germ.: Konfiguration benutzerdefinierter Sollwert Bit Nummer D

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0549) defines the parameter of the drive
- (A-0-0550) defines the bit number of the parameter of the drive,
- (A-0-0551) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0550 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 32			
Default value:	0			

A-0-0551 - User defined commanded data bit number D

Name, germ.: Benutzerdefinierter Sollwert Bit Nummer D

Four container (A / B/ C/ D) with the size of one bit are reserved for the user in the "Signal control word" (S-0-0145). The signal control word is configured in the master data telegram. With the help of it, real time signals can be transferred from the control to the drive.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0549) defines the parameter of the drive
- (A-0-0550) defines the bit number of the parameter of the drive,
- (A-0-0551) contains the value of the bit, which should be written in the drive parameter.

The parameter "List of configurable parameter in signal control word" (A-0-0598) contains the parameter, which can be transmitted.

A-0-0551 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	P2, BB	
Cyc. transmittable:	MDT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0560 - Configuration user defined actual data bit A

Name, germ.: Konfiguration benutzerdefinierter Istwert Bit A

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0560) defines the parameter of the drive, which contains the bit,
- (A-0-0561) defines the bit number of the parameter of the drive,
- (A-0-0562) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0560 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0561 - Configuration user defined actual data bit number A

Name, germ.: Konfiguration benutzerdefinierter Istwert Bit Nummer A

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0560) defines the parameter of the drive, which contains the bit,
- (A-0-0561) defines the bit number of the parameter of the drive,
- (A-0-0562) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0561 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 32			
Default value:	0			

A-0-0562 - User defined actual data bit number A

Name, germ.: Benutzerdefinierter Istwert Bit Nummer A

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0560) defines the parameter of the drive, which contains the bit,
- (A-0-0561) defines the bit number of the parameter of the drive,
- (A-0-0562) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0562 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0563 - Configuration user defined actual data bit B

Name, germ.: Konfiguration benutzerdefinierter Istwert Bit B

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0563) defines the parameter of the drive, which contains the bit,
- (A-0-0564) defines the bit number of the parameter of the drive,
- (A-0-0565) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0563 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0564 - Configuration user defined actual data bit number B

Name, germ.: Konfiguration benutzerdefinierter Istwert Bit Nummer B

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0563) defines the parameter of the drive, which contains the bit,
- (A-0-0564) defines the bit number of the parameter of the drive,
- (A-0-0565) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0564 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 32			
Default value:	0			

A-0-0565 - User defined actual data bit number B

Name, germ.: Benutzerdefinierter Istwert Bit Nummer B

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0563) defines the parameter of the drive, which contains the bit,

- (A-0-0564) defines the bit number of the parameter of the drive,
- (A-0-0565) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0565 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0566 - Configuration user defined actual data bit C

Name, germ.: Konfiguration benutzerdefinierter Istwert Bit C

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0566) defines the parameter of the drive, which contains the bit,
- (A-0-0567) defines the bit number of the parameter of the drive,
- (A-0-0568) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0566 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0567 - Configuration user defined actual data bit number C

Name, germ.: Konfiguration benutzerdefinierter Istwert Bit Nummer C

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0566) defines the parameter of the drive, which contains the bit,
- (A-0-0567) defines the bit number of the parameter of the drive,
- (A-0-0568) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0567 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 32			
Default value:	0			

A-0-0568 - User defined actual data bit number C

Name, germ.: Benutzerdefinierter Istwert Bit Nummer C

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0566) defines the parameter of the drive, which contains the bit,
- (A-0-0567) defines the bit number of the parameter of the drive,
- (A-0-0568) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0568 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0569 - Configuration user defined actual data bit D

Name, germ.: Konfiguration benutzerdefinierter Istwert Bit D

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0569) defines the parameter of the drive, which contains the bit,
- (A-0-0570) defines the bit number of the parameter of the drive,
- (A-0-0571) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0569 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, MLC_IDN	PLC:	-	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 671154175			
Default value:	0			

A-0-0570 - Configuration user defined actual data bit number D

Name, germ.: Konfiguration benutzerdefinierter Istwert Bit Nummer D

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0569) defines the parameter of the drive, which contains the bit,
- (A-0-0570) defines the bit number of the parameter of the drive,
- (A-0-0571) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0570 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0 / 32			
Default value:	0			

A-0-0571 - User defined actual data bit number D

Name, germ.: Benutzerdefinierter Istwert Bit Nummer D

Four container (A/ B/ C/ D) with the size of one bit are reserved for the user in the "Signal status word" (S-0-0144). The signal status word is configured in the drive telegram. With the help of the it, real time signals can be transferred from the drive to the Control.

For the transmission of a bit three parameter per container are necessary.

- (A-0-0569) defines the parameter of the drive, which contains the bit,
- (A-0-0570) defines the bit number of the parameter of the drive,
- (A-0-0571) contains the value of the bit, which was read from the drive.

The parameter "List of configurable parameter in signal status word" (A-0-0599) contains the parameter, which can be transmitted.

A-0-0571 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-0596 - List of free configurable parameter in the MDT

Name, germ.: Liste der frei konfigurierbaren Parameter im MDT

This parameter contains the IDNs of those parameters that can be entered (configured) in one of the four four byte container (MDT).

Container A	Container B	Container C	Container D
A-0-0500	A-0-0502	A-0-0504	A-0-0506

See also Functional Description : "MDT-/ AT-Configuration"

A-0-0596 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0			

A-0-0597 - List of free configurable parameter in the AT

Name, germ.: Liste der frei konfigurierbaren Parameter im AT

This parameter contains the IDNs of those parameters that can be entered (configured) in one of the four four byte container (AT).

Container A	Container B	Container C	Container D
A-0-0520	A-0-0522	A-0-0524	A-0-0526

See also Functional Description : "MDT-/ AT-Configuration"

A-0-0597 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0			

A-0-0598 - List of configurable parameter in signal control word

Name, germ.: Liste der konfigurierbaren Parameter im Signal-Steuerwort

This parameter contains the IDNs of those parameters that can be entered (configured) in one of the two one bit container (MDT).

	Container A	Container B
Parameter	A-0-0540	A-0-0543
Bit number	A-0-0541	A-0-0544
Value	A-0-0542	A-0-0545

See also Functional Description : "MDT-/ AT-Configuration"

A-0-0598 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0			

A-0-0599 - List of configurable parameter in signal status word

Name, germ.: Liste der konfigurierbaren Parameter im Signal Statuswort

This parameter contains the IDNs of those parameters that can be entered (configured) in in one of the four one bit container (AT).

	Container A	Container B	Container C	Container D
Parameter	A-0-0560	A-0-0563	A-0-0566	A-0-0569
Bit number	A-0-0561	A-0-0564	A-0-0567	A-0-0570
Value	A-0-0562	A-0-0565	A-0-0568	A-0-0571

See also Functional Description : "MDT-/ AT-Configuration"

A-0-0599 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0			

A-0-0622 - Position synchronization window

Name, germ.: Synchronlauffenster Position

If the absolute value of the difference between velocity command value and actual value becomes smaller than the (A-0-0622), in "synchronized motion" function blocks (MC_GearInPos, MC_CamIn) with outer position control loop , the "Axis status" (A-0-0021, bit 6) is set .

The following applies:

$$\text{Bit 6} = 1, \text{ if } | X \text{ Synch} + X \text{ Additive} - X \text{ act} | < (A-0-0622)$$

with

- X act: "Actual position" (A-0-0100)
- X Synch: synchronous position command value, generated from "Master axis position" (P-0-0053) and "Master axis position additive" (P-0-0054)
- X Additiv: "additive position command value" (S-0-0048)

See also Functional Description "Dynamic Synchronization with Synchronous Position Control Modes"

A-0-0622 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	5.0			

A-0-0623 - Velocity synchronization window

Name, germ.: Synchronlauffenster Geschwindigkeit

If during the operation of a "synchronized motion"-function block (MC_GearIn) the absolute value of the difference between velocity command value and actual value becomes smaller than the (A-0-0623), "Axis status" (A-0-0021, bit 7) is set.

The following applies:

Bit 7 = 1, if $|dX \text{ Synch} + dX \text{ Additive} - dX \text{ act}| < (A-0-0623)$

with

- dX act: "Actual velocity" (A-0-0102)
- dX Synch: synchronous velocity command value, generated from current master axis speed
- dX Additive: "additive velocity command value " (S-0-0037)

See also Functional Description "Velocity Synchronization with Master Axis"

A-0-0623 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	1.0			

A-0-1000 - Command: axis base parameter load

Name, germ.: Kommando: Basisparameter der Achse laden

This parameter is used as a command to load the base parameters of the Motion Logic Control axis.

When using IndraWorks MLC:

- Use button to "load the base parameters" (axis popup -> parameter handling -> "load the base parameters").

When using the parameter, e.g. from fieldbus:

- Enter the binary value "0000000000000011" (=0x0003) in parameter (A-0-1000). This triggers the load process of the axis base parameters.
- After the load process the Motion Logic Control sets the axis value of the parameter back to "0000000000000000".

Note: When loading axis base parameters via IndraWorks MLC the current interface settings for IndraWorks MLC are preserved.

A-0-1000 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	COMMAND	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	(P2+Stop)	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0x00 / 0x03			
Default value:	0x00			

A-0-1030 - Command: clear all axis errors

Name, germ.: Kommando: Alle Achsfehler löschen

This parameter is used as a command to clear all axis errors of the Motion Logic Control or the drives.

When using IndraWorks:

- Use button to clear all axis errors (axis popup ->diagnosis -> "clear error")

When using fieldbus:

- Enter the binary value "0000000000000011" (=0x0003) in this parameter. This triggers the error clear process.
- After the error clear process the Motion Logic Control sets the value of the parameter back to "0000000000000000".

A-0-1030 - Attributes

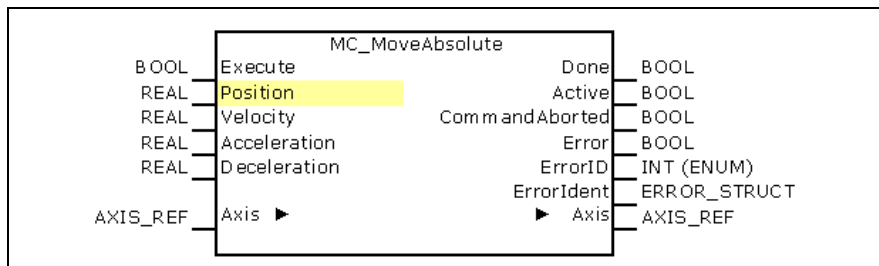
Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	yes	yes	yes
Function:	COMMAND	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0x00 / 0x03			
Default value:	0x00			

A-0-2200 - Commanded position

Name, germ.: Sollposition

This parameter displays the "Commanded position". The parameter is used with PLCopen function blocks which support the condition "Discrete Motion":

- MC_MoveAbsolute (see below)
- MC_MoveAdditive.
- MC_MoveRelative



With rising edge at input "Execute" the input values at the function block instance are taken over into the "Command" parameter:

- Position: "Commanded position" (A-0-2200), MC_MoveAbsolute
- Distance: "Commanded position" (A-0-2200), MC_MoveAdditive, MC_MoveRelative
- Velocity: "Commanded velocity" (A-0-2202)
- Acceleration: "Commanded acceleration" (A-0-2203)
- Deceleration: "Commanded deceleration" (A-0-2204).

The calculation of the "Commanded target position" (A-0-2201) take place from the "Commanded" parameters, see (A-0-2201).

A-0-2200 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-2201 - Commanded target position

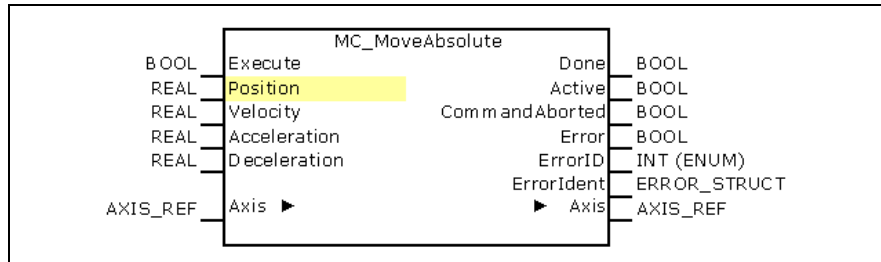
Name, germ.: Zielposition

This parameter reports the "Commanded target position". The position contains the value, at which the position alteration is completed "Axis status" (A-0-0021, bit 6= TRUE).

The parameter is used with PLCopen function blocks which support the condition "Discrete Motion":

- MC_MoveAbsolute (see below)
- MC_MoveAdditive

- MC_MoveRelative.



With rising edge at input "Execute" the input values at the function block instance are taken over into the "Command" parameter:

- Position: "Commanded position" (A-0-2200), MC_MoveAbsolute
- Distance: "Commanded position" (A-0-2200), MC_MoveAdditive, MC_MoveRelative
- Velocity: "Commanded velocity" (A-0-2202)
- Acceleration: "Commanded acceleration" (A-0-2203)
- Deceleration: "Commanded deceleration" (A-0-2204).

The calculation of the "Commanded target position" (A-0-2201) take place directly after this:

- **MC_MoveAbsolute:** the "Commanded position" (A-0-2200) is copied into the "Commanded target position" (A-0-2201).
- **MC_MoveAdditive:** the "Commanded position" (A-0-2200) is added to the "Commanded target position" (A-0-2201).
- **MC_MoveRelative:** the "Commanded position" (A-0-2200) and the "Actual position" (A-0-0100) are added and saved as "Commanded target position" (A-0-2201).

Now the movement runs until reaching the target position "Done" (or until command abortion "CommandAborted").

A-0-2201 - Attributes

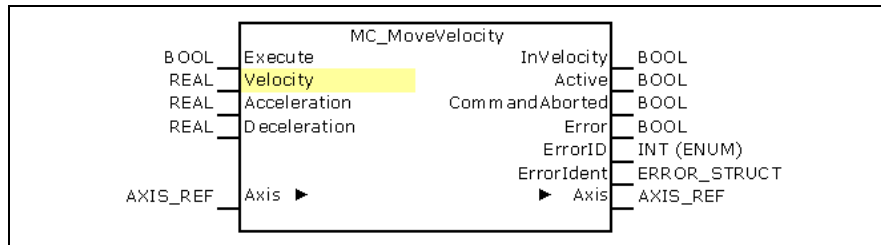
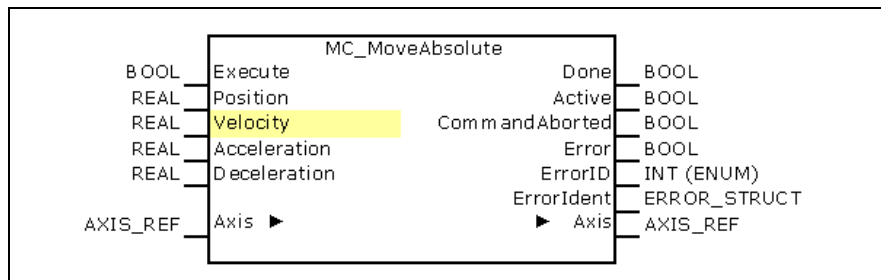
Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-2202 - Commanded velocity

Name, germ.: Sollgeschwindigkeit

This parameter displays the "Commanded velocity" for the axis ". The parameter is used with PLCopen function blocks which support the conditions "Discrete Motion" and "Continuous Motion":

- MC_MoveAbsolute (see below), MC_MoveAdditive, MC_MoveRelative
- MC_MoveVelocity (see below).



With rising edge at input "Execute" the input values at the function block instance are taken over into the "Command" parameter:

- Position: "Commanded position" (A-0-2200), MC_MoveAbsolute
- Distance: "Commanded position" (A-0-2200), MC_MoveAdditive, MC_MoveRelative
- Velocity: "Commanded velocity" (A-0-2202)
- Acceleration: "Commanded acceleration" (A-0-2203)
- Deceleration: "Commanded deceleration" (A-0-2204).

For "Discrete Motion" function blocks the calculation of the "Commanded target position" (A-0-2201) take place from the "Commanded" parameters, see (A-0-2201).

Subsequently at it the respective movement of the axis runs with the predetermined parameters.

A-0-2202 - Attributes

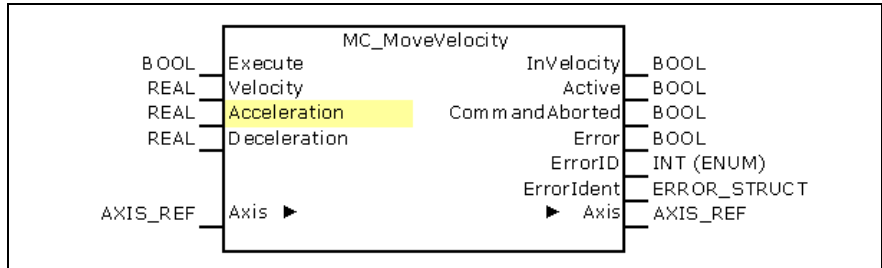
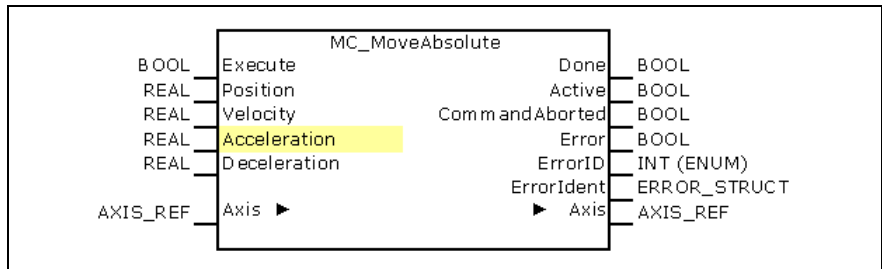
Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0056	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0.0 / 2147483647.0			
Default value:	0.0			

A-0-2203 - Commanded acceleration

Name, germ.: Sollbeschleunigung

This parameter displays the "Commanded acceleration" for the axis". The parameter is used with PLCopen function blocks which support the conditions "Discrete Motion" and "Continuous Motion":

- MC_MoveAbsolute (see below), MC_MoveAdditive, MC_MoveRelative
- MC_MoveVelocity (see below).



With rising edge at input "Execute" the input values at the function block instance are taken over into the "Command" parameter:

- Position: "Commanded position" (A-0-2200), MC_MoveAbsolute
- Distance: "Commanded position" (A-0-2200), MC_MoveAdditive, MC_MoveRelative
- Velocity: "Commanded velocity" (A-0-2202)
- Acceleration: "Commanded acceleration" (A-0-2203)
- Deceleration: "Commanded deceleration" (A-0-2204).

For "Discrete Motion" function blocks the calculation of the "Commanded target position" (A-0-2201) take place from the "Commanded" parameters, see (A-0-2201).

Subsequently at it the respective movement of the axis runs with the predetermined parameters.

A-0-2203 - Attributes

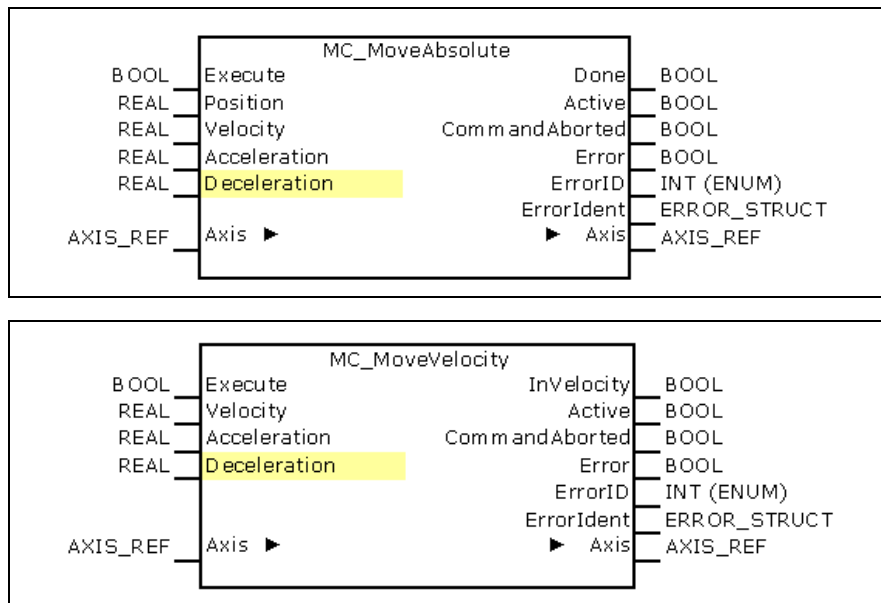
Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0053	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0.0000001 / 2147483647.0			
Default value:	0.0000001			

A-0-2204 - Commanded deceleration

Name, germ.: Sollverzögerung

This parameter displays the "Commanded deceleration" for the axis. ". The parameter is used with PLCopen function blocks which support the conditions "Discrete Motion" and "Continuous Motion":

- MC_MoveAbsolute (see below), MC_MoveAdditive, MC_MoveRelative
- MC_MoveVelocity (see below).



With rising edge at input "Execute" the input values at the function block instance are taken over into the "Command" parameter:

- Position: "Commanded position" (A-0-2200), MC_MoveAbsolute
- Distance: "Commanded position" (A-0-2200), MC_MoveAdditive, MC_MoveRelative
- Velocity: "Commanded velocity" (A-0-2202)
- Acceleration: "Commanded acceleration" (A-0-2203)
- Deceleration: "Commanded deceleration" (A-0-2204).

For "Discrete Motion" function blocks the calculation of the "Commanded target position" (A-0-2201) take place from the "Commanded" parameters, see (A-0-2201).

Subsequently at it the respective movement of the axis runs with the predetermined parameters.

A-0-2204 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0053	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0.0000001 / 2147483647.0			
Default value:	0.0000001			

A-0-2205 - Commanded jerk

Name, germ.: Sollruck

This parameter displays the commanded jerk value for the axis.

Since the parameter is not provided by a block input of the PLCopen function blocks (like e.g. "Commanded velocity" (A-0-2202), its value is taken over alternatively from parameter Standard-"Jerk" (A-0-0216) if a positive edge at the "Execute" input of the corresponding block occur.

A-0-2205 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0053	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0.0000001 / 2147483647.0			
Default value:	0.0000001			

A-0-2207 - Commanded direction

Name, germ.: Sollbewegungsrichtung

This parameter defines the commanded direction value for the axis.

In case, the function block doesn't support the direction it's value is copied from the parameter "Direction" (A-0-0203) after the positive transition of the "execute" input of a PLCopen function block instance.

Bit	Designation/function	Comment
1..0	Direction 0 0: shortes distance 0 1: positive direction (catch up) 1 0: negative direction (slow down)	
15..2	reserved	

A-0-2207 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	yes	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-2208 - Cyclic commanded position

Name, germ.: Zyklische Sollposition

This Parameter displays the "commanded position" written with FB ML_WriteCyclicPosition.

This commanded position only gets active on axis if cyclic position channel is opened. Cyclic position Channel can be opened with FB ML_OpenCyclicPositionChannel.

A-0-2208 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	no	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0.0			

A-0-2700 - Master control number

Name, germ.: Master-Steuerungsnummer

In this parameter the control number of the master axis is displayed, which the actual axis has to follow as slave.

The parameter is supplemented by "Master axis number" (A-0-2701).

Both parameter carry the information of the AXIS_REF – Master axis in conjunction with the blocks

- MC_GearIn
- MB_GearInPos
- MC_CamIn.

A-0-2700 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0			

A-0-2701 - Master axis number

Name, germ.: Master-Achsnummer

In this parameter the axis number of the master axis is displayed, which the actual axis has to follow as slave.

The parameter is supplemented by "Master axis control number" (A-0-2700).

Both parameter carry the information of the AXIS_REF-Master axis in conjunction with the blocks

- MC_GearIn
- MB_GearInPos
- MC_CamIn.

A-0-2701 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	1			

A-0-2710 - Additive master position command value

Name, germ.: Master, Lagesollwert additiv

By means of this parameter it is possible to add an additive master axis position to "Master position" (A-0-0300).

By the help of this parameter it is possible to add a "master axis position additive" to the "master position". Used in MC_GearIn, MC_GearInPos, MC_CamIn.

A change of (A-0-2710) is traveled within one MC cycle in the case of a synchronous operating mode with real axis.

The parameter is influenced by "Position data scaling type", A-0-0059.

A-0-2710 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	-2147483647.0 / 2147483647.0			
Default value:	0.0			

A-0-2720 - Master drive gear input revolutions

Name, germ.: Leitachsgetriebe Eingangsumdrehungen

In this parameter the number of the input revolutions of the electronic gear is displayed.

In conjunction with parameter "Master drive gear output revolutions" (A-0-2721) and parameter "Gear ratio fine adjust" (A-0-2722) it determines the gear transmission ratio of the electronic gear.

Follows the real axis coupled by a "Synchronized Motion"-block (MC_GearIn, MB_GearInPos, MC_CamIn), so a transmitted position of the master axis (A-0-0300) to the drive is multiplied before further processing with the electronic gear ratio.

The gear transmission ratio follows from:

$$gtr = ((A-0-2721)/(A-0-2720)) * (1 + A-0-2722)$$

with "Master drive gear output revolutions" (A-0-2721) and

"Gear ratio fine adjust" (A-0-2722).

A-0-2720 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, UINT_DEC	PLC:	UDINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	1 / 65535			
Default value:	1			

A-0-2721 - Master drive gear output revolutions

Name, germ.: Leitachsgetriebe Ausgangsumdrehungen

In this parameter the number of the output revolutions of the electronic gear is displayed.

In conjunction with parameter "Master drive gear input revolutions" (A-0-2720) and parameter "Gear ratio fine adjust" (A-0-2722) it determines the gear transmission ratio of the electronic gear.

Follows the real axis coupled by a "Synchronized Motion"-block (MC_GearIn, MB_GearInPos, MC_CamIn), so a transmitted position of the master axis (A-0-0300) to the drive is multiplied before further processing with the electronic gear ratio.

The gear transmission ratio follows from:

$$gtr = ((A-0-2721)/(A-0-2720)) * (1 + A-0-2722)$$

with "Master drive gear input revolutions" (A-0-2720) and "Gear ratio fine adjust" (A-0-2722).

A-0-2721 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, UINT_DEC	PLC:	UDINT	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	1 / 65535			
Default value:	1			

A-0-2722 - Gear ratio fine adjust

Name, germ.: Feinabgleich Getriebeübersetzung

This parameter displays the gear ratio fine adjust of the gear transmission ratio.

By this percentage rate the gear transmission ratio is modified.

The values may be between – 799,9999% and 799,9999%.

The gear transmission ratio follows from:

$$gtr = ((A-0-2721)/(A-0-2720)) * (1 + A-0-2722)$$

with output revolutions, A-0-2721, and input revolutions, A-0-2720.

The parameter is used in conjunction with the blocks

- MC_GearIn
- MB_GearInPos
- MC_CamIn

A-0-2722 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	%	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	-2147483647.0 / 2147483647.0			
Default value:	0.0			

A-0-2740 - Cam table preselection

Name, germ.: Kurvenscheibenvorwahl

Settings for the "cam shaft" mode activated by the function block "MC_CamIn".

Bit	Designation/function	Comment
1..0	Cam shaft selection 0 0: cam shaft 1, (P-0-0072) 01 - cam shaft 2, (P-0-0092) 10 - cam shaft 3, (P-0-0080) 11 - cam shaft 4, (P-0-0081)	
2	reserved: active cam table bit 2	
15..3	reserved	

A-0-2740 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	NVRAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	---			

A-0-2741 - Cam Shaft Distance

Name, germ.: Kurvenscheibe, Hub

This parameter determines the cam shaft distance with which the profile of the cam shaft is multiplied.

The parameter only takes effect in the "synchronous operating mode" function block "MC_CamIn".

See also Functional Description "Electronic Cam Shaft with Real/Virtual Master Axis"

A-0-2741 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	-2147483647.0 / 2147483647.0			
Default value:	360.0			

A-0-2792 - Synchronization init window for modulo format

Name, germ.: Aufsynchronisierfenster bei Modulo-Format

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 parameter A-0-2792, the direction of synchronization is determined by parameter "Synchronization direction", A-0-2793.

If the position difference is smaller than the value of parameter (A-0-2792), synchronization takes place over the shortest distance.

See also Functional Description for the operating mode "Phase Synchronization with Real/Virtual Master Axis".

A-0-2792 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	10.0			

A-0-2793 - Synchronization direction

Name, germ.: Aufsynchronisier-Richtung

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.

Bit	Designation/function	Comment
1..0	Direction 0 0: shortest distance 0 1: positive direction (catch up) 1 0: negative direction (slow down)	
15..2	reserved	

If the shortest distance to absolute synchronization, however, is smaller than "Synchronization init window for modulo format" (A-0-2792), the shortest distance is traveled and the preset synchronization direction is ignored.

See also Functional Description "Synchronization Modes"

A-0-2793 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x00 / 0x02			
Default value:	0x00			

A-0-2794 - Synchronization mode

Name, germ.: Aufsynchronisier-Modus

After activating one of the operating modes "phase synchronization" or "cam shaft", the drive automatically carries out dynamic synchronization. When doing this, the drive generates command values (P-0-0434) taking the synchronization acceleration (P-0-0142) and synchronization velocity (P-0-0143) into account, until absolute or relative synchronization has been reached.

Bit	Function	Comment
0	Processing of S-0-0048/ "Slave commanded position additive, A-0-2750 0: Trapezoidal velocity profile 1: P-0-0060, Filter time constant active	
1	Realtive Synchronization 0: absolute Synchronization 1: relative Synchronization	
3..2	Synchronization range	

	0 0: Modulo range slave axis (load revolution) 0 1: Command value cycle slave axis 1 0: Part of command value cycle	
4	Generation of actual value cycle 0: Actual value cycle depends on P-0-0752 1: Actual value cycle = Command value cycle	
5	Synchronization in velocity synchronization 0: only when operating mode is activated 1: always active	
15..6	reserved	

Bit 0 Trapezoidal velocity profile (bit 0 = 0)

Means that at every change of "Additive position command value" (S-0-0048) a distance is determined and traveled taking the synchronization acceleration and synchronization velocity into account

Filter time constant active (bit 0 = 1)

When absolute or relative synchronization has been reached, parameters (P-0-0142) and (P-0-0143) become ineffective.

The following changes of (S-0-0048), Additive position command value are then smoothed by a 1st order filter. The time constant of the filter is set with parameter "Filter time constant additional pos. command" (P-0-0060).

Note: In phase 4 (operating mode) the change of 1/0 in bit 0 is without effect!

Bit 1 Absolute synchronization (bit 1 = 0)

An absolute position with regard to the master axis is always established.

See also Functional Description "Dynamic Synchronization in the "Phase Synchronization" or "Cam Shaft" Mode"

Relative synchronization (bit 1 = 1)

Only velocity adjustment is carried out.

Bit 2/3 It is possible to set synchronization in the modulo range, in the command value cycle or in a 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 therefore has to be determined in such a way that it is a multiple of the synchronization range.

Bit 4 With **bit 4 = 0** the actual value cycle, in which there is "Position actual value in actual value cycle" (P-0-0753), is generated depending on "Load revolutions per actual value cycle slave axis" (P-0-0752).

The actual value cycle is set equal to the command value cycle when **bit 4 = 1**.

Bit 5 Synchronization when operating mode is activated (Bit 5 = 0)

If velocity adjustment is to be carried out only once in the velocity synchronization mode, bit 5 has to be set to "0". All following velocity changes are carried out with max. acceleration.

Synchronization always active (bit 5 = 1)

In the "velocity synchronization" mode, every change in velocity is limited to the "Synchronization acceleration" (P-0-0142). The velocity change can be caused by changing the master axis velocity (A-0-0302), the master drive gear (A-0-2720, A-0-2721) or the fine adjust (A-0-2722).

See also Functional Description "Synchronization Modes"

A-0-2794 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	no	no	no	no
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x00 / 0x01			
Default value:	0x00			

A-0-2795 - Position window

Name, germ.: Positionierfenster

If an operating mode with internal position control is activated in the drive, several status messages are generated with regard to the positioning behavior of the drive. To do this the "Position window" (A-0-2795), among others, is used as a "window" for the following status messages and functionalities:

- "In Position" (S-0-0013, Class 3 diagnostics, Bit 6 =1)
|lag error (S-0-0189)| < position window (A-0-2795)
- "IN_TARGET POS." (P-0-0188, Status word positioning gen., Bit 1 =1)
|S-0-0258/P-0-0050 – S-0-0051/53| < (A-0-2795)
- "IZP" (P-0-0188, Status word positioning generator, Bit 2 =1)
IN_TARGET POSITION && IN_POSITION && Nact = 0
- During the execution of the "C0600 Drive-controlled homing procedure command" (S-0-0148) the drive signals the command to be completed, 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, 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 is realized to the position limit value position windows in the "**Jogging**" operating mode.
- It is always **over the shortest distance** that the drive moves to **target positions** that are **within the position window**, independent of the setting in "Command value mode" (S-0-0393).
- For the "Position spindle" command in order to show that the spindle is in position.

See also Parameter Descriptions:

- "Status word positioning generator" (P-0-0188)
- "Controller status word" (P-0-0555)
- "Class 3 diagnostics" (S-0-0013)

See also Functional Description "Positioning Block Mode"

A-0-2795 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
yes	yes	no	yes	no
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 2147483647.0			
Default value:	10.0			

A-0-2800 - Encoder configuration

Name, germ.: Leitachsgeberkonfiguration

This parameter shows the configuration of the current encoder axis

Bit	Function	Comment
1..0	Used encoder 0 1: reserved 1 0: reserved 1 1: Measuring encoderr	
11..2	reserved	
15..12	Dead time compensation 0 0 0 0: No dead time compensation 0 0 0 1: 1 cycle 0 0 1 0: 2 cycles (standard) 0 1 0 0: 3 cycles 1 0 0 0: 4 cycles	

A-0-2800 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, BINARY	PLC:	DWORD	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	yes	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	0x03 / 0x4003			
Default value:	0x3003			

A-0-2801 - Encoder status

Name, germ.: Leitachsgeberstatus

This parameter shows the status of the encoder axis.

Bit	Function	Comment
0	In reference 0: no 1: yes	
15..1	reserved	

A-0-2801 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	PARAMETER	Unit:	--	
MLC:	4BYTE, BINARY	PLC:	DWORD	
Memory:	RAM	Editability:	READ_ONLY	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	no	
Min/Max value:	--- / ---			
Default value:	0x00			

A-0-2802 - Encoder gear numerator

Name, germ.: Leitachsgeber Eingangsumdrehungen

Parameter A-0-2802 and parameter "Encoder axis - gear denominator", A-0-2803, are working together as a gear.

The gear ratio is defined as follows:

$$Gr = (A-0-2803) / (A-0-2802)$$

A-0-2802 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0 / 65535			
Default value:	1			

A-0-2803 - Encoder gear denominator

Name, germ.: Leitachsgeber Ausgangsumdrehungen

Parameter "Encoder axis - gear numerator" (A-0-2802) and parameter (A-0-2803) are working together as a gear.

$$Gr = (A-0-2803) / (A-0-2802)$$

A-0-2803 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	1 / 65535			
Default value:	1			

A-0-2804 - Encoder filter type

Name, germ.: Leitachsgeber Filtertyp

This parameter specifies the used filter type for the encoder axis.

It is the base parameter of "Encoder axis - filter cutoff frequency" (A-0-2805).

Possible values are:

Value	Activates
0	No filter active
1	40 ms lag averaging filter
2	Low Pass 1. Order
3	Low Pass 2. Order
4	Butterworth 2. Order
5	Modified 2. Order low pass filter with velocity feed forward (Dead Time Compensation)
6	Low Pass 3. Order
7	Modified 3. Order low pass filter with velocity and acceleration feed forward (Dead Time Compensation)
8	Butterworth 3. Order

A-0-2804 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	PARAMETER	Unit:	--	
MLC:	2BYTE, UINT_DEC	PLC:	UINT	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0 / 8			
Default value:	0			

A-0-2805 - Encoder filter cutoff frequency

Name, germ.: Leitachsgeber Filtereckfrequenz

This parameter specifies the used cutoff frequency of the filter used for the encoder axis. It completes the parameter "Encoder axis - filter type" (A-0-2804).

When a filter type is chosen, a cutoff frequency for the filter must be entered. The cutoff frequency is the frequency where the signal is reduced by 3db.

When set to 0 the filter is disabled.

To ensure a stable system, use the following calculation when entering a value for the Digital Filter Cutoff Frequency:

$$\text{Cutoff Frequency} \leq 1 / (2 * \text{Sampling Rate[s]})$$

Example: For a 2ms Sercos cycle time, the cutoff frequency is calculated as follow:

$$\text{Cutoff Frequency} \leq 1 / (2 * 0,002) = 250\text{Hz.}$$

A-0-2805 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	PARAMETER	Unit:	Hz	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	10.0 / 100.0			
Default value:	25.0			

A-0-2806 - Encoder reference position

Name, germ.: Leitachsgeber Referenzposition

This parameter specifies the reference position of an encoder axis.

A-0-2806 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 360.0			
Default value:	0.0			

A-0-2807 - Command set absolute measuring

Name, germ.: Kommando Absolutmaß setzen

This parameter is used as command to set the absolute measuring of the master axis encoder of the encoder axis.

At activation of this command, the adjusted value in parameter "Encoder axis - Reference position" (A-0-2806) is accepted as start position of the encoder axis.

At use from IndraWorks MLC:

- Use the button in dialog window "Motion->Real Axes-> Drivex->Establish measuring reference.

and from fieldbus:

- Input of binary value "000000000000011" (=0x0003) in this parameter. This activates "Set absolute measuring".

After completion of "Set absolute measuring" the MLC resets this parameter automatically to "0000000000000000".

Note: The command may only be executed, if the control is in "BB" and the used encoder in the drive is referenced.

A-0-2807 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	COMMAND	Unit:	--	
MLC:	2BYTE, BINARY	PLC:	WORD	
Memory:	RAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0x00 / 0x03			
Default value:	0x00			

A-0-2808 - Encoder position offset

Name, germ.: Leitachsgeber Positionsoffset

This parameter specifies position offset used for the encoder axis.

A-0-2808 - Attributes

Real Axis	HNC Axis	Encoder Axis	Virtual Axis	Link Axis
no	no	yes	no	yes
Function:	PARAMETER	Unit:	A-0-0059	
MLC:	4BYTE, FLOAT	PLC:	REAL	
Memory:	NVRAM	Editability:	P2, BB	
Cyc. transmittable:	AT	Validity check:	no	
Combinat. check:	no	Extr. value check:	yes	
Min/Max value:	0.0 / 360.0			
Default value:	0.0			

1.10 Control Parameters

C-0-0001 - Language selection

Name, germ.: Sprachumschaltung

All parameter names, units and diagnostic warning messages within the Motion Logic Controller are stored in several languages. This parameter determines the output language for the text.

- -0: German
- -1: English

See also the functional description: "Language Selection".

C-0-0001 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	NVRAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 1		
Default value:	0		

C-0-0010 - Hardware version

Name, germ.: Hardwareversion

The hardware version of the IndraControl MLC card is entered in this parameter.

Example "ML40.1-SP-220-NA"

C-0-0010 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"HW_VERSION_STRING"		

C-0-0011 - PLC Firmware version

Name, germ.: PLC-Firmwareversion

The firmware version of the Programmable Logic Controller is contained in this parameter.

Example "IL-MLC-RUN 01V07.00" or "IL-MLC-RUN-01T05.125"

C-0-0011 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"PLCFW_VERSION_STRING"		

C-0-0012 - Firmware version

Name, germ.: Firmwareversion

The firmware version of the Motion Logic Controller is contained in this parameter.

Example "CML40s-MLs-02V07.083"

Note: Because with a user interface version different firmware versions can be used, so in case of an error please also specify this version.

C-0-0012 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"FW_VERSION_STRING"		

C-0-0013 - BSP version

Name, germ.: BSP-Version

This parameter shows the version of the Board Support Packages (BSP) of the IndraMotion.

C-0-0013 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"BSP_VERSION_STRING"		

C-0-0015 - Technology Functions

Name, germ.: Technologiefunktionen

The technology functions version of the Motion Logic Controller is contained in this parameter.

Example "CML40s-TFs-02V07.083"

Note: Because with a user interface version different versions of technology functions can be used, so in case of an error please also specify this version.

C-0-0015 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"not available"		

C-0-0016 - Extended Technology Functions

Name, germ.: Erweiterte Technologiefunktionen

The extended technology functions version of the Motion Logic Controller is contained in this parameter.

Example "CML40s-XXs-02V07.083"

Note: Because with a user interface version different versions of user-defined functions (extended technology functions) can be used, so in case of an error please also specify this version.

C-0-0016 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"not available"		

C-0-0020 - Hardware configuration

Name, germ.: Hardwarekonfiguration

The IndraMotion shows in this parameter the internal hardware configuration.

Note: This parameter is for internal use only.

C-0-0020 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE_VAR, BINARY	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x0000 / 0xFFFF		
Default value:	0x0000		

C-0-0021 - Hardware details

Name, germ.: Hardwaredetails

This parameter displays detailed information regarding the used hardware.

Example "HWVersion = 0x0; FPGAVersion = 0x104; BIpVerBasis = 0x66012D; BIpNrBasis = 0x3FC83B2C;"

C-0-0021 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"HW_DETAILS_STRING"		

C-0-0022 - Local bus configuration

Name, germ.: Lokalbus-Konfiguration

The IndraMotion shows in this parameter the internal local bus configuration.

Note: This parameter is for internal use only.

C-0-0022 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, BINARY	PLC:	DWORD
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0023 - MC System Status

Name, germ.: MC-Systemstatus

This parameter shows the current system status.

Bit	Designation/function	Comment
1..0	System status 0 0: undefined 0 1: Win32 instance of IndraMotion 1 0: VxWorks instance of IndraMotion	
3..2	System status 0 0: undefined 0 1: VxWin instance of IndraMotion 1 0: WindowsCE instance of IndraMotion	
7..4	reserved	
10..8	PLC status 000: undefined 001: PLC in STOP 010: PLC in RUN 100: PLC in INIT	
15..11	reserved	
16	Download 0: not possible 1: possible	
17	Phase switching 0: not active 1: active	
18	reserved	
19	Active axis 0: no axis active 1: one or more axis is/are active	
20	Temperature warning 0: no temperature warning 1: temperature warning is active	
21	Cooler 0: Cooler switched off if exists 1: Cooler switched on if exists	
22..23	reserved	
24	Message 0: no message 1: one or more message(s) exist(s)	
25	Warning 0: no warning 1: one or more warning(s) exist(s)	
26	Error 0: no error 1: one or more error(s) exist(s)	
31..27	SERCOS-Phasen 00000: undefined 00001: SERCOS-Phase 0 is active 00010: SERCOS-Phase 1 is active, not in use 00100: SERCOS-Phase 2 is active 01000: SERCOS-Phase 3 is active 10000: SERCOS-Phase 4 is active	

Bit 1..0 00, undefined
01, Win32 instance of MLC
10, VxWorks instance of MLC

Bit 3-2 00, undefined
01, VxWin instance of MLC

- 10, Windows CE instance of MLC
- Bit 10..8** 000, undefined
001, PLC in STOP
010, PLC in RUN
100, PLC in INIT
- Bit 16** Download
0, Not possible: (PLC in STOP, SERCOS in Phase 0) is not TRUE
1, is possible: (PLC in STOP, SERCOS in Phase 0) is TRUE
- Bit 17** 0, No mode change active
1, Mode change active (e.g. when switching from SERCOS Phase 2 to Phase 4); this bit stays active until the mode change was finished (either successful or with an error)
- Bit 19** 0, No axis active
1, An axis is active; reasons might be a real axis is in "Power on" or a virtual axis isn't in "Standstill"; encoder axes or link axes have no influence.
- Bit 20:** 0, no temperature warning
1, Temperature warning; a temperature of 60.0°C (140°F) was exceeded. This bit will be cleared if the temperature falls below 55°C (131°F).
- Bit 21:** 0, Cooler switched off if exists
1, Coller switched on if exists
- Bit 24** 0, no message active
1, a message occured after the last command „clear all control errors“ (see C-0-1030)
- Bit 25** 0, no warning active
1, a warning occured after the last last command „clear all control errors“ (see C-0-1030)
- Bit 26** 0, no error active
1, an error occured after the last last command „clear all control errors“ (see C-0-1030)
- Bit 31..27** 00001 - SERCOS-phase 0 is active
00010 - SERCOS-phase 1 is active (not in use)
00100 - SERCOS-phase 2 is active
01000 - SERCOS-phase 3 is active
10000 - SERCOS-phase 4 is active

C-0-0023 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, BINARY	PLC:	DWORD
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0025 - Function module bus configuration

Name, germ.: Funktionsmodulbus-Konfiguration

This parameter shows the internal function module bus configuration of the IndraMotion.

Note: This parameter is for internal use only.

C-0-0025 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, BINARY	PLC:	DWORD
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0x00		

C-0-0030 - Control name

Name, germ.: Steuerungsname

A series of characters can be entered in this parameter which, for example, identifies the type or the designation of an application.

This parameter has no influence on any of the functions in the Motion Logic Control.

C-0-0030 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	NVRAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"Control name"		

C-0-0031 - Control address

Name, germ.: Steuerungsadresse

With this parameter an address can be assigned to the control. The control is assigned to the MLC-, resp. control-link via this address.

MLC-/Control-Link

0: Control is not configured for a link

1..64: Control participates in a link with this address

The parameter is displayed in the diagnostics dialog of function module "Cross communication" and can be written or changed in the configuration dialog.

If link master axes are configured in "MLC-Link - Configuration master axes" (C-0-0703), a valid control address must be assigned. The maximum allowable control address depends on the cycle time of the MLC-Link. The address is checked when switching to operating mode:

Link cycletime	Maximum control address
2ms	16
4ms	32
8ms	64

Maximum control address

C-0-0031 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	FLASH	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	yes	Extr. value check:	yes
Min/Max value:	0 / 64		
Default value:	0		

C-0-0032 - Serial number of control

Name, germ.: Seriennummer der Steuerung

The parameter shows the serial number of the control. The number is one to one for each control.

This parameter has no influence on the functions of the Motion Logic Control.

C-0-0032 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"Serial number"		

C-0-0033 - Project identification number

Name, germ.: Projektidentifikationsnummer

IndraWorks entered a series of unique characters in this parameter to identify worldwide the project. This series of characters is one to one for each project.

This parameter has no influence on the functions of the Motion Logic Control.

Note: This parameter is for internal purposes only.

C-0-0033 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	NVRAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"Project ID number"		

C-0-0034 - Client access locking number

Name, germ.: Clientverriegelungsnummer

This parameter shows the client access locking number. So the user gets the information, which computer is connected with the current controller: "locked to COMPUTER-123456".

C-0-0034 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	NVRAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x00 / 0xFF		
Default value:	"Client Access Locking Number"		

C-0-0035 - Link ring identification number

Name, germ.: Verbundringidentifikationsnummer

IndraWorks entered a series of unique characters in this parameter to identify worldwide the link ring. This series of characters is one to one for each link ring.

This parameter has no influence on the functions of the Motion Logic Control.

Note: This parameter is for internal purposes only.

C-0-0035 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	NVRAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"Link ring ID number"		

C-0-0050 - System time

Name, germ.: Systemzeit

This parameter contains the MLC system time, hex coded.

"09.08.2004, 11:35:55"

C-0-0050 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, UINT_HEX	PLC:	-
Memory:	RAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFFFFFFFF		
Default value:	0x00		

C-0-0051 - Operation hour counter

Name, germ.: Betriebsstundenzähler

This parameter contains the operation time of the MotionControl in industrial minutes.

e.g., 45 minutes = 0.75 h

C-0-0051 - Attributes

Function:	PARAMETER	Unit:	h
MLC:	4BYTE, UINT_DEC	PLC:	UDINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFFFFFFFF		
Default value:	0x00		

C-0-0060 - Start up delay time

Name, germ.: Einschaltverzögerungszeit

The starting cycle can be delayed by the time set here.

C-0-0060 - Attributes

Function:	PARAMETER	Unit:	ms
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	NVRAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 50000		
Default value:	0		

C-0-0063 - Temperature data scaling type - Controller

Name, germ.: Wichtungsart für Temperaturdaten - Steuerung

In this scaling mode, temperature can be set to either °C (Celsius) or F (Fahrenheit).

Scaling of temperature equals 0.1°C or 0.1 F.

Bit	Designation/function	Comment
0	Temperature data scaling type 0: Grad Celsius [°C] 1: Fahrenheit [F]	
15..1	reserved	

C-0-0063 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	FLASH	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0x00		

C-0-0070 - Control unit temperature

Name, germ.: Temperatur der Steuerung

This parameter contains the control unit temperature measured via sensor on the circuit board. The unit of (C-0-0070) depends on the scaling that has been set.

Scaling of temperature equals 0.1°C or 0.1 F.

See also Parameter Description "Temperature data scaling type - Controller " (C-0-0063).

C-0-0070 - Attributes

Function:	PARAMETER	Unit:	C-0-0063
MLC:	4BYTE, FLOAT	PLC:	REAL
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0071 - Maximum control unit temperature

Name, germ.: Maximale Temperatur der Steuerung

This parameter contains the maximum measured control unit temperature since the last switch on. The unit of (C-0-0071) depends on the scaling that has been set.

Scaling of temperature equals 0.1°C or 0.1 F.

See also Parameter Description "Temperature data scaling type - Controller " (C-0-0063).

Also see "Control unit temperature" (C-0-0070).

C-0-0071 - Attributes

Function:	PARAMETER	Unit:	C-0-0063
MLC:	4BYTE, FLOAT	PLC:	REAL
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0.0		

C-0-0080 - User defined decimal number

Name, germ.: Benutzerdefinierte Dezimalzahl

A user defined decimal number can be entered in this parameter.

This parameter has no influence on any of the functions in the Motion Logic Control.

C-0-0080 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, FLOAT	PLC:	REAL
Memory:	NVRAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0.0		

C-0-0081 - User defined text

Name, germ.: Benutzerdefinierter Text

A user defined series of characters can be entered in this parameter.

This parameter has no influence on any of the functions in the Motion Logic Control

C-0-0081 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	NVRAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"User defined Text"		

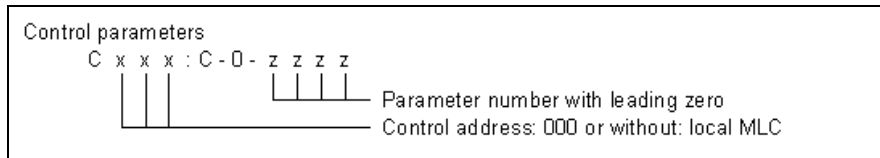
C-0-0110 - List of all C parameters

Name, germ.: Liste aller C-Parameter

This list includes all C parameters of the motion. All entries are in ID number format.

The entries are sorted according to definition and how they belong together, but not according to ID number or alphabetically.

The C parameters of the motion are stored in the order of these entries.



Example C000: C-0-0023 - local MLC; parameter C-0-0023
 or
 C-0-0023 - local MLC; parameter C-0-0023

C-0-0110 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

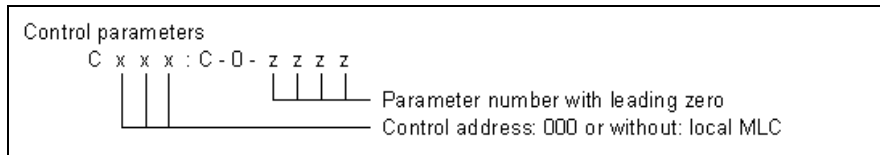
C-0-0111 - List of all invalid C parameters

Name, germ.: Liste der ungültigen C-Parameter

This list shows the all C parameters which are detected as illegal

- during the MLC checksum test, e.g., following a firmware update, or
- during the MLC plausibility test, e.g., as a result of an illegal operating mode.

The entries are in ID number format.



Example C000: C-0-0023 - local MLC; parameter C-0-0023
 or
 C-0-0023 - local MLC; parameter C-0-0023

C-0-0111 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x20001 / 0x20FFF		
Default value:	---		

C-0-0112 - Checksum of C parameters

Name, germ.: Prüfsumme über alle C-Parameter

When reading this parameter the checksum is generated by all C parameter values the IDNs of which are listed in parameter „IDN list of checksum C parameter“ (C-0-0113).

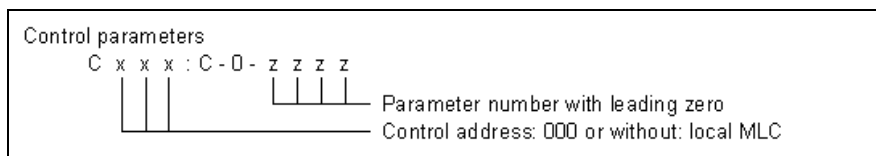
C-0-0112 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, UINT_DEC	PLC:	UDINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0113 - IDN list of checksum C parameter

Name, germ.: IDN-Liste der C-Prüfsummenparameter

The IDNs of those C parameters the checksum of which is to be generated are entered in this parameter. The checksum generation is triggered with the reading of the “Checksum of C parameters” (C-0-0112). In the condition as supplied this does not yet contain any IDNs.



Example C000: C-0-0023 - local MLC; parameter C-0-0023

or

C-0-0023 - local MLC; parameter C-0-0023

C-0-0113 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-
Memory:	NVRAM	Editability:	P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0 / 4095		
Default value:	---		

C-0-0114 - IDN list of import errors

Name, germ.: IDN-Liste der Importfehler

If a parameter could not be written during execution of the import command (C-0-1011), so it is listed in this parameter.

C-0-0114 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, MLC_IDN	PLC:	-
Memory:	NVRAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0 / 4095		
Default value:	0		

C-0-0200 - IP address

Name, germ.: IP-Adresse

This parameter indicates the IP address for the Ethernet communication interface. It is represented in dot format.

. XXX.XXX.XXX.XXX (dot format).

C-0-0200 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	FLASH	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"192.168.001.001"		

C-0-0201 - Subnet mask

Name, germ.: Subnet Maske

This parameter indicates the subnet mask for the Ethernet communication interface. It is represented in dot format.

. XXX.XXX.XXX.XXX (dot format).

C-0-0201 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	FLASH	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"255.255.255.0"		

C-0-0202 - Standard gateway

Name, germ.: Standard-Gateway

This parameter indicates the standard Gateway IP address for the Ethernet communication interface. It is represented in dot format.

. XXX.XXX.XXX.XXX (dot format).

C-0-0202 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	FLASH	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"192.168.001.001"		

C-0-0203 - User name

Name, germ.: Benutzername

A series of characters can be entered in this parameter which identifies the actual owner of this application.

This parameter has no influence on any of the functions of the IndraMotion.

C-0-0203 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	NVRAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	---		

C-0-0205 - MAC address

Name, germ.: MAC-Adresse

This parameter indicates the MAC address of the Ethernet communication interface. It is represented in the format:

. 00:00:00:00:00:00.

C-0-0205 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	---		

C-0-0206 - Time to live

Name, germ.: TCP time to live

This parameter indicates the Time To Live (TTL) value. It is a field in the Internet Protocol (IP) header which indicates how many more hops a packet should be allowed to make before being discarded or returned.

C-0-0206 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, UINT_DEC	PLC:	UDINT
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 1024		
Default value:	32		

C-0-0207 - UDP ports

Name, germ.: UDP-Ports

This parameter contains a list of UDP port numbers employed for cyclic communications.

C-0-0207 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, UINT_DEC	PLC:	-
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 65535		
Default value:	---		

C-0-0208 - TCP port for acyclic channels

Name, germ.: TCP Port für azyklische Kanäle

This parameter indicates the TCP port number for acyclic communications. A client connects to this port number to establish communications.

C-0-0208 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, UINT_DEC	PLC:	UDINT
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 65535		
Default value:	5003		

C-0-0209 - Send Timeout

Name, germ.: Sender-Timeout

This parameter indicates the time to wait for sending an Ethernet message to a peer MLC.

C-0-0209 - Attributes

Function:	PARAMETER	Unit:	ms
MLC:	4BYTE, UINT_DEC	PLC:	UDINT
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 65535		
Default value:	3000		

C-0-0210 - TCP Max Connections

Name, germ.: TCP maximale Verbindungsanzahl

This parameter indicates the maximum number of connections allowed with the TCP port number.

C-0-0210 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, UINT_DEC	PLC:	UDINT
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	1 / 32		
Default value:	15		

C-0-0211 - Network Remote Access List

Name, germ.: Netzwerk-IP-Adress-Liste

This parameter contains a list of IP-Addresses of the network:

no,xx.xx.xx.xx,yyyy,no,xx.xx.xx.xx,yyyy.....

with

Contents	Remarks
no	Control number, first entry 0, local (own) control, other controls 1..64 are possible
xx.xx.xx.xx	IP-Address of the respective, not local control
yyyy	Port address of the respective, not local control

Example: local control with two other controls in the link.

0,0.0.0.0,0, 1,10.104.73.174,5003, 2,10.104.73.104,5003, 3,0.0.0.0,0...

C-0-0211 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	---		

C-0-0212 - Drive-Server Configuration

Name, germ.: Antriebsserver-Konfiguration

This parameter manages the drive server configurations for the offline and the Windows instance of MLC. The client can add, modify, and remove driver server instance from WIN-MLC by sending configuration information. The below format is employed:

"N,P,I", where:

N - Is the drive number 1..99.

P - TCP/IP port number.

I - IP address in dot format.

The drive servers can be read and are concatenated in a text string. For example the two drive servers would be returned as follows:

"1,5004,127.0.0.1,2,5005,127.0.0.1"

C-0-0212 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	FLASH	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	---		

C-0-0400 - Desired MC cycle time (Tcyc)

Name, germ.: MC-Zykluszeit (Tcyc) Sollwert

Via this parameter the command value of the MC cycle time in parameter mode may be adjusted.

The MC cycle time reveals, in which interval the MotionControl provides new command values.

(See also C-0-0410 Actual MC cycle time (Tcyc).)

The setting may take place in dialog window "Cycle times".

C-0-0400 - Attributes

Function:	PARAMETER	Unit:	us
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	1000 / 65000		
Default value:	2000		

C-0-0401 - Relative PLC time slot

Name, germ.: Zeitanteil der integrierten SPS von MC-Zykluszeit

Via this parameter the time slot of the integrated PLC at the "Desired MC cycle time (Tcyc)" (C-0-0400) in parameter mode may be adjusted.

This time slot reveals, how much time in sum remain for the execution of the PLC-Motion-Task ("Motion_Task", external event triggered by

SERCOS) and the permanent cyclical PLC-Task ("Plc_Task", lower prior as the Motion_Task).

Note: An enlargement by account of the motion part means, that the lower prior communication procedures are disadvantaged.
Before modification a time analyses of the actual state and a consultation with the service is recommended.

The setting may take place in dialog window "Cycle times".

C-0-0401 - Attributes

Function:	PARAMETER	Unit:	%
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	25 / 75		
Default value:	50		

C-0-0402 - Power Up Cycle Time

Name, germ.: Hochlauf Zykluszeit

In this parameter the time may be forced, which is provided during run-up for communication with each drive (demand data).

If IndraDrives are used, the initial value of 1000µs is sufficient; with hydraulic axes it may be however a multiple of this value.

C-0-0402 - Attributes

Function:	PARAMETER	Unit:	us
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	FLASH	Editability:	P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	1000 / 65000		
Default value:	1000		

C-0-0410 - Actual MC cycle time (Tcyc)

Name, germ.: MC-Zykluszeit (Tcyc) Istwert

This parameter displays the actual value of the MC cycle time.

The MC cycle time reveals, in which interval the MotionControl provides new command values.

(See also C-0-0400 Desired MC cycle time (Tcyc).)

The read-off may take place in dialog window "Cycle times".

C-0-0410 - Attributes

Function:	PARAMETER	Unit:	us
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0		

C-0-0412 - List actual time slice values

Name, germ.: Liste aktuelle Zeitschlitzmessungen

This parameter contains the actual values of the time measurements of the task system of the control.

The parameter is supplemented by lists

- "List maximal time slice values" (C-0-0413)
- "List minimal time slice values" (C-0-0414)

The list contains overall five measured values:

- Time slice PLC (Motion_Task und Plc_Task),
- Time for Motion-Kernel_1,
- Time for Motion-Kernel_2,
- Sum of times for Motion-Kernel_1 and Motion-Kernel_2,
- Time for background activity (communication).

The sum of the first, the fourth and the fifth value result in the "Actual MC cycle time (Tcyc)" (C-0-0410).

The read-off may take place in the dialog window "Cycle times".

C-0-0412 - Attributes

Function:	PARAMETER	Unit:	us
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0413 - List maximal time slice values

Name, germ.: Liste maximale Zeitschlitzmessungen

This parameter contains the history of the maximum values of the time measurements of the task system of the control. The maxima have plain collector's value and be descended from different cycles.

The parameter is supplemented by lists

- "List actual time slice values" (C-0-0412)
- "List minimal time slice values" (C-0-0414)

The list contains overall five measured values:

- Maximum value of the time slice PLC (Motion_Task and Plc_Task),
- Maximum value of time for Motion-Kernel_1,
- Maximum value of time for Motion-Kernel_2,

- Maximum value of sum of times for Motion-Kernel_1 and Motion-Kernel_2 of *one* cycle,
- Maximum value of time for background activity (communication).

The read-off may take place in the dialog window "Cycle times". The history for a new recording may also be deleted in this window ("Command reset list maximal and minimal time values" (C-0-1050)).

C-0-0413 - Attributes

Function:	PARAMETER	Unit:	us
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0414 - List minimal time slice values

Name, germ.: Liste minimale Zeitschlitzmessungen

This parameter contains the history of the minimal values of the time measurements of the task system of the control. The minima have plain collector's value and be descended from different cycles.

The parameter is supplemented by lists

- "List actual time slice values" (C-0-0412)
- "List maximal time slice values" (C-0-0413)

The list contains overall five measured values:

- Minimum value of the time slice of the PLC (Motion_Task and Plc_Task),
- Minimum value of time for Motion-Kernel_1,
- Minimum value of time for Motion-Kernel_2,
- Minimum value of sum of times for Motion-Kernel_1 and Motion-Kernel_2 of *one* cycle,
- Minimum value of time for background activity (communication).

The read-off may take place in the dialog window "Cycle times". The history for a new recording may also be deleted in this window ("Command reset list maximal and minimal time values" (C-0-1050)).

C-0-0414 - Attributes

Function:	PARAMETER	Unit:	us
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0415 - Actual CPU-Load

Name, germ.: Aktuelle CPU-Auslastung

This parameter contains the actual CPU-Load (in percent) of the control.

C-0-0415 - Attributes

Function:	PARAMETER	Unit:	%
MLC:	4BYTE, FLOAT	PLC:	REAL
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0416 - Maximum CPU-Load

Name, germ.: Maximale CPU-Auslastung

This parameter contains the maximum measured CPU-Load (in percent) since the last switch-on.

A reset of the history is possible via command parameter C-0-1051. ("Command: Reset Parameter C-0-0416 and C-0-0417" (C-0-1051)).

C-0-0416 - Attributes

Function:	PARAMETER	Unit:	%
MLC:	4BYTE, FLOAT	PLC:	REAL
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0417 - Minimum CPU-Load

Name, germ.: Minimale CPU-Auslastung

This parameter contains the minimum measured CPU-Load (in percent) since the last switch-on.

A reset of the history is possible via command parameter C-0-1051. ("Command: Reset Parameter C-0-0416 and C-0-0417" (C-0-1051)).

C-0-0417 - Attributes

Function:	PARAMETER	Unit:	%
MLC:	4BYTE, FLOAT	PLC:	REAL
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0418 - CPU-Load, Value for Warning

Name, germ.: CPU-Auslastung, Schwellwert für Warnung

This parameter contains the threshold (in percent) from its excess a warning because of too high CPU-Load is issued.

The actual CPU-Load can be read via parameter C-0-0415 ("Actual CPU-Load").

C-0-0418 - Attributes

Function:	PARAMETER	Unit:	%
MLC:	4BYTE, FLOAT	PLC:	REAL
Memory:	NVRAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0.0 / 100.0		
Default value:	100.0		

C-0-0450 - Power up target motion mode

Name, germ.: Hochlauf Motion Zielmodus

Once the Motion Logic Control voltage has been powered up, the MLC runs up to the predefined mode.

Use these parameters to set the mode of the motion.

Value	Motion mode	Display	What may you do?
2	Parametrization mode	P2 STOP P2 RUN	The motion runs in parametrization mode. It is possible to write into most of all parameters
4	Operation mode	BB STOP BB RUN	The motion runs in operation mode. It is possible to write into selected parameters.

C-0-0450 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	NVRAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 4		
Default value:	4		

C-0-0451 - Target motion mode

Name, germ.: Motion Zielmodus

This parameter commands the target motion mode of the Motion Logic Control.

Value	Motion mode	Display	What may you do?
2	Parametrization mode	P2 STOP P2 RUN	The motion runs in parametrization mode. It is possible to write into most of all parameters
4	Operation mode	BB STOP BB RUN	The motion runs in operation mode. It is possible to write into selected parameters.

C-0-0451 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	RAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 4		
Default value:	0		

C-0-0452 - Current motion mode

Name, germ.: Aktueller Motion Modus

This parameter contains the current motion mode of the Motion Logic Control.

Value	Motion mode	Display	What may you do?
2	Parametrization mode	P2 STOP P2 RUN	The motion runs in parametrization mode. It is possible to write into most of all parameters
4	Operation mode	BB STOP BB RUN	The motion runs in operation mode. It is possible to write into selected parameters.

C-0-0452 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0		

C-0-0478 - Drive Setup

Name, germ.: Antriebskonfiguration

The definition of the drives takes place via parameter C-0-0478 "Drive Setup". This parameter is archived as a string and has the following construction:

Entry	Meaning	Prefix	Possible entries
1	Sercos address	A	1-99
2	Firmware version	F	MPH-03, other, ...
3	Function packages	P	Contents of P-0-2004
4	Compatibility mode deactivated, activated -> switches off the FWA-Comparison	C	0-1
5	Drive state (active, parking axis, deactivated)	S	Active: 0 Parking: 1 Deactivated: 2

Drive configuration

Example Drive 1 active, drive 2 deactivated

A1, FMPH-03, P0x00000222, C0x00000000, S0x00000000, A2, FMPH-03, P0x00000222, C0x00000000, S0x00000002

- If a drive is deactivated in C-0-0478, an axis can be created with this drive and all A-Parameters of this axis can be written. An access to the S/P-Parameters does not take place. The drive must not exist physical.
- If a drive is parked in C-0-0478, the command "S-0-0139, C1600 Parking axis command" is activated in the drive. The drive must be in the Sercos Ring.

C-0-0478 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"Drive Setup"		

C-0-0479 - Extended Drive Information

Name, germ.: Erweiterte Antriebsinformation

With the transition of phase P0 to P2 the Sercos-Ring is scanned and the addresses of all connected drives are determined. This list is represented in parameter C-0-0481 "List of detected drives".

It is also possible to read the drive firmware and the activated functional package for all connected drives via command "C-0-1009 Get Extended Drive info". The command can only be activated in P2.

The data are represented in parameter C-0-0479 "Extended Drive Information".

Entry	Meaning	Prefix	Possible entries
1	Sercos address	A	1-99
2	Firmware version	F	MPH-03, other, ...
3	Function packages	P	Contents of P-0-2004
4	Compatibility mode deactivated, activated -> switches off the FWA-Comparison	C	0-1
5	Drive state (active, parking axis, deactivated)	S	Active: 0 Parking: 1 Deactivated: 2

Drive configuration

Example 2 drives

A1, FMPH-03V14, P0x00000022, C0x00000000, S0x00000000, A2, FMPB-03V14, P0x00000022, C0x00000000, S0x00000000

C-0-0479 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	"Current Drive Config"		

C-0-0480 - Configured Axis count

Name, germ.: Konfigurierte Achszahl

This parameter shows the amount of configured axes.

C-0-0480 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0		

C-0-0481 - List of detected drives

Name, germ.: Liste der gefundenen Antriebe

This parameter shows the drives which were found on the drive bus.

Example 3 drives with address 1, 2 and 5 are connected to the drive bus.

This means C-0-0481 looks like:

Element	Value	Comment
1	1	Drive 1 found
2	5	Drive 5 found
3	2	Drive 2 found

C-0-0481 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0482 - List of not associated drives

Name, germ.: Liste der nicht verknüpften Antriebe

This list parameter shows the drives which were found on the drive bus and which aren't associated to a real axis. A drive can only be associated to one real axis, but to several encoder axes.

C-0-0482 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0		

C-0-0483 - List of configured axes

Name, germ.: Liste der konfigurierten Achsen

This parameter shows the configured axes of the system. The values represent the logical axis address.

Examples 3 axes (axis 1, 2 and 5) are configured in the system.

This means C-0-0483 looks like:

Element	Value	Comment
1	1	Axis 1 is configured
2	2	Axis 2 is configured
3	5	Axis 5 is configured

C-0-0483 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0		

C-0-0484 - Axes configuration list

Name, germ.: Achskonfigurationsliste

This parameter defines the axes system. It configures the axes and assigns drives to them. This parameter is a list parameter and has the structure:

- element 1: axis configuration of axis 1
- element 2: used drive of axis 1
- element 3: axis configuration of axis 2
- element 4: used drive of axis 2
- ...
- element 31: axis configuration of axis 16
- element 32: used drive of axis 16

The parameter has a fixed length of 32 elements.

Valid values for axis configuration:

Value	Comment
0	no axis configured
8	real axis configured
16	virtual axis configured
32	encoder axis configured
64	link axis configured

Note: If link axes are configured, but not deactivated by parameter "Axis status" A-0-0024, at switching to phase 4 it is checked, whether the MLC participates at the link ("MLC-link - configuration functional modes" C-0-0701). If not, parameter "Axes Configuration List" C-0-0484 is listed in parameter "List of all invalid C parameters" C-0-0111 and an incorrect configuration is displayed (error in "Error in cross check C parameters" F0160024).

Valid values for drive: 1 .. 99

A drive can only be assigned to one real axis and to several encoder axes.

Example A One drive with address 1 is connected with the control. 2 axes are requested:

- Axis 1 is a real axis, connected with drive 1
- Axis 2 is a virtual axis.

This means C-0-0484 looks like:

Element	Value	Comment
1	8	Axis 1 is a real axis
2	1	The drive with address 1 is used for this axis
3	16	Axis 2 is a virtual axis
4	0	No drive used / needed
5	0	Axis 3 is not defined
6	0	No drive used / needed
...		
31	0	Axis 16 is not defined
32	0	No drive used / needed

Example B Two drives with address 1 and 2 are connected with the control. 3 axes are requested:

- Axis 1 is a real axis, connected with drive 1
- Axis 2 is an encoder axis, connected with drive 1
- Axis 3 is a real axis, connected with drive 2

This means C-0-0484 looks like:

Element	Value	Comment
1	8	Axis 1 is a real axis
2	1	The drive with address 1 is used for this axis
3	32	Axis 2 is an encoder axis
4	1	The drive with address 1 is used for this axis
5	8	Axis 3 is a real axis
6	2	The drive with address 2 is used for this axis
7	0	Axis 4 is not defined
8	0	No drive used / needed
...		
31	0	Axis 16 is not defined
32	0	No drive used / needed

C-0-0484 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	NVRAM	Editability:	(P2+Stop)
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0 / 255		
Default value:	0		

C-0-0500 - Drive bus configuration

Name, germ.: Konfiguration Führungskommunikation

This parameter configures the drive bus interface.

Parameter Value	Configuration
0	Sercos drive bus

C-0-0500 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	--- / ---		
Default value:	0		

C-0-0501 - Drive bus communication baudrate

Name, germ.: Führungskommunikation Baudrate

This parameter configures the baud rate of the drive bus interface in the unit MBaud.

Parameter Value	Configuration
2	Baud rate is 2 Mbaud

4	Baud rate is 4 Mbaud
8	Baud rate is 8 Mbaud
16	Baud rate is 16 MBaud

C-0-0501 - Attributes

Function:	PARAMETER	Unit:	Mbaud
MLC:	4BYTE, UINT_DEC	PLC:	UDINT
Memory:	FLASH	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	2 / 16		
Default value:	4		

C-0-0502 - Drive bus fiber optic length

Name, germ.: Führungskommunikation LWL-Länge

This parameter matches the transmission power of the Motion Logic Control to the length of the fiber optic cable (LWL).

The length given refers to the length of the fiber optics cable from X7S1 to the first drive.

Note: It generally suffices to ascribe a default value of 5 Meter or 197 inch to the fiber optics cable regardless of the actual length.

C-0-0502 - Attributes

Function:	PARAMETER	Unit:	m
MLC:	4BYTE, FLOAT	PLC:	REAL
Memory:	NVRAM	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0.1 / 50.0		
Default value:	5.0		

C-0-0620 - Diagnosis recorder index

Name, germ.: Diagnosespeicher Index

This parameter can be used to select any entry of the MLC internal error memory for system diagnosis. By using parameters "Indexed diagnosis message" (C-0-0621) the "Diagnosis recorder index" (C-0-0620) effects the entry to be output.

The error memory is chronologically sorted. This means for input value 1 the newest stored diagnosis can be read out.

Possible entries of (C-0-0620) are listed in parameter "Absolute index" (C-0-0624).

Note: For internal use, only!

C-0-0620 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, UINT_DEC	PLC:	UDINT
Memory:	RAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	yes
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x1 / 0xFFFFFFFF		
Default value:	0x1		

C-0-0621 - Indexed diagnosis message

Name, germ.: Indizierte Diagnosemeldung

This parameter shows the diagnosis message selected by parameter "Diagnosis recorder index" (C-0-0620), in binary format.

Note: For internal use, only!

C-0-0621 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE_VAR, INT_DEC	PLC:	-
Memory:	FLASH	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0622 - Amount of diagnosis messages

Name, germ.: Anzahl der Meldungen im Diagnosespeicher

This parameter contains the amount of diagnosis messages, stored in the diagnosis storage.

C-0-0622 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, INT_DEC	PLC:	INT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	1		

C-0-0623 - Last reset message

Name, germ.: Letzte Resetmeldung

This parameter contains the absolute index of the last reset message of the mlc diagnosis storage.

Note: For internal use, only!

C-0-0623 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, UINT_HEX	PLC:	UDINT
Memory:	RAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x01 / 0xFFFFFFFF		
Default value:	0x01		

C-0-0624 - Absolute index

Name, germ.: Absolute Indizes

This parameter shows the absolute index of the mlc error storage.

Note: For internal use, only!

C-0-0624 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, INT_DEC	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0625 - Display message

Name, germ.: Displaymeldung

This parameter contains the current diagnosis message, binary coded.

Note: For internal use, only!

C-0-0625 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE_VAR, INT_DEC	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0626 - Diagnosis

Name, germ.: Diagnose

This parameter contains the mlc diagnosis at present relevant in the form of a **text**.

Preceding the text is the respective content of parameter "Diagnosis number" (C-0-0627)

Example "F0220202 Invalid axis number"

C-0-0626 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	1BYTE_VAR, TEXT	PLC:	STRING
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0xFF		
Default value:	---		

C-0-0627 - Diagnosis number

Name, germ.: Diagnose-Nummer

The diagnosis message number shown on the display is stored in this parameter. This enables the control unit or the user to generate its own diagnosis messages by means of this number (e.g. HMI, additional languages).

C-0-0627 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, UINT_HEX	PLC:	UDINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	---		

C-0-0650 - Diagnosis status word

Name, germ.: Diagnose-Statuswort

This parameter gives an overview of the status information of the control and all axis.

Bit	Designation/function	Comment
0	Message exists 0: there is no message 1: one or more message(s) exist(s)	
1	Warning exists 0: there is no warning 1: one or more warning(s) exist(s)	
2	F0 error exists 0: there is no error (class 0) 1: one or more error(s) exist(s) (class 0)	
3	F1...F9 error exists 0: there is no error (class 1...9) 1: one or more error(s) exist(s) (class 1...9)	
30..4	reserved	
31	Bit1 OR Bit2 OR Bit3 0: there are neither warnings, nor errors 1: one or more warning(s) and/or error(s) exist(s). Messages do not influence this bit.	

C-0-0650 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE, BINARY	PLC:	DWORD
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0x01		

C-0-0700 - MLC-link - desired cycle time (Tcyc)

Name, germ.: MLC-Verbund - Zykluszeit (Tcyc) Sollwert

With this parameter it is possible to adjust the setpoint of the cycletime in the crosslink (only in parameterization mode).

The MLC-Link cycletime defines, at what intervals the motion control supplies new setpoints to the crosslink.

It is displayed in the diagnostics dialog of the function module CrossCOM and can be written or changed in the configuration dialog.

Only available are the values 2000ms, 4000ms and 8000ms. The adjusted value must correspond with "Desired MC cycle time (Tcyc)" (C-0-0400). This is checked when switching to operating mode.

C-0-0700 - Attributes

Function:	PARAMETER	Unit:	us
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	FLASH	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	2000 / 8000		
Default value:	2000		

C-0-0701 - MLC-link - configuration functional modes

Name, germ.: MLC-Verbund - Konfiguration Funktionsmodi

In this parameter can be determined whether and with which functionality the MLC participates in the crosslink (only in parameterization mode).

Bit	Designation/function	Comment
0	MLC link via CrossComm 0: MLC used as single controller 1: MLC used as link participant	
1	Function as link participant 0: MLC is link slave 1: MLC is link master	
3..2	reserved	
4	Link structure 0: single ring 1: double ring	
15..5	reserved	

Note: If link axes are configured, at switching to phase 4 it is checked, whether the MLC participates at the link ("MLC-link - configuration functional modes" C-0-0701). If not, parameter "Axes Configuration List" C-0-0484 is listed in parameter "List of all invalid C parameters" C-0-0111 and an incorrect configuration is displayed (error in "Error in cross check C parameters" F0160024).

The parameter is displayed in the diagnostics dialog of the function module CrossComm and can be written or changed in the configuration dialog.

C-0-0701 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	FLASH	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	yes	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0x00		

C-0-0702 - MLC-link - configuration fiber optic cable lengths

Name, germ.: MLC-Verbund - Konfiguration LWL-Längen

With this parameter it is possible to adjust the transmitting power to the length of the fiber optic cable of both transmitters of function module CrossComm (only in parameterization mode).

The first specified length in the list relates to fiber optic cable of X7S1 to the next connected participant in the primary ring.

The second specified length in the list relates to fiber optic cable of X7S3 to the next connected participant in the secondary ring.

Both lengths are displayed in the diagnostics dialog of function module CrossComm and can be written or changed in the configuration dialog.

Note: Normally it will do to specify the length with the default value 2m independent of the actual length.

Note: The transmitting power is adapted only when switching to operating mode.

C-0-0702 - Attributes

Function:	PARAMETER	Unit:	m
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	FLASH	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0,2 / 50,0		
Default value:	0,2		

C-0-0703 - MLC-link - configuration master axes

Name, germ.: MLC-Verbund - Konfiguration Masterachsen

In this parameter both local axes of the MLC can be specified which should supply their axis positions to the crosslink (only in parameterization mode).

The first specified logical axis address in the list determines the first master axis in the crosslink and the second axis address the second master axis. To configure a master axis, the axis must be created before in the "Axes configuration list" (C-0-0484).

These both configured axis positions are send cyclical to the master by each link slave in its link-AT as the master position A (first axis address) and master position B (second axis address).

The link master copies the positions of all link-ATs in the link-MDT and adds on his both configured axis positions. The position of both axis positions within the link-MDTs are fixed coupled with the link address:

$$\text{LinkAdr} = 2 * (\text{MlcAdr} - 1) + \text{AxisAdr}.$$

LinkPos1	LinkPos2	LinkPos3	LinkPos4	...	LinkPos2N-1	LinkPos2N
MLC1:PosA	MLC1:PosB	MLC2:PosB	MLC2:PosB		MLCN:PosA	MLCN:PosB

Fixed allocation of MDT-Addresses to MLC- and axis addresses

A local link axis has access to this axis positions via parameter "Link axis - master axis selection" (A-0-0008).

Both master axes are displayed in the diagnostics dialog of function module CrossComm and can be written or changed in the configuration dialog.

C-0-0703 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	FLASH	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 16		
Default value:	---		

C-0-0704 - MLC-link - desired binary input values

Name, germ.: MLC-Verbund - Binäre Eingänge Sollwerte

With this parameter the binary inputs of the crosslink can be set and deleted by the user in operating mode.

Note: The binary command values of this parameter are only in use if there is no running PLC program. Otherwise they'll be cyclically overwritten by the binary command values of the ControlData structure (Shared Memory).

Bit 0...3: 4 synchronous link-inputs

The synchronous link-inputs "Link-SYNCn" serve with active MLC-Link participants for setting/deleting the binary status bits "Link participant m, input Link-SYNCn active" (m = 1..64, n = 1..4) at the same time. If the link

participant m (m = 1..64) sets or deletes the input "Link-SYNC1" (Bit 0), all link participants (inclusive participant m) set/delete the status "Link participant m, input Link-SYNC1 active" at the same time (see parameter C-0-0715...C-0-0722).

With this mechanism same PLC-Open blocks or same processes can be activated synchronously on all MLCs.

Bit 4: Restore double ring

With set bit 4 the MLC tries after a redundancy loss in the double ring to restore the redundant link structure with primary ring and secondary ring. This is possible only, if the cause of the redundancy loss has been recognized previously and has been repaired.

Note: If parameter C-0-0031 "Control address" has the value '0', this parameter cannot be read.

C-0-0704 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	NVRAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0x00		

C-0-0705 - MLC-link - calibration dead time compensation

Name, germ.: MLC-Verbund - Feinabstimmung Totzeitkompensation

In this parameter the percentage of the linear dead time compensation in the crosslink for in " MLC link- configuration master axes " (C-0-0703) configured axes can be calibrated in parameterization mode .

The first specified value in the list relates to the first master axis in the crosslink and the second value calibrates the dead time compensation of the second master axis.

The calibration is in interval

0: no dead time compensation (0 %)

100: linear dead time compensation (100 %).

The calibration is displayed in the diagnostics dialog of the function module CrossComm and can be written or changed by the PLC or via the configuration dialog in IndraWorks.

Indication to the Dimensioning

Because the consumers receive the position values of the producer delayed by one cycle time of the SERCOS-Ring, so here we speak of a "reaction time". That causes the consumer axis to run after.

For each link axis an automatic reaction time compensation is supported to minimize this effect. This means, that the provided position values in the link are extrapolated, i.e. forecasted calculated position values are provided to supply the slave axis with as possible identical position values.

For continuous changes of the position values of the producing axis well forecasted calculations for the consumer are made. For none-continuous changes, overshooting may appear at the consumer side because of improper forecasted calculations. If such circumstances are expected, the reaction time compensation should be set to values less than 100%, i.e.

the forecasted calculation takes place "reduced". But this causes an according running after of the consumer.

The following rules and dependencies apply to the reaction time compensation:

- A value of 100% effects the best possible correlation of the position values of producer and consumer.
- The more slightly the SERCOS cycle time of the link ring, so much better the forecasted calculation works and the risk of overshooting on the consumer side is so much less.
- The risk of overshooting increases with the cascading depth at the consumer side, i.e. if a consumer provides the link axis in the link again etc.. At the appearance of overshooting effects (e.g. mechanical vibrations/hum of the machine, or jerk- and acceleration exceeding warnings with consumer axes and whose slave axes), the values of the reaction time compensation can be changed according to the following table:

Cascading depth	Value for reaction time compensation
1	50%
2	33%
3	25%
4	20%
5	17%
6	14%
7	12%
8	11%
9	10%
10	9%

Cascading depth and values for the reaction time compensation

C-0-0705 - Attributes

Function:	PARAMETER	Unit:	%
MLC:	2BYTE_VAR, UINT_DEC	PLC:	-
Memory:	FLASH	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0 / 100		
Default value:	100		

C-0-0710 - MLC-link - actual cycle time (Tcyc)

Name, germ.: MLC-Verbund - Zykluszeit (Tcyc) Istwert

This parameter displays the actual value in the crosslink.

The MLC-Link cycletime defines, at what time intervals the motion control supplies new setpoints to the crosslink.

It can be read in the diagnostics dialog of function module CrossComm.

C-0-0710 - Attributes

Function:	PARAMETER	Unit:	us
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	4000		

C-0-0711 - MLC-link - MDT error counter

Name, germ.: MLC-Verbund - Fehlerzähler MDT

Each link-slave counts all invalid master data telegrams (MDT). If more than one MDT fails directly in a row, the MLC reacts as follows:

- All drives are set to standstill with "Best possible deceleration" (P-0-0119).
- All positions of the master axes stop.
- All status bits "Link-Participant # data valid" ("MLC-link - status link data" C-0-0712, elements 1 and 2) are set to zero.
- Error message "MLC-Link master position incorrect (MDT)" is issued.

With double MDT failure the " Error counter MDT " does not continue counting.

The error counter has a limit at 65535. This means, that after a long time and a strong disturbed transmission the counter has a value of 65535. To reset the counter, it must be set to 0.

This parameter can be read in the diagnostics dialog of the function module CrossComm.

C-0-0711 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, UINT_DEC	PLC:	UINT
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0		

C-0-0712 - MLC-link - status link data

Name, germ.: MLC-Verbund - Status Verbunddaten

In this list of all in all two 32-Bit-Bars, the complete validity bits for the crosslink with maximum 64 participants are stored.

List element	Bit-No.	Description
1	0	Status link data, participant 1
	... 31	... Status link data, participant 32
2	0	Status link data, participant 33
	... 31	... Status link data, participant 64

Status link data

For the status of the link data applies:

0 = all data of this participant are invalid

1 = all data of this participant are valid

This parameter can be read in the diagnostics dialog of function module CrossComm.

C-0-0712 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, BINARY	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0x00		

C-0-0713 - MLC-link - status binary inputs

Name, germ.: MLC-Verbund - Status binäre Eingänge

In this list of all in all eight 32-Bit-Bars, the complete status bits for the binary inputs of the crosslink with maximum 64 participants are stored.

List element	Bit-No.	Description
1	0	Status input Link-SYNC1, participant 1

	31	Status input Link-SYNC1, participant 32
2	0	Status input Link-SYNC1, participant 33

	31	Status input Link-SYNC1, participant 64
3	0	Status input Link-SYNC2, participant 1

	31	Status input Link-SYNC2, participant 32
4	0	Status input Link-SYNC2, participant 33

	31	Status input Link-SYNC2, participant 64
5	0	Status input Link-SYNC3, participant 1

	31	Status input Link-SYNC3, participant 32
6	0	Status input Link-SYNC3, participant 33

	31	Status input Link-SYNC3, participant 64
7	0	Status input Link-SYNC4, participant 1

	31	Status input Link-SYNC4, participant 32
8	0	Status input Link-SYNC4, participant 33

	31	Status input Link-SYNC4, participant 64

Status binary inputs

For the status of the binary inputs 1...4 applies:

0 = the binary input of this participant is not active

1 = the binary input of this participant is active

This parameter can be read in the diagnostics dialog of function module CrossComm.

C-0-0713 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	4BYTE_VAR, BINARY	PLC:	-
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0x00		

C-0-0714 - MLC-link - status function modul

Name, germ.: MLC-Verbund - Status Funktionsmodul

This 16-Bit-Parameter contains the diagnostics bits for the function module of the link participant.

Bit-No.	Description
0	MLC-Link - Transmission error
1	FM CrossComm - Error primary ring
2	FM CrossComm - Error secondary ring
3	MLC-Link - Redundancy error
4...31	...free

Status function module

This parameter can be read in the diagnostics dialog of function module CrossComm.

C-0-0714 - Attributes

Function:	PARAMETER	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	READ_ONLY
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	--- / ---		
Default value:	0x00		

C-0-1000 - Command: control base parameter load

Name, germ.: Kommando: Basisparameter laden

This parameter is used as a command to load the base parameters of the Motion Logic Control.

When using IndraWorks MLC:

- Use the parameter monitor or the parameter editor to execute this command and follow instructions below.

When using the parameter, e.g. from fieldbus:

- Enter the binary value "0000000000000011" (=0x0003) in parameter C-0-1000. This triggers the load process of the control base parameters.
- After the load process the Motion Logic Control sets the value of the parameter back to "0000000000000000".

C-0-1000 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	(P2+Stop)
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1001 - Command: load motion control parameters from FW-module

Name, germ.: Kommando: Motion Control Parameter von FW-Modul laden

This parameter is used as a command to load the Motion Logic Control parameters and the retain data of the PLC from the compact flash card (CF) into the non volatile RAM of the MLC-hardware.

Thereby all stored parameters in the flash and in the nvRAM and also all internal stored values (e.g. axis position) are overwritten with the values which where stored when the command C-0-1002 was executed the last time.

This command is used to transmit all parameters/data from one Motion Logic Control hardware to another.

In case a hardware change was done, this parameter is executed automatically during bootup.

An automatic storage to the compact flash module is done each time, the motion switches from parameterization to operation mode (see C-0-1002).

All parametes and/or RETAIN-Data which were changed in the NVRAM after such a storage are not stored on the compact flash card. Remedy: execute additionally the command C-0-1002 manually.

Note: After execution of the command the system will automatically restart to take over the new system data.

This parameter is executed by the system only and should not be started manually. Otherwise a total loss of data can occure.

C-0-1001 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	P0
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1002 - Command: store motion control parameters in FW-module

Name, germ.: Kommando: Motion Control Parameter in FW-Modul speichern

This parameter is used as a command to save the Motion Logic Control parameters stored in non volatile RAM and the retain data of the PLC onto the compact flash card (CF).

The command is executed automatic each time, the motion switches from parametrization to operation mode or can be executed separately (see below).

The parameter can be written in each mode, but it's recommended to avoid writing nvRAM-Parameter or Retain-Data during execution of this command to avoid inconsistent data in nvRAM and the compact flash. Therefore, if e.g. a hardware change is necessary, use this command explicit after all data in the nvRAM was set correct. It's recommended to stop the PLC, switch to P2 and avoid parameter access from IndraWorks.

When using IndraWorks MLC:

- Use the parameter monitor or the parameter editor to execute this command and follow instructions below.

When using the parameter, e.g. from fieldbus:

- Enter the binary value "0000000000000011" (=0x0003) in parameter C-0-1002. This triggers the storage process of the control parameters.
- After the store process the Motion Logic Control sets the value of the parameter back to "0000000000000000".

C-0-1002 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1009 - Command: Get Extended Drive Info

Name, germ.: Kommando: Erweiterte Antriebsinformation ermitteln

With changeover from phase P0 to P2 the Sercos-Ring is scanned and the addresses of all connected drives are detected. This list is displayed in parameter C-0-0481 "List of detected drives".

Also it is possible to read the drive firmware and the activated function package for all connected drives via command C-0-1009 "Command: Detect extended drive information". The command can only be executed in P2.

The read data are displayed in parameter C-0-0479 "Extended drive information".

C-0-1009 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	(P2+Stop)
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1010 - Command: export parameter

Name, germ.: Kommando: Exportiere Parameter

With the help of the command parameter C-0-1010 the parameters of the control can be exported in a file.

This command is only allowed for internal use.

C-0-1010 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1011 - Command: import parameter

Name, germ.: Kommando: Importiere Parameter

With the help of the command parameter C-0-1011 parameters can be written to the control from a file.

Possible import errors are listed in parameter C-0-0114 "IDN-List of import errors".

This command is only allowed for internal use.

C-0-1011 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	(P2+Stop)
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1020 - Command: reboot after firmware update

Name, germ.: Kommando: Reboot nach Firmware Update

This parameter is used as a command to reboot the control after a firmware update was performed in order to load the updated firmware. This parameter is called automatic after a successful download of the firmware files.

Note: The command has only to be used at the end of a firmware update, therefore don't use it for a usual reset of the control.

Execution of the command:

- Enter the binary value "0000000000000011" (=0x0003) in parameter C-0-1020. This activates the reboot after a firmware update.
- After successful flash programming the Motion Logic Control sets the value of the parameter back to "0000000000000000".

C-0-1020 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	P0
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1021 - Command: firmware reset

Name, germ.: Kommando: Firmware-Reset

This parameter is used as a command to execute a restart (warm start) of the Motion Logic Control.

Execution of the command:

- Enter the binary value "0000000000000011" (=0x0003) in this parameter. This triggers the restart of the control.
- After the restart the Motion Logic Control sets the value of the parameter back to "0000000000000000".

Note: For internal use, only!

Note: Any communication of fieldbusses, drives, etc., with the Motion Logic control gets lost because of the restart and must be restarted after run-up if necessary.

C-0-1021 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	P0, P2
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1030 - Command: clear all control errors

Name, germ.: Kommando: Alle Steuerungsfehler löschen

This parameter is used as a command to clear all Motion Logic Control errors or the drives.

When using IndraWorks MLC:

- Use button to clear all errors (mlc popup -> device status -> "clear error").

When using fieldbus:

- Enter the binary value "0000000000000011" (=0x0003) in this parameter. This triggers the error clear process of the control.
- After the error clear process the Motion Logic Control sets the value of the parameter back to "0000000000000000".

C-0-1030 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	P0, P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	yes
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1050 - Command reset list maximal and minimal time values

Name, germ.: Kommando: Rücksetzen der Listen C-0-0413 und C-0-0414

This parameter is used as a command to clear the following parameter lists: "List maximal time slice values" (C-0-0413) and "List minimal time slice values" (C-0-0414).

The collection starts again after successful cleaning.

When using IndraWorks MLC:

- Use button to clear the lists (mlc popup -> diagnosis -> cycle times -> "Reset Minimum/Maximum")

When using fieldbus:

- Enter the binary value "0000000000000011" (=0x0003) in this parameter. This triggers the error clear process of the control.
- After the error clear process the Motion Logic Control sets the value of the parameter back to "0000000000000000".

C-0-1050 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0x03		
Default value:	0x00		

C-0-1051 - Command: Reset Parameter C-0-0416 und C-0-0417

Name, germ.: Kommando: Rücksetzen Parameter C-0-0416 und C-0-0417

This parameter is used as a command to clear the following parameters Maximum CPU-Load, C-0-0416 und Minimum CPU-Load, C-0-0417.

The collection starts again after successful cleaning.

When using fieldbus:

- Enter the binary value "0000000000000011" (=0x0003) in this parameter. This triggers the error clear process of the control.
- After the error clear process the Motion Logic Control sets the value of the parameter back to "0000000000000000".

C-0-1051 - Attributes

Function:	COMMAND	Unit:	--
MLC:	2BYTE, BINARY	PLC:	WORD
Memory:	RAM	Editability:	P2, BB
Cyc. transmittable:	no	Validity check:	no
Combinat. check:	no	Extr. value check:	no
Min/Max value:	0x00 / 0x03		
Default value:	---		

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3 Service & Support

3.1 Helpdesk

Unser Kundendienst-Helpdesk im Hauptwerk Lohr am Main steht Ihnen mit Rat und Tat zur Seite. Sie erreichen uns

Our service helpdesk at our headquarters in Lohr am Main, Germany can assist you in all kinds of inquiries. Contact us

- telefonisch - by phone:
über Service Call Entry Center
- via Service Call Entry Center **+49 (0) 9352 40 50 60**
Mo-Fr 07:00-18:00
Mo-Fr 7:00 am - 6:00 pm
- per Fax - by fax: **+49 (0) 9352 40 49 41**
- per e-Mail - by e-mail: service.svc@boschrexroth.de

3.2 Service-Hotline

Außerhalb der Helpdesk-Zeiten ist der Service direkt ansprechbar unter

After helpdesk hours, contact our service department directly at

+49 (0) 171 333 88 26
oder - or **+49 (0) 172 660 04 06**

3.3 Internet

Unter www.boschrexroth.com finden Sie ergänzende Hinweise zu Service, Reparatur und Training sowie die **aktuellen** Adressen *) unserer auf den folgenden Seiten aufgeführten Vertriebs- und Servicebüros.

- Verkaufsniederlassungen
- Niederlassungen mit Kundendienst

Außerhalb Deutschlands nehmen Sie bitte zuerst Kontakt mit unserem für Sie nächstgelegenen Ansprechpartner auf.

*) Die Angaben in der vorliegenden Dokumentation können seit Drucklegung überholt sein.

At www.boschrexroth.com you may find additional notes about service, repairs and training in the Internet, as well as the **actual** addresses *) of our sales- and service facilities figuring on the following pages.

- sales agencies
- offices providing service

Please contact our sales / service office in your area first.

*) Data in the present documentation may have become obsolete since printing.

3.4 Vor der Kontaktaufnahme... - Before contacting us...

Wir können Ihnen schnell und effizient helfen wenn Sie folgende Informationen bereithalten:

1. detaillierte Beschreibung der Störung und der Umstände.
2. Angaben auf dem Typenschild der betreffenden Produkte, insbesondere Typenschlüssel und Seriennummern.
3. Tel./Faxnummern und e-Mail-Adresse, unter denen Sie für Rückfragen zu erreichen sind.

For quick and efficient help, please have the following information ready:

1. Detailed description of the failure and circumstances.
2. Information on the type plate of the affected products, especially type codes and serial numbers.
3. Your phone/fax numbers and e-mail address, so we can contact you in case of questions.

3.5 Kundenbetreuungsstellen - Sales & Service Facilities

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<p>China</p> <p>Bosch Rexroth China Ltd. 15/F China World Trade Center 1, Jianguomenwai Avenue Beijing 100004, P.R.China</p> <p>Tel.: +86 10 65 05 03 80 Fax: +86 10 65 05 03 79</p>	<p>China</p> <p>Bosch Rexroth China Ltd. Guangzhou Repres. Office Room 1014-1016, Metro Plaza, Tian He District, 183 Tian He Bei Rd Guangzhou 510075, P.R.China</p> <p>Tel.: +86 20 8755-0030 +86 20 8755-0011 Fax: +86 20 8755-2387</p>	<p>China</p> <p>Bosch Rexroth (China) Ltd. A-5F., 123 Lian Shan Street Sha He Kou District Dalian 116 023, P.R.China</p> <p>Tel.: +86 411 46 78 930 Fax: +86 411 46 78 932</p>	<p>China</p> <p>Melchers GmbH BRC-SE, Tightening & Press-fit 13 Floor Est Ocean Centre No.588 Yanan Rd. East 65 Yanan Rd. West Shanghai 200001</p> <p>Tel.: +86 21 6352 8848 Fax: +86 21 6351 3138</p>
<p>Hongkong</p> <p>Bosch Rexroth (China) Ltd. 6th Floor, Yeung Yiu Chung No.6 Ind Bldg. 19 Cheung Shun Street Cheung Sha Wan, Kowloon, Hongkong</p> <p>Tel.: +852 22 62 51 00 Fax: +852 27 41 33 44 alexis.siu@boschrexroth.com.hk</p>	<p>India - Indien</p> <p>Bosch Rexroth (India) Ltd. Electric Drives & Controls Plot. No.96, Phase III Peenya Industrial Area Bangalore – 560058</p> <p>Tel.: +91 80 51 17 0-211...-218 Fax: +91 80 83 94 345 +91 80 83 97 374 mohanvelu.t@boschrexroth.co.in</p>	<p>India - Indien</p> <p>Bosch Rexroth (India) Ltd. Electric Drives & Controls Advance House, II Floor Ark Industrial Compound Narol Naka, Makwana Road Andheri (East), Mumbai - 400 059</p> <p>Tel.: +91 22 28 56 32 90 +91 22 28 56 33 18 Fax: +91 22 28 56 32 93 singh.op@boschrexroth.co.in</p>	<p>India - Indien</p> <p>Bosch Rexroth (India) Ltd. S-10, Green Park Extension New Delhi – 110016</p> <p>Tel.: +91 11 26 56 65 25 +91 11 26 56 65 27 Fax: +91 11 26 56 68 87 koul.rp@boschrexroth.co.in</p>
<p>Indonesia - Indonesien</p> <p>PT. Bosch Rexroth Building # 202, Cilandak Commercial Estate Jl. Cilandak KKO, Jakarta 12560</p> <p>Tel.: +62 21 7891169 (5 lines) Fax: +62 21 7891170 - 71 rudu.karimun@boschrexroth.co.id</p>	<p>Japan</p> <p>Bosch Rexroth Automation Corp. Service Center Japan Yutakagaoka 1810, Meito-ku, NAGOYA 465-0035, Japan</p> <p>Tel.: +81 52 777 88 41 +81 52 777 88 53 +81 52 777 88 79 Fax: +81 52 777 89 01</p>	<p>Japan</p> <p>Bosch Rexroth Automation Corp. Electric Drives & Controls 2F, I.R. Building Nakamachidai 4-26-44, Tsuzuki-ku YOKOHAMA 224-0041, Japan</p> <p>Tel.: +81 45 942 72 10 Fax: +81 45 942 03 41</p>	<p>Korea</p> <p>Bosch Rexroth-Korea Ltd. Electric Drives and Controls Bongwoo Bldg. 7FL, 31-7, 1Ga Jangchoong-dong, Jung-gu Seoul, 100-391</p> <p>Tel.: +82 234 061 813 Fax: +82 222 641 295</p>
<p>Korea</p> <p>Bosch Rexroth-Korea Ltd. 1515-14 Dadae-Dong, Saha-gu Electric Drives & Controls Pusan Metropolitan City, 604-050</p> <p>Tel.: +82 51 26 00 741 Fax: +82 51 26 00 747 eunkyong.kim@boschrexroth.co.kr</p>	<p>Malaysia</p> <p>Bosch Rexroth Sdn.Bhd. 11, Jalan U8/82, Seksyen U8 40150 Shah Alam Selangor, Malaysia</p> <p>Tel.: +60 3 78 44 80 00 Fax: +60 3 78 45 48 00 hockhwa@hotmail.com rexroth1@tm.net.my</p>	<p>Singapore - Singapur</p> <p>Bosch Rexroth Pte Ltd 15D Tuas Road Singapore 638520</p> <p>Tel.: +65 68 61 87 33 Fax: +65 68 61 18 25 sanjay.nemade@boschrexroth.com.sg</p>	<p>South Africa - Südafrika</p> <p>TECTRA Automation (Pty) Ltd. 71 Watt Street, Meadowdale Edenvale 1609</p> <p>Tel.: +27 11 971 94 00 Fax: +27 11 971 94 40 Hotline: +27 82 903 29 23 georgv@tectra.co.za</p>
<p>Taiwan</p> <p>Bosch Rexroth Co., Ltd. Taichung Industrial Area No.19, 38 Road Taichung, Taiwan 407, R.O.C.</p> <p>Tel.: +886 - 4 -235 08 383 Fax: +886 - 4 -235 08 586 jim.lin@boschrexroth.com.tw david.lai@boschrexroth.com.tw</p>	<p>Taiwan</p> <p>Bosch Rexroth Co., Ltd. Tainan Branch No. 17, Alley 24, Lane 737 Chung Cheng N.Rd. Yung Kang Tainan Hsien, Taiwan, R.O.C.</p> <p>Tel.: +886 - 6 -253 6565 Fax: +886 - 6 -253 4754 charlie.chen@boschrexroth.com.tw</p>	<p>Thailand</p> <p>NC Advance Technology Co. Ltd. 59/76 Moo 9 Ramintra road 34 Tharang, Bangkokhen, Bangkok 10230</p> <p>Tel.: +66 2 943 70 62 +66 2 943 71 21 Fax: +66 2 509 23 62 Hotline +66 1 984 61 52 sonkawin@hotmail.com</p>	

Nordamerika – North America

USA Headquarters - Hauptniederlassung Bosch Rexroth Corporation Electric Drives & Controls 5150 Prairie Stone Parkway Hoffman Estates, IL 60192-3707 Tel.: +1 847 6 45 36 00 Fax: +1 847 6 45 62 01 servicebrc@boschrexroth-us.com repairbrc@boschrexroth-us.com	USA Central Region - Mitte Bosch Rexroth Corporation Electric Drives & Controls Central Region Technical Center 1701 Harmon Road Auburn Hills, MI 48326 Tel.: +1 248 3 93 33 30 Fax: +1 248 3 93 29 06	USA Southeast Region - Südwest Bosch Rexroth Corporation Electric Drives & Controls Southeastern Technical Center 3625 Swiftwater Park Drive Suwanee, Georgia 30124 Tel.: +1 770 9 32 32 00 Fax: +1 770 9 32 19 03	USA SERVICE-HOTLINE - 7 days x 24hrs - +1-800-REX-ROTH +1 800 739 7684
USA East Region – Ost Bosch Rexroth Corporation Electric Drives & Controls Charlotte Regional Sales Office 14001 South Lakes Drive Charlotte, North Carolina 28273 Tel.: +1 704 5 83 97 62 +1 704 5 83 14 86	USA Northeast Region – Nordost Bosch Rexroth Corporation Electric Drives & Controls Northeastern Technical Center 99 Rainbow Road East Granby, Connecticut 06026 Tel.: +1 860 8 44 83 77 Fax: +1 860 8 44 85 95	USA West Region – West Bosch Rexroth Corporation 7901 Stoneridge Drive, Suite 220 Pleasant Hill, California 94588 Tel.: +1 925 227 10 84 Fax: +1 925 227 10 81	
Canada East - Kanada Ost Bosch Rexroth Canada Corporation Burlington Division 3426 Mainway Drive Burlington, Ontario Canada L7M 1A8 Tel.: +1 905 335 5511 Fax: +1 905 335 4184 Hotline: +1 905 335 5511 michael.moro@boschrexroth.ca	Canada West - Kanada West Bosch Rexroth Canada Corporation 5345 Goring St. Burnaby, British Columbia Canada V7J 1R1 Tel.: +1 604 205 5777 Fax: +1 604 205 6944 Hotline: +1 604 205 5777 david.gunby@boschrexroth.ca	Mexico Bosch Rexroth Mexico S.A. de C.V. Calle Neptuno 72 Unidad Ind. Vallejo 07700 Mexico, D.F. Tel.: +52 55 57 54 17 11 Fax: +52 55 57 54 50 73 mariofelipe.hernandez@boschrexroth.com.mx	Mexico Bosch Rexroth S.A. de C.V. Calle Argentina No 3913 Fracc. las Torres 64930 Monterrey, N.L. Tel.: +52 81 83 65 22 53 +52 81 83 65 89 11 +52 81 83 49 80 91 Fax: +52 81 83 65 52 80

Südamerika – South America

Argentina - Argentinien Bosch Rexroth S.A.I.C. "The Drive & Control Company" Rosario 2302 B1606DLD Carapachay Provincia de Buenos Aires Tel.: +54 11 4756 01 40 +54 11 4756 02 40 +54 11 4756 03 40 +54 11 4756 04 40 Fax: +54 11 4756 01 36 +54 11 4721 91 53 victor.jabif@boschrexroth.com.ar	Argentina - Argentinien NAKASE Servicio Tecnico CNC Calle 49, No. 5764/66 B1653AOX Villa Balester Provincia de Buenos Aires Tel.: +54 11 4768 36 43 Fax: +54 11 4768 24 13 Hotline: +54 11 155 307 6781 nakase@usa.net nakase@nakase.com gerencia@nakase.com (Service)	Brazil - Brasilien Bosch Rexroth Ltda. Av. Tégula, 888 Ponte Alta, Atibaia SP CEP 12942-440 Tel.: +55 11 4414 56 92 +55 11 4414 56 84 Fax sales: +55 11 4414 57 07 Fax serv.: +55 11 4414 56 86 alexandre.wittwer@rexroth.com.br	Brazil - Brasilien Bosch Rexroth Ltda. R. Dr.Humberto Pinheiro Vieira, 100 Distrito Industrial [Caixa Postal 1273] 89220-390 Joinville - SC Tel./Fax: +55 47 473 58 33 Mobil: +55 47 9974 6645 prochnow@zaz.com.br
Columbia - Kolumbien Reflutec de Colombia Ltda. Calle 37 No. 22-31 Santafé de Bogotá, D.C. Colombia Tel.: +57 1 368 82 67 +57 1 368 02 59 Fax: +57 1 268 97 37 reflutec@etb.net.co			

Bosch Rexroth AG
Electric Drives and Controls
P.O. Box 13 57
97803 Lohr, Germany
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr, Germany
Phone +49 (0)93 52-40-50 60
Fax +49 (0)93 52-40-49 41
service.svc@boschrexroth.de
www.boschrexroth.com

