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SYNAX200
Decentralized System for the Synchronization of Machine Axes

Parameter Description: Version 07

DOK-SYNAX*-SY*-07VRS**-PA01-EN-P

Rexroth
Indramat

Title
SYNAX200
Decentralized System for the
Synchronization of Machine Axes

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This documentation is a
- specified parameter description of SYNAX version 07 VRS

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1 SYNAX system parameters

1.1 General information

SYNAX has four different types of parameters at its disposal. As a body, these parameters are classified as systems parameters.

C parameters The C parameters entail the axis-overreaching functions. Each C parameter occurs only once in a SYNAX system.

A, S and P parameters The A, S and P parameters determine the behavior of the individual SYNAX axes. Each axis within a SYNAX system contains one set of A, S and P parameters.

The S parameters correspond to the parameters specified in the SERCOS interface standards.

The P parameters are manufacturer or product-specific parameters, defined as such by Indramat, which correspond to SERCOS interface standards as well.

Each system parameter is clearly identified with its own identification number.

The following access rights have been defined:

- **No write protection** parameters which can be altered in any mode.
- **Write protection in operating mode** are parameters that cannot be changed in operating mode, e.g., synchronization mode.
- **Write protected** parameters that may not be altered, e.g., hardware identification.

Note: **S**: parameters are write protected
B: parameters are write protected in operating mode
K: parameters are not write protected

Memory:

- **RAM**
  The operating date is not stored when switching off.
- **FLASH**
  The storage of the operating date must be triggered by "command store A/C-parameters in PSM-module" (parameter C-0-0164). This command is automatically triggered at phase changeover from P2 to P3.
- **nvRAM**
  The operating date is automatically stored in a non-volatile RAM.

2 Parameters arranged according to function

Parameters are summarized for the following functions:

- analogue channels
- cam
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- user
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- winding control without sensors

(Functions in alphabetic order, individual parameters numerically after they are broken down into C, A, S and P parameters, in that order.)

Analogue channels

C-0-0039	Analogue channels - select source parameter	B
C-0-0040	Analogue channels - select target parameter	B
A-0-0008	Analogue channels - analogue input control word	B
A-0-0028	Analogue channels - analogue input weighting	K
A-0-0065	Analogue channels - analogue input offset	K
A-0-0066	Analogue channels - smoothing time constant	K
A-0-0082	Analogue channels - actual value analogue input 1	S
A-0-0083	Analogue channels - actual value analogue input 2	S

Fig. 2-1: Parameter analogue channels

Cam

A-0-0001	Axis type	B
A-0-0002	Position command offset - preset value	K
A-0-0003	Synchronization mode	B
A-0-0004	Position command offset	K
A-0-0005	Position command offset speed	K
A-0-0007	Incremental jogging position of following axes	K
A-0-0017	Position command offset - positive limit	B
A-0-0018	Position command offset - negative limit	B
A-0-0096	Phase offset begin of cam shaft profile	K
A-0-0119	Phase offset begin of cam shaft profile speed	K
A-0-0124	Cam shaft distance	K
A-0-0132	Group command value additive 1	K
A-0-0133	Group command value 1 - drive addresses	B
A-0-0134	Group command value 1 - weighting	K
A-0-0153	Jogging mode with phase synchronization	B
A-0-0154	Group command value 1 - offset speed	K
A-0-0155	Group command value additive 2	K
A-0-0156	Group command value 2 - drive addresses	B
A-0-0157	Group command value 2 - weighting	K
A-0-0158	Group command value 2 - offset speed	K
A-0-0161	Group command value 1 - positive limit	K
A-0-0162	Group command value 1 - negative limit	K
A-0-0163	Group command value 2 - positive limit	K
A-0-0164	Group command value 2 - negative limit	K
S-0-0228	Position synchronization window	K
P-0-0061	Phase offset begin of profile	K
P-0-0072	Cam shaft profile 1	K
P-0-0085	Dynamic phase offset	K
P-0-0092	Cam shaft profile 2	K
P-0-0093	Cam shaft distance	--
P-0-0094	Cam switch angle	--
P-0-0108	Lead drive polarity	B
P-0-0142	Synchronization acceleration	K
P-0-0143	Synchronization velocity	K

P-0-0144	Cam switch angle hub	K
P-0-0151	Synchronization window with modulo format	K
P-0-0154	Synchronization direction	K
P-0-0155	Synchronization mode	B

Fig. 2-2: Parameter cam

Cam switch group

C-0-0016	Cam switch group 1 switch ON angle	K
C-0-0017	Cam switch group 1 switch OFF angle	K
C-0-0018	Cam switch group 2 switch ON angle	K
C-0-0019	Cam switch group 2 switch OFF angle	K
C-0-0020	Cam switch group 3 switch ON angle	K
C-0-0021	Cam switch group 3 switch OFF angle	K
C-0-0022	Cam switch group 4 switch ON angle	K
C-0-0023	Cam switch group 4 switch OFF angle	K
C-0-0034	Cam switch group 5 switch ON angle	K
C-0-0035	Cam switch group 5 switch OFF angle	K
C-0-0036	Cam switch group 6 switch ON angle	K
C-0-0037	Cam switch group 6 switch OFF angle	K
C-0-0049	High speed cam switch group - control word	B
C-0-0050	High speed cam switch group - switch ON/OFF angle	K
C-0-0130	Internal I/O: High speed cam switches outputs	S
A-0-0036	Digital I/O - status	B

Fig. 2-3: Parameter cam switch group

Commands

C-0-0164	Command store A/C-parameters	B

Fig. 2-5: Parameter commands

Communications

C-0-0015	PPC identification number	K
C-0-0033	Host communication - control word	B
C-0-0057	Error number serial interface	S
C-0-0058	Configuration list data block 101	B
C-0-0059	Configuration list data block 102	B
C-0-0060	Configuration list data block 103	B
C-0-0061	Configuration list data block 104	B
C-0-0062	Configuration list data block 105	B
C-0-0063	Configuration list data block 106	B
C-0-0064	Configuration list data block 107	B
C-0-0065	Configuration list data block 108	B
C-0-0078	Configuration list data block 109	B
C-0-0079	Configuration list data block 110	B

C-0-0080	Configuration list data block 111	B
C-0-0081	Configuration list data block 112	B
C-0-0082	Configuration list data block 113	B
C-0-0083	Configuration list data block 114	B
C-0-0084	Configuration list data block 115	B
C-0-0085	Configuration list data block 116	B
C-0-0104	Serial service interface - control word	B
C-0-0123	EAENET2 - group identification number	S
C-0-0124	Serial communication - time Out	K
C-0-0125	Fieldbus address	B
C-0-0126	Fieldbus: length of process data channel	B
C-0-0127	Fieldbus: object list of process input data	B
C-0-0128	Fieldbus: object list of process output data	B
C-0-0129	Fieldbus - control word	B
C-0-0131	Fieldbus - multiplex size	B
C-0-0132	Fieldbus - start address of multiplex channel	B
C-0-0142	SynTop - PPC address for RS485 bus	B
C-0-0147	Host communication: error counter transmission line	K
C-0-0151	DeviceNet - Baudrate	B
C-0-0152	Fieldbus - firmware version	S
C-0-0158	Data blocks - configurable S-/P-parameters, data length	B
C-0-0180	ARCNET participant number	B

Fig. 2-6: Parameter communications

Controller parameters

S-0-0100	Velocity loop proportional gain	K
S-0-0101	Velocity loop integral action time	K
S-0-0104	Position loop KV factor (closed loop control)	K
S-0-0106	Proportional gain 1 current regulator	K
S-0-0159	Monitoring window	K
S-0-0262	C700 command basic load	K
S-0-0348	Proportional gain acceleration feed forward	K
S-0-0392	Velocity feedback value filter time base	B
P-0-0004	Smoothing time constant	K
P-0-0098	Maximum model deviation	K
P-0-0099	Position command smoothing time constant	K
P-0-0121	Velocity mixfactor feedbacks 1 and 2	K

Fig. 2-7: Controller parameters

Dancer control

A-0-0026	Process command value 1	K
A-0-0027	Process actual value	S
A-0-0028	Analogue channels - analogue input weighting	K
A-0-0029	Process controller - integral action time 1	K
A-0-0030	Process controller - proportional gain 1	K
A-0-0061	Process variable window	K

A-0-0062	Maximum process variable - monitor window	K
A-0-0063	Minimum process variable - monitor windowr	K
A-0-0064	Process variable increment	K
A-0-0065	Analogue channels - analogue input offset	K
A-0-0066	Analogue channels - smoothing time constant	K
A-0-0087	Process control - drive addresses	B
A-0-0137	Process controller - actual value 2 (additive velocity)	S
A-0-0138	Process controller - positive limit 2 operation point 2	K
A-0-0139	Process controller - negative limit 2 operation point 2	K
A-0-0146	Process control - control word 2	B
A-0-0150	Process controller - bipolar limit value 2 op. point 1	K
A-0-0160	Process controller - bipolar speed operation point 2	K

Fig. 2-8: Parameter dancer control

Diagnoses

C-0-0041	Indramat service information	K
C-0-0046	SYNAX - error source	S
C-0-0047	SYNAX - diagnostics text	S
C-0-0048	SYNAX - error number	S
C-0-0057	Serial interface error number	S
C-0-0068	List of invalid A and C parameters	S
C-0-0071	SYNAX - current mode	S
C-0-0105	PPC link - MDT error counter	S
C-0-0147	Host communication: error counter transmission line	K
C-0-0153	Error recorder - index	K
C-0-0154	Error recorder - diagnosis message	S
C-0-0155	Error recorder - diagnosis text	S
C-0-0156	Error recorder	S
C-0-0157	Data blocks - configurable S-/P-parameters, ID-number	B
C-0-0159	SYNAX - system time	K
C-0-0163	SYNAX - time of diagnosis	S
C-0-0175	PPC - control unit temperature	S
C-0-0176	PPC - maximum control unit temperature	S
A-0-0095	Drive type	S
A-0-0108	AT error counter	K
S-0-0021	IDN list of invalid operating data for communications phase 2	S
S-0-0022	IDN list of invalid operating data for communications phase 3	S
S-0-0095	Diagnostics message	S
S-0-0390	Diagnostics number	S
P-0-0009	Error number	S

Fig. 2-9: Parameter diagnoses

Digital I/O logic

C-0-0012	I/O - Assignment - file-info	S
C-0-0013	I/O - Assignment int./ext. I/O	B
C-0-0177	I/O - Assignment - source file	B
C-0-0178	I/O - Assignment - source file-info	S
P-0-0081	Parallel I/O output 1	K
P-0-0082	Parallel I/O input 1	S

Fig. 2-10: Parameter digital I/O logic

Drive Halt

S-0-0138	Bipolar acceleration limit value	K
S-0-0349	Jerk bipolar	K

Fig. 2-11: Parameter drive halt

Drive limit values

A-0-0037	Bipolar torque limit - reduced	B
A-0-0038	Bipolar torque limit	B
S-0-0091	Bipolar velocity limit value	K

Fig. 2-12: Parameter drive limit values

Error reaction

P-0-0008	Activate E-Stop function	B
P-0-0117	NC reaction in error situation	B
P-0-0118	Power switch OFF in error situation	B
P-0-0119	Deceleration as best as posible	B

Fig. 2-13: Parameter error reaction

Group parameters

A-0-0132	Group command value additive 1	K
A-0-0133	Group command value 1 - drive addresses	B
A-0-0134	Group command value 1 - weigthing	K
A-0-0154	Group command value 1 - offset speed	K
A-0-0155	Group command value additive 2	K
A-0-0156	Group command value 2 - drive addresses	B
A-0-0157	Group command value 2 - weighting	K
A-0-0158	Group command value 2 - offset speed	K
A-0-0159	ELS master command value additive selection	K
A-0-0161	Group command value 1 - positive limit	K
A-0-0162	Group command value 1 - negative limit	K
A-0-0163	Group command value 2 - positive limit	K
A-0-0164	Group command value 2 - negative limit	K

Fig. 2-14: Group parameters

Homing

S-0-0041	Homing velocity	K
S-0-0042	Homing acceleration	K
S-0-0052	Reference ELS master - speed operating points 1	K
S-0-0054	Reference ELS master - speed operating points 2	K
S-0-0108	Feedrate override	S
S-0-0147	Homing parameter	B
S-0-0148	C600 drive controlled homing procedure command (for diagnostics only)	K
S-0-0150	Reference offset 1	K
S-0-0151	Reference offset 2	K
S-0-0298	Reference cam shifting (for diagnostics only)	S
S-0-0400	Home switch (for diagnostics only)	S
S-0-0403	Position feedback value status (for diagnostics only)	S
P-0-0012	C300 command set absolute measurement	K

Fig. 2-15: Parameter homing

I/O logic

C-0-0089	List of all C parameters	S
C-0-0090	List of all A parameters	S
C-0-0091	Internal I/O: Master axis inputs	K
C-0-0092	Internal I/O: Master axis outputs	S
C-0-0093	Internal I/O: PPC inputs	K
C-0-0094	Internal I/O: PPC outputs 1	S
C-0-0095	Internal I/O: cam switch group 1	S
C-0-0096	Internal I/O: pattern control inputs	K
C-0-0097	Internal I/O: pattern control outputs	S
C-0-0098	Internal I/O: set inputs flip flop 1-32	K
C-0-0099	Internal I/O: reset inputs flip flop 1-32	K
C-0-0100	Internal I/O: outputs flip flop 1-32	S
C-0-0106	Internal I/O: PPC outputs 2	S
C-0-0110	Internal I/O: auxiliary register number	K
C-0-0111	Internal I/O: auxiliary register contents	S
C-0-0112	External I/O: Status local bus slot 1	S
C-0-0113	External I/O: Status local bus slot 2	S
C-0-0114	External I/O: Status local bus slot 3	S
C-0-0115	External I/O: Status local bus slot 4	S
C-0-0116	External I/O: Status local bus slot 5	S
C-0-0117	External I/O: Status local bus slot 6	S
C-0-0118	External I/O: X-Inputs - number	K
C-0-0119	External I/O: X-Inputs - value	S
C-0-0120	External I/O: X-Outputs - number	K
C-0-0121	External I/O: X-Outputs - value	K
C-0-0166	External I/O: Status local bus slot 7	S
C-0-0167	External I/O: Status local bus slot 8	S
C-0-0168	External I/O: Status local bus slot 9	S
C-0-0169	External I/O: Status local bus slot 10	S
C-0-0170	External I/O: Status local bus slot 11	S

C-0-0171	External I/O: Status local bus slot 12	S
C-0-0172	External I/O: Status local bus slot 13	S
C-0-0173	External I/O: Status local bus slot 14	S
C-0-0174	External I/O: Status local bus slot 15	S
A-0-0101	Internal I/O: following axis inputs 1-32	K
A-0-0102	Internal I/O: following axis outputs 1-32	S
A-0-0103	Internal I/O: following axis outputs 33-64	S
A-0-0118	Internal I/O: following axis inputs 33-64	K

Fig. 2-16: Parameter I/O logic

Idle

A-0-0009	Configuration idle mode / set up mode	B
A-0-0011	Idle speed	K
A-0-0012	Idle acceleration	K
A-0-0016	Idle speed increments	K
A-0-0023	Idle speed - positive limit	B
A-0-0024	Idle speed - negative limit	B
A-0-0109	Idle speed 1 - positive limit	B
A-0-0110	Idle speed 1 - negative limit	B
A-0-0111	Idle speed 2 - positive limit	B
A-0-0112	Idle speed 2 - negative limit	B
A-0-0113	Idle speed 3 - positive limit	B
A-0-0114	Idle speed 3 - negative limit	B
A-0-0115	Idle - speed 1	K
A-0-0116	Idle - speed 2	K
A-0-0117	Idle - speed 3	K

Fig. 2-17: Parameter idle

Internal parameters (read and write by PPC controller board)

C-0-0122	Command base parameter load	B
C-0-0135	Command shutdown in flash-programming-mode	B
S-0-0036	Velocity command value	K
S-0-0044	Velocity data scaling type (for diagnostics only)	B
S-0-0076	Position data scaling type (for diagnostics only)	B
S-0-0093	Torque/force scaling factor	S
S-0-0160	Velocity accel scaling data (for diagnostics only)	B
S-0-0258	Target position (for diagnostics only)	K
S-0-0259	Positioning velocity	K
P-0-0019	Position start value	B
P-0-0034	Position command additional actual value	S

Fig. 2-18: Parameter internal parameters (read and write by PPC controller board)

Jogging

C-0-0029	Jogging time constant	B
C-0-0043	Jogging speed	B
C-0-0044	Jogging speed reduced	B
A-0-0013	Jogging mode with speed synchronization	B
A-0-0136	Master drive gear output revolutions increments	K
A-0-0151	Master drive gear output revolutions - positive limit	B
A-0-0152	Master drive gear output revolutions - negative limit	B
A-0-0153	Jogging mode with phase synchronization	B

Fig. 2-19: Parameter jogging

Machine parameters

S-0-0030	Manufacturer version	S
S-0-0079	Rotational position resolution	B
S-0-0109	Motor peak current	S
S-0-0110	Amplifier peak current	S
S-0-0111	Motor current at standstill	S
S-0-0112	Amplifier nominal current	S
S-0-0113	Maximum speed of the motor (nmax)	S
S-0-0140	Controller type	S
S-0-0141	Motor type (for diagnostics only)	S
P-0-0051	Torque/force constant	S
P-0-0525	Type of holding brake	S
P-0-0526	Brake control delay	S
P-0-4004	Magnetization current	B
P-0-4011	Switching frequency	B
P-0-4015	DC bus voltage	B
P-0-4045	Effective continuous current	S
P-0-4046	Effective peak current	S

Fig. 2-20: Machine parameters

Master axis, real

C-0-0003	Real master - standstill window	K
C-0-0004	ELS master - control word	B
C-0-0005	Real master - encoder drive address	B
C-0-0025	Real master - position window	B
C-0-0042	Real master - actual value smoothing time constant	K
C-0-0052	ELS master - speed operating points	K
C-0-0066	ELS master - actual position value	S
C-0-0067	ELS master - actual speed value	S
C-0-0072	Real master - redundant encoder drive address	B
C-0-0073	Real master - redundant encoder monitoring window	B
C-0-0074	Real master - redundant encoder max. position difference	K
C-0-0136	Real master - phase correction	K
C-0-0137	Real master - acceleration correction	K

C-0-0138	Real master - correction value smoothing time constant	K
C-0-0139	Real master - actual phase deviation	S
C-0-0140	Real master - maximum positive phase deviation	K
C-0-0141	Real master - maximum negative phase deviation	K
C-0-0143	Master encoder - output revolutions	K
C-0-0144	Master encoder - input revolutions	K
C-0-0145	Master encoder - offset	K
C-0-0146	ELS master - actual position value absolute format	S
C-0-0148	Real master - absolute reference	K
C-0-0149	ELS master command value additive	K
C-0-0150	ELS master command value offset speed	K
C-0-0161	ELS master command value additive - positive limit	K
C-0-0162	ELS master command value additive - negative limit	K
A-0-0159	ELS master command value additive selection	K
P-0-0052	ELS master - speed operating point 3 (for diagnostics only)	S
P-0-0053	Lead drive position	S
P-0-0059	SSI emulator resolution	B
P-0-0087	Offset position feedback value 3	K
P-0-0108	Lead drive polarity	B
only with FWA-DIAX03-ELS04VRS-MS:		
P-0-0076	Interface position feedback value 3	B
P-0-0077	Position feedback 3 type parameter	B
only with FWA-DIAX03-ELS05VRS-MS FWA-DIAX04-ELS05VRS-MS FWA-ECODR3-SGP-01VRS-MS:		
S-0-0115	Position feedback 2 type parameter	B
P-0-0185	Function of external encoder	

Fig. 2-21: Parameter real master axis

Master axis, virtual

C-0-0004	ELS master - control word	B
C-0-0006	Virtual master axis - velocity command value 1	K
C-0-0008	Virtual master axis - bipolar acceleration limit value	K
C-0-0009	Virtual master axis - deceleration	K
C-0-0010	Virtual master axis - emergency stop deceleration	K
C-0-0026	Virtual master axis - stop position 1	K
C-0-0027	Virtual master axis - stop position 2	K
C-0-0028	Virtual master - speed increment	B
C-0-0030	Virtual master speed 1 - positive limit	B
C-0-0031	Virtual master speed 1 - negative limit	B
C-0-0045	Reserved (virtual master axis - position increment)	K
C-0-0052	ELS master - speed operating points	K
C-0-0053	Virtual master - speed command presetting	K
C-0-0054	Virtual master - velocity command value	K
C-0-0055	Virtual master - speed command - positive limit	B
C-0-0056	Virtual master - speed command - negative limit	B
C-0-0066	ELS master - actual position value	S

C-0-0067	Master axis - actual speed value	S
C-0-0075	Virtual master axis - preset position	K
C-0-0077	Virtual master axis - jerk bipolar	K
C-0-0149	ELS master command value additive	K
C-0-0150	ELS master command value offset speed	K
C-0-0160	ELS master - actual additive position value	K
C-0-0161	ELS master command value additive - positive limit	K
C-0-0162	ELS master command value additive - negative limit	K
A-0-0159	ELS master command value additive selection	K
P-0-0053	Lead drive position	S
P-0-0059	SSI emulator resolution	B
P-0-0108	Lead drive polarity	B

Fig. 2-22: Parameter virtual master axis

Mechanics

A-0-0001	Axis type	B
S-0-0043	Velocity polarity parameter	B
S-0-0049	Positive position limit value	K
S-0-0050	Negative position limit value	K
S-0-0055	Position polarity parmeter	B
S-0-0085	Torque/force polarity parameter	B
S-0-0103	Modulo value	--
S-0-0121	Input revolutions of load gear	B
S-0-0122	Output revolutions of load gear	B
S-0-0123	Feed constant	B
P-0-0097	Absolute encoder control window	K

Fig. 2-23: Parameter mechanics

Monitor outputs

P-0-0038	Signal select analogue channel 1	K
P-0-0039	Signal select analogue channel 2	K
P-0-0040	Scaling factor for velocity data channel 1	K
P-0-0041	Scaling factor for velocity data channel 2	K
P-0-0042	Scaling factor for position data channel 1	K
P-0-0043	Scaling factor for position data channel 2	K

Fig. 2-24: Parameter monitor outputs

Monitoring

S-0-0055	Position polarity parameter	B
S-0-0159	Monitoring window	K
S-0-0201	Motor warning temperature	B
S-0-0204	Motor switchoff temperature	B
S-0-0391	External encoder monitoring window	B
P-0-0008	Activate E-Stop function	B
P-0-0090	Travel limit parameter	B

P-0-0097	Absolute encoder monitoring window	K
P-0-0098	Maximum model deviation	K
P-0-0117	Activate NC reaction in error situation	B
P-0-0118	Power switch OFF in error situation	B
P-0-0119	Deceleration as best as possible	B

Fig. 2-25: Parameter monitoring

Motor/encoder select

S-0-0115	Position feedback 2 type parameter	B
S-0-0117	Resolution of external feedback	B
S-0-0147	Homing parameter	B
S-0-0267	Password	K
S-0-0277	Position feedback 1 type parameter	S
P-0-0074	Motor encoder interface	S
P-0-0075	External encoder interface	B
P-0-0510	Rotor motor of inertia	B
P-0-0511	Break current	S
P-0-4014	Motor type	S

Fig. 2-26: Parameter motor/encoder select

Oscilloscope function

C-0-0107	Oscilloscope function - control word	B
C-0-0108	Oscilloscope function - drive addresses	B
P-0-0021	List of scope data 1	S
P-0-0022	List of scope data 2	S
P-0-0023	Signal select 1 oscilloscope function	K
P-0-0024	Signal select 2 oscilloscope function	K
P-0-0025	Trigger source oscilloscope function	K
P-0-0026	Trigger signal select oscilloscope function	K
P-0-0027	Trigger level for position data	K
P-0-0028	Trigger level for velocity data	K
P-0-0029	Trigger level for torque force data	K
P-0-0030	Trigger edge	K
P-0-0031	Timebase	K
P-0-0032	Size of memory	K
P-0-0033	Number of samples after trigger	K
P-0-0035	Delay from trigger to start	S
P-0-0036	Trigger control word	K
P-0-0037	Trigger status word	S
P-0-0145	Expanded trigger edge oscilloscope function	K
P-0-0146	Expanded trigger address oscilloscope function	K
P-0-0147	Expanded signal address K1 oscilloscope function	K
P-0-0148	Expanded signal address K2 oscilloscope function	K
P-0-0149	Signal select list for oscilloscope function	S
P-0-0150	Number of valid samples for oscilloscope function	S

Fig. 2-27: Parameter oscilloscope function

Pattern control

C-0-0011	Pattern data source	B
C-0-0014	Pattern control status	B
A-0-0001	Axis type	B
A-0-0002	Position command offset presetting	K
A-0-0003	Synchronization mode	B
A-0-0004	Position command offset - target value	K
A-0-0005	Position command offset speed	K
A-0-0007	Incremental jogging position of following axis	K
A-0-0017	Position command offset - positive limit	B
A-0-0018	Position command offset - negative limit	B
A-0-0032	Grid dimension	B
A-0-0033	Compensation value weighting	K
A-0-0039	Negative pattern limit	B
A-0-0040	Positiive pattern limit	B
A-0-0041	Pattern control 1A position target	K
A-0-0042	Pattern control 2A position target	K
A-0-0043	Pattern control 3A position target	K
A-0-0044	Pattern control 1B position target	K
A-0-0045	Pattern control 2B position target	K
A-0-0046	Pattern control 3B position target	K
A-0-0047	Pattern control - step mode A	K
A-0-0048	Pattern control - step mode B	K
A-0-0049	Pattern control - limits between received target positions	B
A-0-0050	Pattern control 1A received target position	S
A-0-0051	Pattern control 2A received target position	S
A-0-0052	Pattern control 3A received target position	S
A-0-0053	Pattern control 1B received target position	S
A-0-0054	Pattern control 2B received target position	S
A-0-0055	Pattern control 3B received target position	S
A-0-0132	Group command value additive 1	K
A-0-0133	Group command value 1 - drive addresses	B
A-0-0134	Group command value 1 - weigthing	K
A-0-0154	Group command value 1 - offset speed	K
A-0-0155	Group command value additive 2	K
A-0-0156	Group command value 2 - drive addresses	B
A-0-0157	Group command value 2 - weighting	K
A-0-0158	Group command value 2 - offset speed	K
A-0-0161	Group command value 1 - positive limit	K
A-0-0162	Group command value 1 - negative limit	K
A-0-0163	Group command value 2 - positive limit	K
A-0-0164	Group command value 2 - negative limit	K
S-0-0048	Position command offset (for diagnostics only)	K
P-0-0061	Phase offset begin of profile	K
P-0-0062	Pattern control profile 2A	B
P-0-0063	Pattern control profile 2A switch angle 1	S
P-0-0064	Pattern control profile 2B	B

P-0-0065	Pattern control profile 2B switch angle 1	S
P-0-0066	Pattern control profile 3A	B
P-0-0067	Pattern control profile 3A switch angle 1	B
P-0-0068	Pattern control profile 3A switch angle 2	B
P-0-0069	Pattern control profile 3B	B
P-0-0070	Pattern control profile 3B switch angle 1	S
P-0-0071	Pattern control profile 3B switch angle 2	B
P-0-0085	Dynamic phase offset	K
P-0-0142	Synchronization acceleration	K
P-0-0143	Synchronization velocity	K
P-0-0151	Synchronization window for modulo format	K
P-0-0154	Synchronization direction	K
P-0-0155	Synchronization mode	B

Fig. 2-28: Parameter pattern control

Phase synchronization

A-0-0001	Axis type	B
A-0-0002	Position command offset - presetting	K
A-0-0003	Synchronization mode	B
A-0-0004	Position command offset target value	K
A-0-0005	Position command offset speed	K
A-0-0007	Incremental jogging position of following axis	K
A-0-0017	Position command offset - positive limit	B
A-0-0018	Position command offset - negative limit	B
A-0-0132	Group command value additive 1	K
A-0-0133	Group command value 1 - drive addresses	B
A-0-0134	Group command value 1 - weigthing	K
A-0-0154	Group command value 1 - offset speed	K
A-0-0155	Group command value additive 2	K
A-0-0156	Group command value 2 - drive addresses	B
A-0-0157	Group command value 2 - weighting	K
A-0-0158	Group command value 2 - offset speed	K
A-0-0161	Group command value 1 - positive limit	K
A-0-0162	Group command value 1 - negative limit	K
A-0-0163	Group command value 2 - positive limit	K
A-0-0164	Group command value 2 - negative limit	K
S-0-0236	Lead drive 1 rotation	B
S-0-0237	Slave drive rotations I	B
P-0-0108	Lead drive polarity	B
P-0-0142	Synchronization acceleration	K
P-0-0143	Synchronization velocity	K
P-0-0151	Synchronization window in modulo format	K
P-0-0154	Synchronization direction	K
P-0-0155	Synchronization mode	B

Fig. 2-29: Parameter phase synchronization

PPC link

C-0-0093	Internal I/O: PPC inputs	K
C-0-0094	Internal I/O: PPC outputs 1	S
C-0-0102	PPC link - control word	B
C-0-0103	PPC link - fiber optic cable (LWL) length	B
C-0-0105	PPC link - MDT error counter	K
C-0-0106	Internal I/O: PPC outputs 2	S
C-0-0109	PPC link - fiber optic cable (LWL) length secondary ring	B
C-0-0179	PPC link - address	B
A-0-0104	PPC link - master selection	K
A-0-0159	ELS master command value additive selection	K

Fig. 2-30: Parameter PPC link

Register control

A-0-0025	Process control control word 1	B
A-0-0074	Register control - dead band	K
A-0-0084	Register control - position command	K
A-0-0085	Register control - start of correction angle	K
A-0-0086	Register control - end of correction angle	K
A-0-0087	Process control - drive addresses	B
A-0-0088	Register control - negative limit monitoring window	K
A-0-0089	Register control - positive limit monitoring window	K
A-0-0090	Register control - smoothing time constant	K
A-0-0091	Register control - proportional gain	K
A-0-0092	Register control - integral action time	K
A-0-0093	Direct register control - correction value	S
A-0-0094	Indirect register control - correction value	S
A-0-0098	Register control - time measuring weighting	B
A-0-0105	Direct register control - correction weighting value	K
A-0-0106	Register control - maximum correction	K
A-0-0107	Register control - target parameter selection	B
A-0-0120	Register control - register deviation	S
A-0-0121	Register control - probe distance	K
A-0-0122	Indirect register control - positive control output limit	K
A-0-0123	Indirect register control - negative control output limit	K
A-0-0125	Register control - position command increments	B
A-0-0126	Master drive gear output revolutions	K
A-0-0127	Register control - max. register mark losses	K
A-0-0128	Register control - probe delay time compensation	K
A-0-0129	Register control - mark gating	B

Fig. 2-31: Parameter register control

Setup mode

A-0-0001	Axis type	B
A-0-0009	Configuration idle mode / set up mode	B
A-0-0034	Setup positions - positive limits	B
A-0-0035	Setup positions - negative limits	B
A-0-0056	Setup position 0	K
A-0-0057	Setup position 1	K
A-0-0058	Setup position 2	K
A-0-0059	Setup position 3	K
A-0-0099	Setup speeds	K
A-0-0135	Setup mode relative - travel distance	K
S-0-0057	Position window	K
S-0-0108	Feedrate override	S
S-0-0124	Standstill window	K
S-0-0193	Positioning window	K
S-0-0260	Positioning acceleration	K
S-0-0393	Command value mode for modulo format	K

Fig. 2-32: Parameter setup mode

Special operating mode

A-0-0070	Special operating modes	B
A-0-0071	Real-time data - special operation mode positioning	B
A-0-0072	Real-time data - special operation mode position control	B
A-0-0073	Real-time data - special operation mode velocity control	B
A-0-0135	Setup mode relative - travel distance	K

Fig. 2-33: Parameter special operating mode

Speed synchronization

A-0-0001	Axis type	B
A-0-0003	Synchronization mode	B
A-0-0013	Jogging mode with speed synchronization	B
A-0-0014	Fine adjustment increments	K
A-0-0015	Speed offset increments	K
A-0-0019	Fine adjustment - positive limit	B
A-0-0020	Fine adjustment additiv - negative limit	B
A-0-0021	Speed offset - positive limit	B
A-0-0022	Speed offset - negative limit	B
A-0-0031	Speed offset	K
A-0-0060	Fine adjustment	K
S-0-0037	Additive velocity command value (for diagnostics only)	K
S-0-0183	Velocity synchronization window	K
S-0-0236	Lead drive 1 rotation	B
S-0-0237	Following drive rotation I	B
P-0-0083	Gain adjustment	K
P-0-0108	Lead drive polarity	B
P-0-0142	Synchronization acceleration	K

Fig. 2-34: Parameter speed synchronization

Synchronization

A-0-0001	Axis type	B
A-0-0003	Synchronization mode	B
A-0-0037	Bipolar torque limit - reduced	B
A-0-0038	Bipolar torque limit	B
P-0-0060	Filter time constant position command offset	K

Fig. 2-35: Parameter synchronization

System configuration

C-0-0001	Startup delay time	K
C-0-0002	Addresses projected drives	B
C-0-0007	Fiber optic cable (LWL) length	B
C-0-0024	PPC - hardware version	S
C-0-0032	PPC - software version	S
C-0-0038	SERCOS interface - configuration	B
C-0-0086	Addresses deactivated drives	S
C-0-0087	Addresses recognized drives	S
C-0-0088	Addresses of operatable drives	S
C-0-0101	SYNAX - powerup target mode	B
C-0-0133	PPC - hardware status	S
C-0-0134	PPC - expansion bus status	S
C-0-0165	PPC - present local bus modules	S
A-0-0006	Drive deactivation	B

Fig. 2-36: Parameter system configuration

Tension control with load cell

A-0-0026	Process command value 1	K
A-0-0027	Process actual value	S
A-0-0028	Analogue channels - analogue input weighting	K
A-0-0029	Process controller - integral action time 1	K
A-0-0030	Process controller - proportional gain 1	K
A-0-0060	Fine adjustment	K
A-0-0061	Process variable window	K
A-0-0062	Maximum process variable - monitor window	K
A-0-0063	Minimum process variable - monitor windowr	K
A-0-0064	Process variable increment	K
A-0-0065	Analogue channels - analogue input offset	K
A-0-0066	Analogue channels - smoothing time constant	K
A-0-0067	Process controller - actual value 1 (fine adjustment)	S
A-0-0068	Process controller - positive limit 1	K
A-0-0069	Process controller - negative limit 1	K
A-0-0075	Process controller - preset 1 (fine adjustment)	K
A-0-0087	Process control - drive addresses	B
A-0-0126	Master drive gear output revolutions	K

A-0-0130	Process controller 1 - p-gain adaption operation point 1	K
A-0-0131	Process controller 1 - p-gain adaption operation point 2	K
A-0-0140	Process controller - actual value 3 (master drive gear)	S
A-0-0141	Process controller - positive limit 3	K
A-0-0142	Process controller - negative limit 3	K
A-0-0143	Process controller - preset 3 (master drive gear)	K
A-0-0146	Process control - control word 2	B

Fig. 2-37: Parameter tension control with load cell

Troubleshooting (read and write by PPC controller board)

S-0-0011	C1D (for diagnostics only)	S
S-0-0012	C2D (for diagnostics only)	S
S-0-0013	C3D (for diagnostics only)	S
S-0-0030	Manufacturer version	S
S-0-0037	Additive velocity command value	K
S-0-0047	Position command value (for diagnostics only)	K
S-0-0051	Position feedback value 1 (motor encoder)	S
S-0-0053	Position feedback value 2	S
S-0-0080	Torque/force command	K
S-0-0084	Torque/force feedback value	K
S-0-0092	Torque/force bipolar limit	K
S-0-0160	Acceleration data scaling type (for diagnostics only)	B
S-0-0182	Manufacturer C3D (for diagnostics only)	S
S-0-0189	Following error	S
S-0-0383	Motor temperatur	S
P-0-0010	Excessive poition command	S
P-0-0011	Last valid position command value	S
P-0-0088	Cam shaft control	K
P-0-0089	Cam shaft status	B

Fig. 2-38: Parameter troubleshooting (read and write by PPC controller board)

User

C-0-0069	SYNAX - application type	K
C-0-0070	SYNAX - application data	K
C-0-0076	SYNAX - language select	B
S-0-0142	Application type	K
S-0-0265	Language select	K
P-0-0124	Assignment IDN -> DEA- output	K
P-0-0125	Assignment DEA - input -> IDN	K

Fig. 2-39: Parameter user

Winding control with dancer

A-0-0026	Process command value 1	K
A-0-0027	Process actual value	S
A-0-0029	Process controller - integral action time 1	K
A-0-0030	Process controller - proportional gain 1	K
A-0-0060	Fine adjustment	K
A-0-0061	Process variable window	K
A-0-0064	Process variable increments	K
A-0-0067	Process controller - actual value 1 (fine adjustment)	S
A-0-0068	Process controller - positive limit 1	K
A-0-0069	Process controller - negative limit 1	K
A-0-0075	Process controller - preset 1 (fine adjustment)	K
A-0-0076	Process controller - minimum reel diameter	B
A-0-0077	Process controller - current reel diameter	S
A-0-0078	Process controller - reel diameter - preset	K
A-0-0100	Winding control - reference axis drive address	B
A-0-0137	Process controller - actual value 2 (additive velocity)	S
A-0-0138	Process controller - positive limit 2 operation point 2	K
A-0-0139	Process controller - negative limit 2 operation point 2	K
A-0-0144	Process controller - maximum reel diameter	K
A-0-0146	Process control - control word 2	B
A-0-0147	Process controller - diameter smoothing time op. point 1	K
A-0-0148	Process controller - diameter smoothing time op. point 2	K
A-0-0149	Process controller - reference diameter	K
A-0-0150	Process controller - bipolar limit value 2 op. point 1	K
A-0-0160	Process controller - bipolar speed operation point 2	K
P-0-0156	Master drive gear - input revolutions	
P-0-0157	Master drive gear - output revolutions	

Fig. 2-40: Parameter winding control with dancer

Winding control without sensors

A-0-0026	Process command value 1	K
A-0-0027	Process actual value	S
A-0-0060	Fine adjustment	K
A-0-0061	Process variable window	K
A-0-0064	Process variable increments	K
A-0-0067	Process controller - actual value 1 (fine adjustment)	S
A-0-0075	Process controller - preset 1 (fine adjustment)	K
A-0-0076	Process controller - minimum reel diameter	B
A-0-0077	Process controller - current reel diameter	S
A-0-0078	Process controller - reel diameter - preset	K
A-0-0079	Process variable setpoint 2	K
A-0-0080	Friction at standstill	K
A-0-0081	Friction at maximum speed	K
A-0-0097	Tension speed	K
A-0-0100	Winding control - reference axis drive address	B

A-0-0146	Process control - control word 2	B
S-0-0080	Torque/force command	K
S-0-0092	Bipolar torque/force limit value	K
S-0-0236	Lead drive 1 rotation	B
S-0-0237	Slave drive rotation I	B

Fig. 2-41: Parameter winding control without sensors

3 Parameters in numeric order

Overview of C parameters

C-0-0001	Start up delay time	K
C-0-0002	Addresses projected drives	B
C-0-0003	Real master - standstill window	K
C-0-0004	ELS master - control word	B
C-0-0005	Real master - encoder drive address	B
C-0-0006	Virtual master - speed-command 1	K
C-0-0007	Fiber optic cable (LWL) length	B
C-0-0008	Virtual master - bipolar acceleration	K
C-0-0009	Virtual master - deceleration	K
C-0-0010	Virtual master - emergency stop deceleration	K
C-0-0011	Pattern data - source	B
C-0-0012	I/O - assignment - file info	S
C-0-0013	I/O - assignment of internal/external I/Os	B
C-0-0014	Pattern control status	B
C-0-0015	PPC identification number	K
C-0-0016	Cam switch group 1 - switch 1 ON angle	K
C-0-0017	Cam switch group 1 - switch 1 OFF angle	K
C-0-0018	Cam switch group 1 - switch 2 ON angle	K
C-0-0019	Cam switch group 1 - switch 2 OFF angle	K
C-0-0020	Cam switch group 1 - switch 3 ON angle	K
C-0-0021	Cam switch group 1 - switch 3 OFF angle	K
C-0-0022	Cam switch group 1 - switch 4 ON angle	K
C-0-0023	Cam switch group 1 - switch 4 OFF angle	K
C-0-0024	PPC - hardware version	S
C-0-0025	Real master - position window	B
C-0-0026	Virtual master - stop position 1	K
C-0-0027	Virtual master - stop position 2	K
C-0-0028	Virtual master - speed increment	B
C-0-0029	Jogging time constant	B
C-0-0030	Virtual master speed 1 - positive limit	B
C-0-0031	Virtual master speed 1 - negative limit	B
C-0-0032	PPC - firmware version	S
C-0-0033	Host communication - control word	B
C-0-0034	Cam switch group 1 - switch 5 ON angle	K
C-0-0035	Cam switch group 1 - switch 5 OFF angle	K
C-0-0036	Cam switch group 1 - switch 6 ON angle	K
C-0-0037	Cam switch group 1 - switch 6 OFF angle	K
C-0-0038	SERCOS interface - configuration	B
C-0-0039	Analogue channels - select source parameters	B
C-0-0040	Analogue channels - select target parameters	B
C-0-0041	Indramat service information	K
C-0-0042	Real master - actual value smoothing time constant	K
C-0-0043	Jogging speed	B
C-0-0044	Reduced jogging speed	B

C-0-0045	Reserved (virtual master - position increment)	K
C-0-0046	SYNAX - error source	S
C-0-0047	SYNAX - diagnostics text	S
C-0-0048	SYNAX - error number	S
C-0-0049	High speed cam switches - control word	B
C-0-0050	High speed cam switches - ON/ OFF angle	K
C-0-0051	Reserved	
C-0-0052	ELS master - speed operating points	K
C-0-0053	Virtual master - speed command pre-setting	K
C-0-0054	Virtual master - speed commands	K
C-0-0055	Virtual master - speed command positive limits	B
C-0-0056	Virtual master - speed command negative limits	B
C-0-0057	Serial interface error number	S
C-0-0058	Configuration list data block 101	B
C-0-0059	Configuration list data block 102	B
C-0-0060	Configuration list data block 103	B
C-0-0061	Configuration list data block 104	B
C-0-0062	Configuration list data block 105	B
C-0-0063	Configuration list data block 106	B
C-0-0064	Configuration list data block 107	B
C-0-0065	Configuration list data block 108	B
C-0-0066	ELS master - actual position value	S
C-0-0067	ELS master - actual speed value	S
C-0-0068	List of invalid A and C parameters	S
C-0-0069	SYNAX - application type	K
C-0-0070	SYNAX - application data	K
C-0-0071	SYNAX - current mode	S
C-0-0072	Real master - redundant encoder drive address	B
C-0-0073	Real master - redundant encoder monitoring window	B
C-0-0074	Real master - redundant encoder max. position difference	K
C-0-0075	Virtual master - preset position	K
C-0-0076	SYNAX - language selection	B
C-0-0077	Virtual master - bipolar jerk	K
C-0-0078	Configuration list data block 109	B
C-0-0079	Configuration list data block 110	B
C-0-0080	Configuration list data block 111	B
C-0-0081	Configuration list data block 112	B
C-0-0082	Configuration list data block 113	B
C-0-0083	Configuration list data block 114	B
C-0-0084	Configuration list data block 115	B
C-0-0085	Configuration list data block 116	B
C-0-0086	Addresses deactivated drives	B
C-0-0087	Addresses recognized drives	S
C-0-0088	Addresses operatable drives	S
C-0-0089	List of all C parameters	S
C-0-0090	List of all A parameters	S
C-0-0091	Internal I/O: master axis inputs	K

C-0-0092	Internal I/O: master axis outputs	S
C-0-0093	Internal I/O: PPC inputs	K
C-0-0094	Internal I/O: PPC outputs 1	S
C-0-0095	Internal I/O: cam switch group 1	S
C-0-0096	Internal I/O: pattern control inputs	K
C-0-0097	Internal I/O: pattern control outputs	S
C-0-0098	Internal I/O: set inputs flip-flop 1-32	K
C-0-0099	Internal I/O: reset inputs flip-flop 1-32	K
C-0-0100	Internal I/O: outputs flip-flop 1-32	S
C-0-0101	SYNAX - power up target mode	B
C-0-0102	PPC-link - control word	B
C-0-0103	PPC-link - fiber optic cable (LWL) length	B
C-0-0104	Serial service interface - control word	B
C-0-0105	PPC-link - MDT error counter	K
C-0-0106	Internal I/O: PPC outputs 2	S
C-0-0107	Oscilloscope function - control word	B
C-0-0108	Oscilloscope function - drive addresses	B
C-0-0109	PPC-link - fiber optic cable (LWL) length secondary ring	B
C-0-0110	Internal I/O: auxiliary register number	K
C-0-0111	Internal I/O: auxiliary register value	S
C-0-0112	External I/O: Status local bus slot 1	S
C-0-0113	External I/O: Status local bus slot 2	S
C-0-0114	External I/O: Status local bus slot 3	S
C-0-0115	External I/O: Status local bus slot 4	S
C-0-0116	External I/O: Status local bus slot 5	S
C-0-0117	External I/O: Status local bus slot 6	S
C-0-0118	External I/O: X-Inputs - number	K
C-0-0119	External I/O: X-Inputs - value	S
C-0-0120	External I/O: X-Outputs - number	K
C-0-0121	External I/O: X-Outputs - value	K
C-0-0122	Command base parameter load	B
C-0-0123	EAENET2 - group identification number	S
C-0-0124	Serial communication - time out	K
C-0-0125	Fieldbus address	B
C-0-0126	Fieldbus: length of process data channel	B
C-0-0127	Fieldbus: object list of process input data	B
C-0-0128	Fieldbus: object list of process output data	B
C-0-0129	Fieldbus - control word	B
C-0-0130	Internal I/O: high speed cam switches outputs	S
C-0-0131	Fieldbus - multiplex size	B
C-0-0132	Fieldbus: start address of multiplex channel	B
C-0-0133	PPC - hardware status	S
C-0-0134	PPC - expansion bus status	S
C-0-0135	Command shutdown in flash-programming-mode	B
C-0-0136	Real master - phase correction	K
C-0-0137	Real master - acceleration correction	K
C-0-0138	Real master - correction value smoothing time constant	K
C-0-0139	Real master - actual phase deviation	S

C-0-0140	Real master - maximum positive phase deviation	K
C-0-0141	Real master - maximum negative phase deviation	K
C-0-0142	SynTop - PPC address for RS485 bus	B
C-0-0143	Master encoder - output revolutions	K
C-0-0144	Master encoder - input revolutions	K
C-0-0145	Master encoder - offset	K
C-0-0146	ELS master - actual position value absolute format	S
C-0-0147	Host communication: error counter transmission line	K
C-0-0148	Real master - absolute reference	K
C-0-0149	ELS master command value additive	K
C-0-0150	ELS master command value offset speed	K
C-0-0151	DeviceNet - Baudrate	B
C-0-0152	Fieldbus - firmware version	S
C-0-0153	Error recorder - index	K
C-0-0154	Error recorder - diagnosis message	S
C-0-0155	Error recorder - diagnosis text	S
C-0-0156	Error recorder	S
C-0-0157	Data blocks - configurable S-/P-parameters, ID-number	B
C-0-0158	Data blocks - configurable S-/P-parameters, data length	B
C-0-0159	SYNAX - system time	K
C-0-0160	ELS master - actual additive position value	K
C-0-0161	ELS master command value additive - positive limit	K
C-0-0162	ELS master command value additive - negative limit	K
C-0-0163	SYNAX - time of diagnosis	S
C-0-0164	Command store A/C-parameters in PSM-module	B
C-0-0165	PPC - present local bus modules	S
C-0-0166	External I/O: Status local bus slot 7	S
C-0-0167	External I/O: Status local bus slot 8	S
C-0-0168	External I/O: Status local bus slot 9	S
C-0-0169	External I/O: Status local bus slot 10	S
C-0-0170	External I/O: Status local bus slot 11	S
C-0-0171	External I/O: Status local bus slot 12	S
C-0-0172	External I/O: Status local bus slot 13	S
C-0-0173	External I/O: Status local bus slot 14	S
C-0-0174	External I/O: Status local bus slot 15	S
C-0-0174	External I/O: Status local bus slot 15	S
C-0-0175	PPC - control unit temperature	S
C-0-0176	PPC - maximum control unit temperature	S
C-0-0177	I/O - Assignment - source file	B
C-0-0178	I/O - Assignment - source file-info	S
C-0-0179	PPC link - address	B
C-0-0180	ARCNET participant number	B

Fig. 3-1: Overview of C parameters

Overview of A parameters

A-0-0001	Axis type	B
A-0-0002	Position command offset - preset value	K
A-0-0003	Synchronization mode	B
A-0-0004	Position command offset	K
A-0-0005	Position command offset speed	K
A-0-0006	Drive deactivation	K
A-0-0007	Incremental jogging position of following axis	K
A-0-0008	Analogue channels - analogue input control word	B
A-0-0009	Configuration idle mode / set up mode	B
A-0-0010	Reserved	
A-0-0011	Idle speed 0	K
A-0-0012	Idle acceleration	K
A-0-0013	Jogging mode with speed synchronization	B
A-0-0014	Fine adjustment increments	K
A-0-0015	Speed offset increments	K
A-0-0016	Idle speed increments	K
A-0-0017	Position command offset - positive limit	B
A-0-0018	Position command offset - negative limit	B
A-0-0019	Fine adjustment - positive limit	B
A-0-0020	Fine adjustment - negative limit	B
A-0-0021	Speed offset - positive limit	B
A-0-0022	Speed offset - negative limit	B
A-0-0023	Idle speed 0 - positive limit	B
A-0-0024	Idle speed 0 - negative limit	B
A-0-0025	Process control - control word 1	B
A-0-0026	Process command value 1	K
A-0-0027	Process actual value	S
A-0-0028	Analogue channels - analogue input weighting	K
A-0-0029	Process controller - integral action time 1	K
A-0-0030	Process controller - proportional gain 1	K
A-0-0031	Velocity synchronization - speed offset	K
A-0-0032	Pattern control - grid dimension	B
A-0-0033	Pattern control - compensation value weighting	K
A-0-0034	Set up positions - positive limits	B
A-0-0035	Set up positions - negative limits	B
A-0-0036	Digital I/O - configuration	B
A-0-0037	Bipolar torque limit - reduced	B
A-0-0038	Bipolar torque limit	B
A-0-0039	Negative pattern limit	B
A-0-0040	Positive pattern limit	B
A-0-0041	Pattern control - target position 1A	K
A-0-0042	Pattern control - target position 2A	K
A-0-0043	Pattern control - target position 3A	K
A-0-0044	Pattern control - target position 1B	K
A-0-0045	Pattern control - target position 2B	K
A-0-0046	Pattern control - target position 3B	K

A-0-0047	Pattern control - step mode A	K
A-0-0048	Pattern control - step mode B	K
A-0-0049	Pattern control - limits between received target positions	B
A-0-0050	Pattern control - received target position 1A	S
A-0-0051	Pattern control - received target position 2A	S
A-0-0052	Pattern control - received target position 3A	S
A-0-0053	Pattern control - received target position 1B	S
A-0-0054	Pattern control - received target position 2B	S
A-0-0055	Pattern control - received target position 3B	S
A-0-0056	Set-up position 0	K
A-0-0057	Set-up position 1	K
A-0-0058	Set-up position 2	K
A-0-0059	Set-up position 3	K
A-0-0060	Fine adjustment	K
A-0-0061	Process variable window	K
A-0-0062	Maximum process variable - monitoring window	K
A-0-0063	Minimum process variable - monitoring window	K
A-0-0064	Process variable increments	K
A-0-0065	Analogue channels - analogue input offset	K
A-0-0066	Analogue channels - smoothing time constant	K
A-0-0067	Process controller - actual value 1 (fine adjustment)	S
A-0-0068	Process controller - positive limit 1	K
A-0-0069	Process controller - negative limit 1	K
A-0-0070	Special operation mode	B
A-0-0071	Real-time data - special operation mode positioning	B
A-0-0072	Real-time data - special operation mode position control	B
A-0-0073	Real-time data - special operation mode velocity control	B
A-0-0074	Register control - dead band	K
A-0-0075	Process controller - preset 1 (fine adjustment)	K
A-0-0076	Process controller - minimum reel diameter	B
A-0-0077	Process controller - current reel diameter	S
A-0-0078	Process controller - reel diameter - preset	K
A-0-0079	Process variable setpoint 2	K
A-0-0080	Friction at standstill	K
A-0-0081	Friction at maximum speed	K
A-0-0082	Analogue channels - actual value analogue input 1	S
A-0-0083	Analogue channels - actual value analogue input 2	S
A-0-0084	Register control - position command	K
A-0-0085	Register control - start of correction angle	K
A-0-0086	Register control - end of correction angle	K
A-0-0087	Process control - drive addresses	B
A-0-0088	Register control - negative limit monitoring window	K
A-0-0089	Register control - positive limit monitoring window	K
A-0-0090	Register control - smoothing time constant	K
A-0-0091	Register control - proportional gain	K
A-0-0092	Register control - integral action time	K
A-0-0093	Direct register control - correction value	S
A-0-0094	Indirect register control - correction value	S

A-0-0095	Drive type	S
A-0-0096	Phase offset begin of cam shaft profile	K
A-0-0097	Tension speed	K
A-0-0098	Register control - time measuring weighting	B
A-0-0099	Set-up speeds	K
A-0-0100	Winding control - reference axis drive address	B
A-0-0101	Internal I/O: following axis inputs 1-32	K
A-0-0102	Internal I/O: following axis outputs 1-32	S
A-0-0103	Internal I/O: following axis outputs 33-64	S
A-0-0104	PPC-link - master selection	K
A-0-0105	Direct register control - correction value weighting	K
A-0-0106	Register control - maximum correction	K
A-0-0107	Register control - target parameter selection	B
A-0-0108	AT error counter	K
A-0-0109	Idle speed 1 - positive limit	B
A-0-0110	Idle speed 1 - negative limit	B
A-0-0111	Idle speed 2 - positive limit	B
A-0-0112	Idle speed 2 - negative limit	B
A-0-0113	Idle speed 3 - positive limit	B
A-0-0114	Idle speed 3 - negative limit	B
A-0-0115	Idle speed 1	K
A-0-0116	Idle speed 2	K
A-0-0117	Idle speed 3	K
A-0-0118	Internal I/O: following axis inputs 33-64	K
A-0-0119	Phase offset begin of cam shaft profile speed	K
A-0-0120	Register control - register deviation	S
A-0-0121	Register control - probe distance	K
A-0-0122	Indirect register control - positive control output limit	K
A-0-0123	Indirect register control - negative control output limit	K
A-0-0124	Cam shaft distance	K
A-0-0125	Register control - position command increments	B
A-0-0126	Master drive gear output revolutions	K
A-0-0127	Register control - max. register mark losses	K
A-0-0128	Register control - probe delay time compensation	K
A-0-0129	Register control - mark gating	B
A-0-0130	Process controller 1 - p-gain adaption operation point 1	K
A-0-0131	Process controller 1 - p-gain adaption operation point 2	K
A-0-0132	Group command value additive 1	K
A-0-0133	Group command value 1 - drive addresses	B
A-0-0134	Group command value 1 - weighting	K
A-0-0135	Setup mode relative - travel distance	K
A-0-0136	Master drive gear output revolutions increments	K
A-0-0137	Process controller - actual value 2 (additive velocity)	S
A-0-0138	Process controller - positive limit 2 operation point 2	K
A-0-0139	Process controller - negative limit 2 operation point 2	K
A-0-0140	Process controller - actual value 3 (master drive gear)	S
A-0-0141	Process controller - positive limit 3	K
A-0-0142	Process controller - negative limit 3	K

A-0-0143	Process controller - preset 3 (master drive gear)	K
A-0-0144	Process controller - maximum reel diameter	K
A-0-0145	Reserved	
A-0-0146	Process control - control word 2	B
A-0-0147	Process controller - diameter smoothing time op. point 1	K
A-0-0148	Process controller - diameter smoothing time op. point 2	K
A-0-0149	Process controller - reference diameter	K
A-0-0150	Process controller - bipolar limit value 2 op. point 1	K
A-0-0151	Master drive gear output revolutions - positive limit	B
A-0-0152	Master drive gear output revolutions - negative limit	B
A-0-0153	Jogging mode with phase synchronization	B
A-0-0154	Group command value 1 - offset speed	K
A-0-0155	Group command value additive 2	K
A-0-0156	Group command value 2 - drive addresses	B
A-0-0157	Group command value 2 - weighting	K
A-0-0158	Group command value 2 - offset speed	K
A-0-0159	ELS master command value additive selection	K
A-0-0160	Process controller - bipolar speed operation point 2	K
A-0-0161	Group command value 1 - positive limit	K
A-0-0162	Group command value 1 - negative limit	K
A-0-0163	Group command value 2 - positive limit	K
A-0-0164	Group command value 2 - negative limit	K

Fig. 3-2: Overview of A parameters

Overview of S parameters

The following list only contains parameters relevant to SYNAX applications.

S-0-0011	Class 1 diagnostics	S
S-0-0012	Class 2 diagnostics	S
S-0-0013	Class 3 diagnostics	S
S-0-0021	IDN list of invalid operating data for communications phase 2	S
S-0-0022	IDN list of invalid operating data for communications phase 3	S
S-0-0030	Manufacturer version	S
S-0-0036	Velocity command value	K
S-0-0037	Additive velocity command value	K
S-0-0040	Velocity feedback value	S
S-0-0041	Homing velocity	K
S-0-0042	Homing acceleration	K
S-0-0043	Velocity polarity parameter	B
S-0-0044	Velocity data scaling type (for diagnostics only)	B
S-0-0047	Position command value (for diagnostics only)	K
S-0-0048	Position command value additional (for diagnostics only)	K
S-0-0049	Positive position limit value	K
S-0-0050	Negative position limit value	K
S-0-0051	Position feedback value 1 (motor feedback)	S
S-0-0052	Reference distance 1	K
S-0-0053	Position feedback value 2 (ext. feedback)	S
S-0-0054	Reference distance 2	K
S-0-0055	Position polarity parameter	B
S-0-0057	Position window	K
S-0-0076	Position data scaling type (for diagnostics only)	B
S-0-0079	Rotational position resolution	B
S-0-0080	Torque/force command	K
S-0-0084	Torque/force feedback value	K
S-0-0085	Torque/force polarity parameter	B
S-0-0091	Bipolar velocity limit value	K
S-0-0092	Bipolar torque/force limit value	K
S-0-0093	Torque/force data scaling factor	S
S-0-0095	Diagnostic message	S
S-0-0100	Velocity loop proportional gain	K
S-0-0101	Velocity loop integral action time	K
S-0-0103	Modulo value	
S-0-0104	Position loop KV factor (closed-loop control)	K
S-0-0106	Proportional gain 1 current regulator	K
S-0-0108	Feedrate override	S
S-0-0109	Motor peak current	S
S-0-0110	Amplifier peak current	S
S-0-0111	Motor current at standstill	S
S-0-0112	Amplifier nominal current	S
S-0-0113	Maximum motor velocity (n_{max})	S

S-0-0115	Position feedback 2 type parameter	B
S-0-0117	Resolution of external feedback	B
S-0-0121	Input revolutions of load gear	B
S-0-0122	Output revolutions of load gear	B
S-0-0123	Feed constant	B
S-0-0124	Standstill window	K
S-0-0138	Bipolar acceleration limit value	K
S-0-0140	Controller type	S
S-0-0141	Motor type (for diagnostics only)	S
S-0-0142	Application type	K
S-0-0147	Homing parameter	B
S-0-0148	C600 drive controlled homing procedure command	K
S-0-0150	Reference offset 1	K
S-0-0151	Reference offset 2	K
S-0-0159	Monitoring window	K
S-0-0160	Acceleration data scaling type (for diagnostics only)	B
S-0-0182	Manufacturer class 3 diagnostics	S
S-0-0183	Velocity synchronization window	K
S-0-0189	Following error	S
S-0-0193	Positioning jerk	K
S-0-0201	Motor warning temperature	B
S-0-0204	Motor switch off temperature	B
S-0-0228	Position synchronization window	K
S-0-0236	Lead drive 1 rotation	B
S-0-0237	Slave drive rotation I	B
S-0-0258	Target position (for diagnostics only)	K
S-0-0259	Positioning velocity	K
S-0-0260	Positioning acceleration	K
S-0-0262	C700 command basic load	K
S-0-0265	Language selection	K
S-0-0267	Password	K
S-0-0277	Position feedback 1 type parameter	S
S-0-0298	Reference cam shifting	S
S-0-0348	Proportional gain acceleration feed forward	K
S-0-0349	Jerk bipolar	K
S-0-0383	Motor temperature	S
S-0-0390	Diagnostic message number	S
S-0-0391	External encoder monitoring window	B
S-0-0392	Velocity feedback value filtertimebase	B
S-0-0393	Command value mode for modulo format	K
S-0-0400	Home switch (for diagnostics only)	S
S-0-0403	Position feedback value status (for diagnostics only)	S

Fig. 3-3: Overview of S parameters

Overview of P parameters

This list only contains parameters relevant to SYNAX applications.

P-0-0004	Smoothing time constant	K
P-0-0008	Activation E-stop function	B
P-0-0009	Error message number	S
P-0-0010	Excessive position command	S
P-0-0011	Last valid position command value	S
P-0-0012	C300 command 'set absolute measurement'	K
P-0-0019	Position start value	B
P-0-0021	List of scope-data 1	S
P-0-0022	List of scope-data 2	S
P-0-0023	Signal select channel 1	K
P-0-0024	Signal select channel 2	K
P-0-0025	Trigger source	K
P-0-0026	Trigger signal select	K
P-0-0027	Trigger level for position data	K
P-0-0028	Trigger level for velocity data	K
P-0-0029	Trigger level for torque/force data	K
P-0-0030	Trigger edge	K
P-0-0031	Time base	K
P-0-0032	Size of memory	K
P-0-0033	Number of samples after trigger	K
P-0-0034	Position command additional actual value	S
P-0-0035	Delay from trigger to start	S
P-0-0036	Trigger control word	K
P-0-0037	Trigger status word	S
P-0-0038	Signal select analogue output channel 1	K
P-0-0039	Signal select analogue output channel 2	K
P-0-0040	Scaling factor for velocity data channel 1	K
P-0-0041	Scaling factor for velocity data channel 2	K
P-0-0042	Scaling factor for position data channel 1	K
P-0-0043	Scaling factor for position data channel 2	K
P-0-0049	Target position pattern control profile (for diagnostics only)	K
P-0-0051	Torque/force-constant	S
P-0-0052	Position feedback value 3 (for diagnostics only)	S
P-0-0053	Lead drive position	S
P-0-0059	SSI-emulator-resolution	B
P-0-0060	Filter time constant additional pos. command	K
P-0-0061	Phase offset begin of profile	K
P-0-0062	Pattern control profile 2A	B
P-0-0063	Pattern control profile 2A - switch angle 1	S
P-0-0064	Pattern control profile 2B	B
P-0-0065	Pattern control profile 2B - switch angle 1	S
P-0-0066	Pattern control profile 3A	B
P-0-0067	Pattern control profile 3A - switch angle 1	B
P-0-0068	Pattern control profile 3A - switch angle 2	B

P-0-0069	Pattern control profile 3B	B
P-0-0070	Pattern control profile 3B - switch angle 1	B
P-0-0071	Pattern control profile 3B - switch angle 2	B
P-0-0072	Cam shaft profile 1	K
P-0-0074	Interface feedback 1	S
P-0-0075	Interface feedback 2	B
P-0-0076	Interface position feedback value 3	B
P-0-0077	Position feedback 3 type parameter	B
P-0-0079	Info destination position (for diagnostics/display only)	K
P-0-0081	Parallel I/O output 1	K
P-0-0082	Parallel I/O input 1	S
P-0-0083	Gain adjust	K
P-0-0085	Dynamic phase offset	K
P-0-0087	Offset position feedback value 3	K
P-0-0088	Cam shaft control	K
P-0-0089	Cam shaft status	B
P-0-0090	Travel limit parameter	B
P-0-0092	Cam shaft profile 2	K
P-0-0093	Cam shaft distance	--
P-0-0094	Cam shaft switch angle	--
P-0-0097	Absolut-encoder-control-window	K
P-0-0098	Maximum model deviation	K
P-0-0099	Position command smoothing time constant (in preperation)	K
P-0-0108	Lead drive polarity	B
P-0-0117	NC reaction in error situation	B
P-0-0118	Power switch OFF in error situation	B
P-0-0119	Deceleration as best as possible	B
P-0-0121	Velocity-mixfactor feedback1 & feedback2 (in preperation)	K
P-0-0124	Assignment IDN –> DEA output	K
P-0-0125	Assignment DEA input –> IDN	K
P-0-0142	Synchronization acceleration	K
P-0-0143	Synchronization velocity	K
P-0-0144	Cam shaft distance switch angle	
P-0-0145	Expanded trigger edge	K
P-0-0146	Expanded trigger adresse	K
P-0-0147	Expanded signal K1 adresse	K
P-0-0148	Expanded signal K2 adresse	K
P-0-0149	List of signals for oscilloscope function	S
P-0-0150	Number of valid samples for oscilloscope function	S
P-0-0151	Synchronization init window for modulo format	K
P-0-0154	Synchronization direction	K
P-0-0155	Synchronization mode	B
P-0-0510	Moment of inertia of the rotor	B
P-0-0511	Break current	S
P-0-0525	Type of break	S
P-0-0526	Brake control delay	S

P-0-4004	Magnetizing current	B
P-0-4011	Switching frequency (in preperation)	B
P-0-4014	Motor type	S
P-0-4015	Circle voltage	B
P-0-4045	Active duration current (in preperation)	S
P-0-4046	Active peak current (in preperation)	S

Fig. 3-4: Overview of P parameters

4 C parameter descriptions

C-0-0001 Start up delay time

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

C-0-0001 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 ms
Minimum input value:	--
Maximum input value:	--
Default value:	4000 ms
Access:	no write protection
Memory:	nvRAM

C-0-0002 Addresses projected drives

All drive addresses that should be in the SERCOS interface ring are entered in this list.

Agreement between this list and the actual drives present when starting up the SERCOS interface ring is checked here.

C-0-0002 Attributes

Data length:	2 bytes variable length (max: 198 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	40
Default value:	0002 (actual length) 0198 (maximum length) 1 (one drive with address 1)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0003 Real master - standstill window

The real master axis is monitored for zero speed.

If the speed of the real master axis is less than the window specified here, then the "virtual/real master standstill" (_A:L01.10) is set.

A change in this parameter is accepted only when switching into operating mode.

C-0-0003 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	--
Maximum input value:	--
Default value:	0.5000 rpm
Access:	no write protection
Memory:	nvRAM

C-0-0004 ELS master - control word

This parameter describes the performance of the ELS master axis.

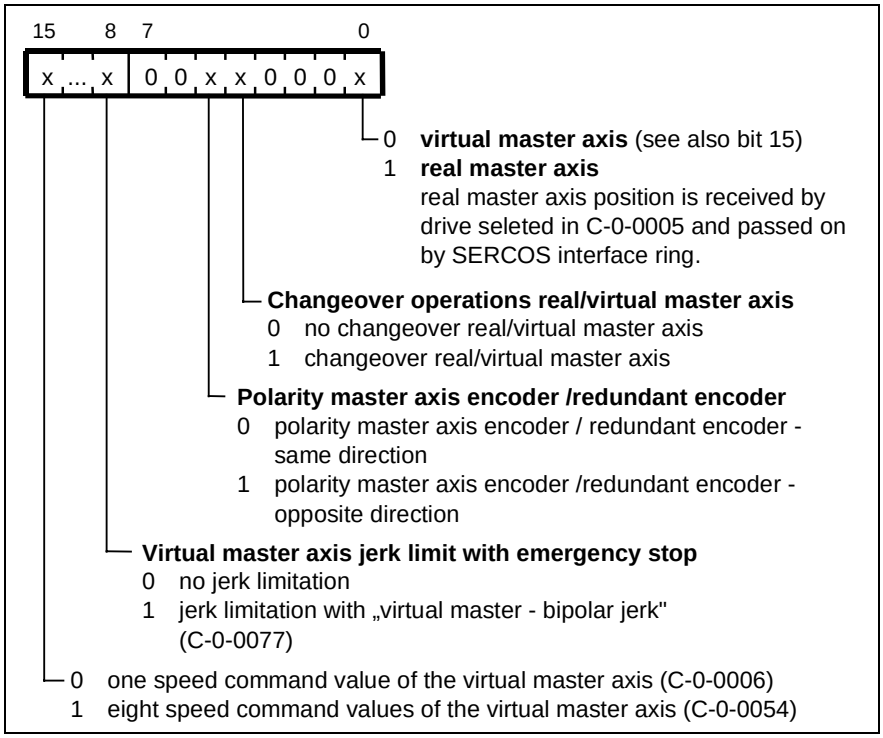

Fig. 4-1: Bit strip C-0-0004

C-0-0004 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

C-0-0005 Real master - encoder drive address

This parameter supplies the drive address of the drive to which the master axis encoder is fitted.

This master axis encoder is a prerequisite for using a real master axis.

C-0-0005 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	40
Default value:	1
Access:	write protected in operating mode
Memory:	FLASH

C-0-0006 Virtual master - speed-command 1

This parameter sets speed command 1 of the virtual master axis.

Bit 15 in parameter "ELS master - control word" (C-0-0004) sets whether this parameter or parameter "virtual master - speed commands" (C-0-0054) is activated.

C-0-0006 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	see C-0-0031
Maximum input value:	see C-0-0030
Default value:	10.0000 rpm
Access:	no write protection
Memory:	nvRAM

C-0-0007 Fiber optic cable (LWL) length

This parameter matches the transmission power of the PPC controller board to the length of the fiber optic cable (LWL).

The length given refers to the length of the fiber optics cable from X52 to the first drive.

Note: It generally suffices to ascribe a default value of 0.2m to the fiber optics cable regardless of the actual length.

Note: This parameter can be altered in parametrization mode. It will not become effective until the next reload of a hardware reset of the PPC.

C-0-0007 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} m
Minimum input value:	0.1 m
Maximum input value:	50.0 m
Default value:	0.2 m
Access:	write protected in operating mode
Memory:	nvRAM

C-0-0008 Virtual master - bipolar acceleration

This parameter is the effective acceleration with which the virtual master axis accelerates to the speed command value (C-0-0006 or C-0-0054), if input "virtual master enable" (_E:L01.06) is set.

The virtual master axis also accelerates with this speed, if the speed command value is altered while the virtual master axis is in idle mode.

C-0-0008 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-3} rad/s²
Minimum input value:	0.050 rad/s²
Maximum input value:	100000.000 rad/s²
Default value:	10.000 rad/s²
Access:	no write protection
Memory:	nvRAM

C-0-0009 Virtual master - deceleration

This parameter sets the effective deceleration with which the virtual master axis is decelerated to a standstill condition if input "virtual master enable" (_E:L01.06) is cancelled.

C-0-0009 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-3} rad/s²
Minimum input value:	0.050 rad/s²
Maximum input value:	100000.000 rad/s²
Default value:	20.000 rad/s²
Access:	no write protection
Memory:	nvRAM

C-0-0010 Virtual master - emergency stop deceleration

This parameter sets the effective deceleration with which the virtual master axis is decelerated to a standstill condition if input "virtual master E-stop" (_E:L01.01) is set.

C-0-0010 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-3} rad/s²
Minimum input value:	0.050 rad/s²
Maximum input value:	100000.000 rad/s²
Default value:	100.000 rad/s²
Access:	no write protection
Memory:	nvRAM

C-0-0011 Pattern data - source

Only if synchronization mode electronic pattern control is used (see A-0-0003) does this parameter indicate the source and, if applicable, the transmission rate of the data in the pattern computer.

Bits 0 through 7 are only relevant if a serial interface was selected.

Note: If there‘s no more communication with SynTop because of fault parametrization, then it is possible to reach a default setting of the communication parameters C-0-0011, C-0-0033 and C-0-0104 with holding the pushbutton S1 after switching on the PPC. SynTop communicates on X10 with RS232 and 19200 Baud.

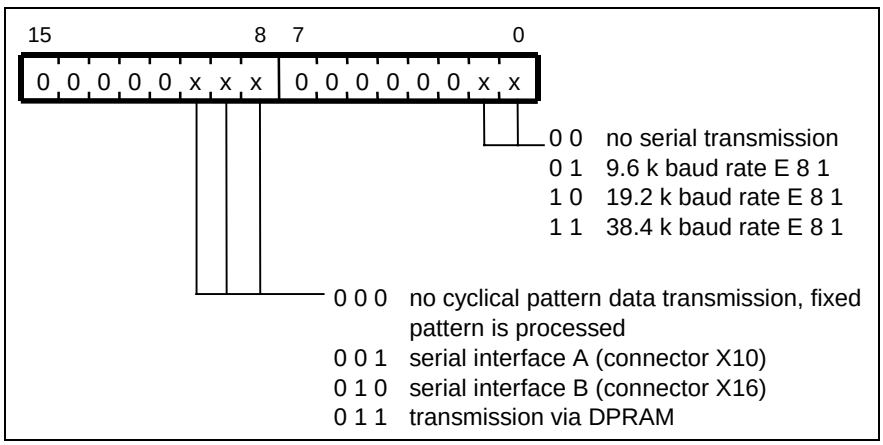

Fig. 4-2: Bit strip C-0-0011

Legal combinations (binary representation):

0000000000000000	no pattern data transmission, fixed pattern
0000000100000001	serial A, 9,6 k baud rate
0000000100000010	serial A, 19,2 k baud rate
0000000100000011	serial A, 38,4 k baud rate
0000001000000001	serial B, 9,6 k baud rate
0000001000000010	serial B, 19,2 k baud rate
0000001000000011	serial B, 38,4 k baud rate
0000001100000000	transmission via Dual Port RAM

C-0-0011 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

C-0-0012 I/O - assignment - file-info

Information on the source file of parameter C-0-0013 in format filename, date, time, processor family.

Example:

"test.txt, 17.02.98, 13:00, PPC"

C-0-0012 Attributes

Data length:	1 byte variable length (max: 60 bytes)
Display format:	ASCII-Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	Empty I/O logic!
Access:	write protected
Memory:	RAM

C-0-0013 I/O - assignment of internal/external I/Os

This parameter describes the I/O logic between the internal and external inputs and outputs in the form of a list of machine code instructions which must be cyclically processed.

The contents of the list are produced using a textfile with the help of the compiler program "PARA.EXE" (also see section 4 of the functional description "Internal and external I/O logic").

C-0-0013 Attributes

Data length:	2 bytes variable length (Max: 32768 bytes)
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0046 (actual length) 20000 (maximum length) 0x0007 (version label) 0x0000 (release) 0x002E (OPCODE offset) 0x456D (start text in...) 0x7074 (...C-0-0012 displayed:) 0x7920 ("Empty I/O logic") ... ...
Access:	write protected in operating mode
Memory:	FLASH

C-0-0014 Pattern control status

This parameter specifies the initialization status of the pattern control function. It has to be specified by the user.

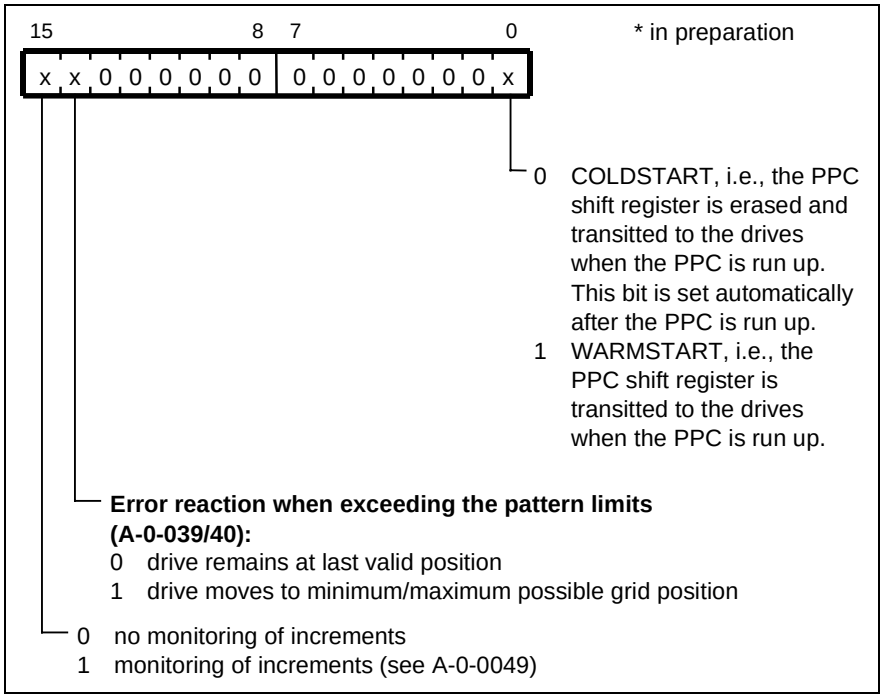

Fig. 4-3: Bit strip C-0-0014

C-0-0014 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000000000000001
Access:	write protected in operating mode
Memory:	FLASH

C-0-0015 PPC identification number

This parameter assigns an identification number to the PPC.

This parameter represents the sender identification if the EAENET2 is used. This parameter has no relevance otherwise.

C-0-0015 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0016 Cam switch group 1 - switch 1 ON angle

Bit 1 is set to "1" if this angle is exceeded.

C-0-0016 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0,0000 degree
Maximum input value:	360.0000 degree
Default value:	0.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0017 Cam switch group 1 - switch 1 OFF angle

Bit 1 is set to "0" if this angle is exceeded.

C-0-0017 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	60.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0018 Cam switch group 1 - switch 2 ON angle

Bit 2 is set to "1" if this angle is exceeded.

C-0-0018 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	60.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0019 Cam switch group 1 - switch 2 OFF angle

Bit 2 is set to "0" if this angle is exceeded.

C-0-0019 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	120.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0020 Cam switch group 1 - switch 3 ON angle

Bit 3 is set to "1" if this angle is exceeded.

C-0-0020 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	120.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0021 Cam switch group 1 - switch 3 OFF angle

Bit 3 is set to "0" if this angle is exceeded.

C-0-0021 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	180.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0022 Cam switch group 1 - switch 4 ON angle

Bit 4 is set to "1" if this angle is exceeded.

C-0-0022 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	180.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0023 Cam switch group 1 - switch 4 OFF angle

Bit 4 is set to "0" if this angle is exceeded.

C-0-0023 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	240.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0024 PPC - hardware version

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

Example: "PPC-R0x.2N-N-NN-NN-NN-FW"

C-0-0024 Attributes

Data length:	1 bytes variable length (max: 40 bytes)
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0025 Real master - position window

When the PPC is switched on again, the position of the real master axis is compared to the position prior to power down. If the difference is greater than this paramter, the "real master moved" (_A:L01.08) is set.

This monitor is also active if the "RM position monitoring enable" (_E:L01.15) is set.

This message is cancelled by "Real/Virt. master - clear error" (_E:L01.16).

C-0-0025 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	180.0000 degree
Default value:	5.0000 degree
Access:	write protected in operating mode
Memory:	FLASH

C-0-0026 Virtual master - stop position 1

If the "VM stop position 1 active" (_E:L01.07) input as well as the "virtual master enable" is set, then the virtual master axis is positioned with this value at the next possible modulo position.

C-0-0026 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	0.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0027 Virtual master - stop position 2

If the "VM stop position 2 active" (_E:L01.08) input as well as the "virtual master enable" is set, then the virtual master axis is positioned with this value at the next possible modulo position.

C-0-0027 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	180.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0028 Virtual master - speed increment

This parameter determines by what amount the speed command of the virtual master axis is periodically incremented or decremented if a signal is applied to one of the jogging inputs.

C-0-0028 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	0.0010 rpm
Maximum input value:	10.0000 rpm
Default value:	5.0000 rpm
Access:	write protected in operating mode
Memory:	nvRAM

C-0-0029 Jogging time constant

If a key remains pressed for longer than this time period, it is interpreted as a prolonged key press and the system behaves in a special way, e.g., as a repeat function. See section 11 of the functional description, "jogging functions".

C-0-0029 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 ms
Minimum input value:	0 ms
Maximum input value:	5000 ms
Default value:	1000 ms
Access:	write protected in operating mode
Memory:	nvRAM

C-0-0030 Virtual master speed 1 - positive limit

The maximum value for speed command 1 of the virtual master axis is set in this parameter.

C-0-0030 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	-10000.0000 rpm
Maximum input value:	+10000.0000 rpm
Default value:	+3000.0000 rpm
Access:	write protected in operating mode
Memory:	FLASH

C-0-0031 Virtual master speed 1 - negative limit

The minimum value for speed command 1 of the virtual master axis is set in this parameter.

C-0-0031 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	-10000.0000 rpm
Maximum input value:	+10000.0000 rpm
Default value:	-3000.0000 rpm
Access:	write protected in operating mode
Memory:	FLASH

C-0-0032 PPC - firmware version

The firmware version of the PPC card is contained in this parameter.

Example: "PSM01*-SY*-07V01"

C-0-0032 Attributes

Data length:	1 bytes variable length (max: 40 bytes)
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0033 Host communication - control word

Indicates the source (port) and, if applicable, the transmission rate and format of the serial (host) communication.

Note: If there‘s no more communication with SynTop because of fault parametrization, then it is possible to reach a default setting of the communication parameters C-0-0011, C-0-0033 and C-0-0104 with holding the pushbutton S1 after switching on the PPC. SynTop communicates on X10 with RS232 and 19200 Baud.

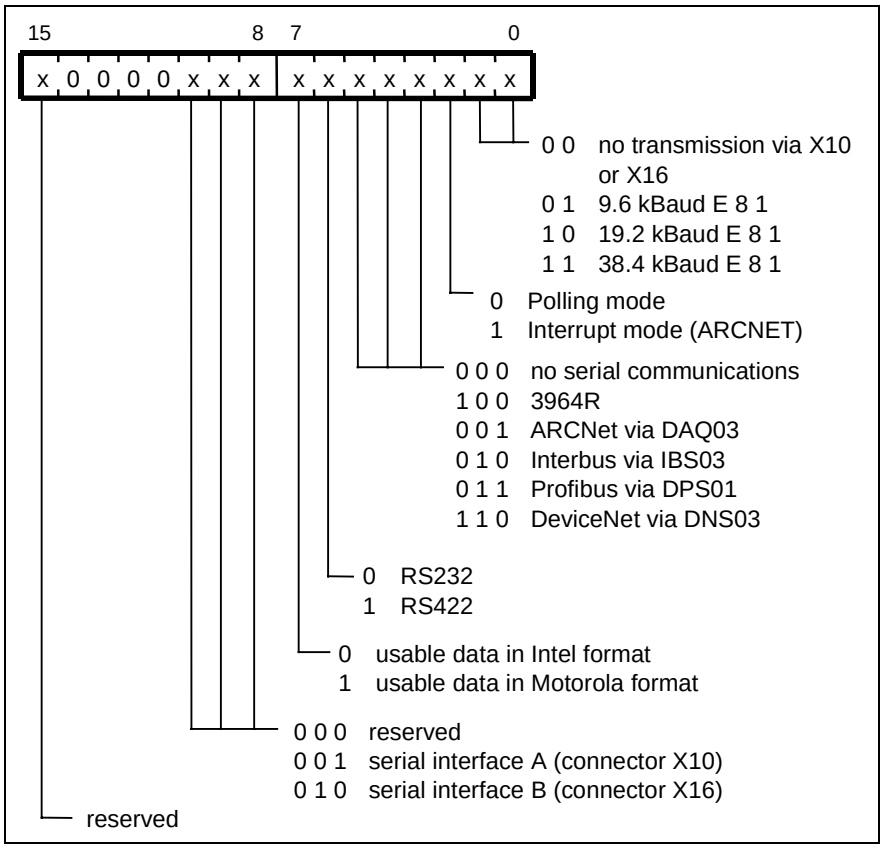

Fig. 4-4: Bit strip C-0-0033

Note: In conjunction with a PPC-P, only the changeover Intel / Motorola is allowable. The changeover not only relates to the uer data, but to all data in the DP-RAM.

Legal combinations with PPC-R:

0x0000	no serial communications
0x0008	ARCNET, Intel format
0x0088	ARCNET, Motorola format
0x000C	ARCNET, Intel format, interrupt mode
0x008C	ARCNET, Motorola format, interrupt mode
0x0121	3964R, Intel format, serial interface A, RS232
0x0221	3964R, Intel format, serial interface B, RS232
0x01A1	3964R, Motorola format, serial interface A, RS232
0x02A1	3964R, Motorola format, serial interface B, RS232
0x0161	3964R, Intel format, serial interface A, RS422
0x0261	3964R, Intel format, serial interface B, RS422
0x01E1	3964R, Motorola format, serial interface A, RS422
0x02E1	3964R, Motorola format, serial interface B, RS422
0x0010	Interbus
0x0018	Profibus
0x0030	DeviceNet

C-0-0033 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

C-0-0034 Cam switch group 1 - switch 5 ON angle

Bit 5 is set to "1" is this angle is exceeded.

C-0-0034 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	240.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0035 Cam switch group 1 - switch 5 OFF angle

Bit 5 is set to "0" if this angle is exceeded.

C-0-0035 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	300.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0036 Cam switch group 1 - switch 6 ON angle

Bit 6 is set to "1" if this angle is exceeded.

C-0-0036 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	300.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0037 Cam switch group 1 - switch 6 OFF angle

Bit 6 is set to "0" if this angle is exceeded.

C-0-0037 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	0.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0038 SERCOS interface - configuration

This parameter sets the configuration of the SERCOS interface transmissions.

Note: This parameter can only be altered in parametrization mode. It is, however, not set until the unit has been switched on and off once, or after a hardware reset of the PPC.

The test modes become effective with the next initialization mode. They are not backed up, i.e., 8 and 9 return to normal operations with the switching off and on of the PPC.

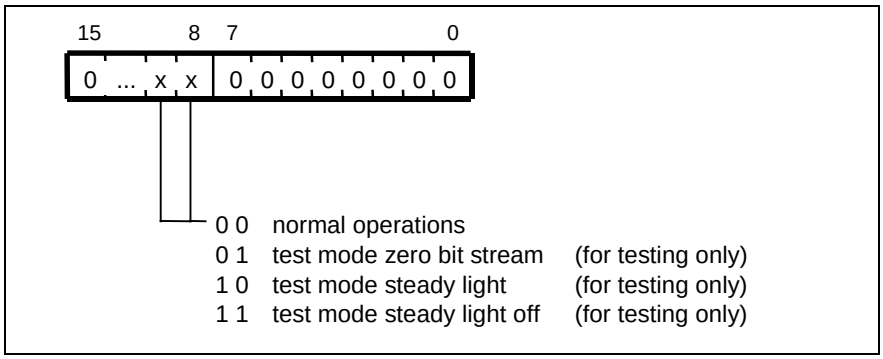

Fig. 4-5: Bit strip C-0-0038

C-0-0038 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

C-0-0039 Analogue channels - select source parameters

Together with parameter "analogue channels - select target parameters" (C-0-0040) this parameter specifies the assignment of the analogue inputs to the target parameters.

This means that the "i" entry parametrized analogue input C-0-0039 is assigned to the parameter set in the "i" entry in C-0-0040.

The entries are in SYNAX format.

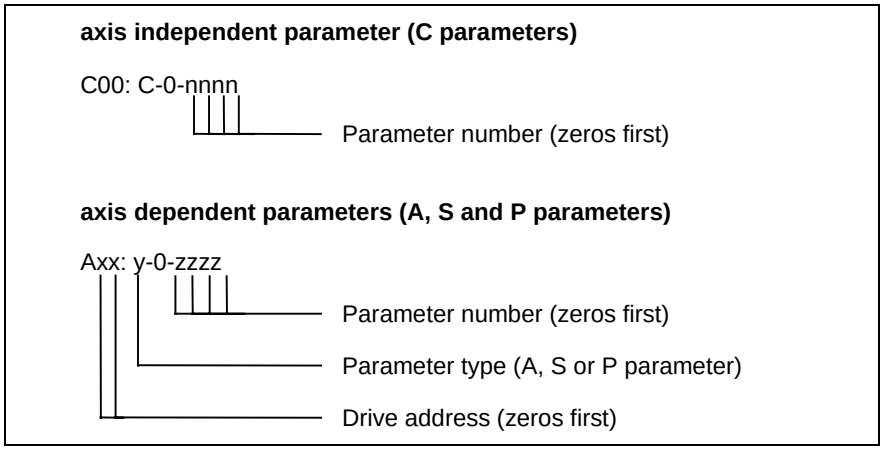

Fig. 4-6: Parameter structure

Legal entries:

Axx:A-0-0082 address xx, "analogue channels - actual value analogue input 1"

Axx:A-0-0083 address xx, "analogue channels - actual value analogue input 2"

C-0-0039 Attributes

Data length:	4 bytes variable length (max: 200 bytes)
Display format:	SYNAX ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	000 (actual length) 200 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0040 Analogue channels - select target parameters

Together with parameter "analogue channels - select source parameters" (C-0-0039), this parameter specifies the assignment of the analogue inputs to the target parameters.

This means that the "i" entry parametrized analogue input C-0-0039 is assigned to the parameter set in the "i" entry in C-0-0040.

The entries ensue in SYNAX format.

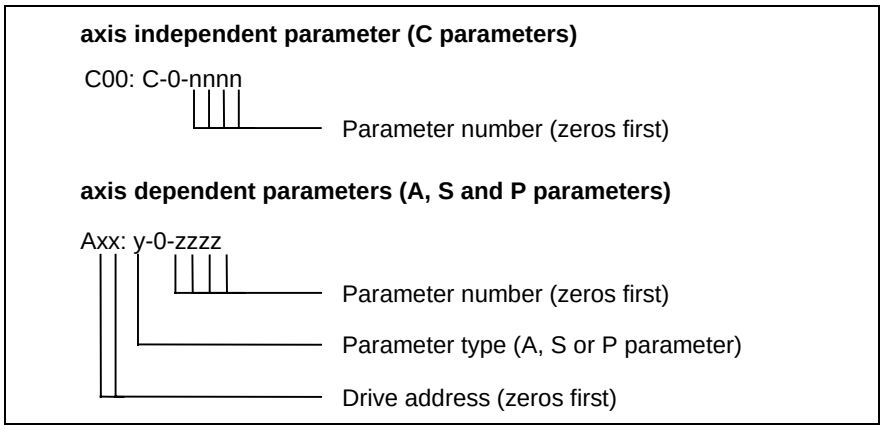

Fig. 4-7: Parameter structure

Legal entries:

C00:C-0-0006	"Virtual master - speed command 1"
C00:C-0-0143	"Master encoder - output revolutions"
Axx:A-0-0004	address xx, "Position command offset"
Axx:A-0-0011	address xx, "Idle speed 0"
Axx:A-0-0026	address xx, "Process command value 1"
Axx:A-0-0027	address xx, "Process actual value"
Axx:A-0-0031	address xx, "Velocity synchronization - speed offset"
Axx:A-0-0037	address xx, "Bipolar torque limit - reduced"
Axx:A-0-0038	address xx, "Bipolar torque limit"
Axx:A-0-0060	address xx, "Fine adjustment"
Axx:A-0-0077	address xx, "Process controller - current reel diameter"
Axx:A-0-0079	address xx, "Process variable setpoint 2"
Axx:A-0-0115	address xx, "Idle speed 1"
Axx:A-0-0116	address xx, "Idle speed 2"
Axx:A-0-0117	address xx, "Idle speed 3"

Axx:A-0-0126 address xx, "Master drive gear output revolutions"

C-0-0040 Attributes

Data length:	4 bytes variable length (max: 200 bytes)
Display format:	SYNAX ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	000 (actual length) 200 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0041 Indramat service information

The PPC stores information about internal processes in this parameter for test purposes.

C-0-0041 Attributes

Data length:	4 bytes variable length (max: 64 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	00 (actual length) 64 (maximum length)
Access:	no write protection
Memory:	nvRAM

C-0-0042 Real master - actual value smoothing time constant

This parameter defines the time constant for smoothing the speed of the real master axis.

A value smaller than the SERCOS cycle time (S-0-0002) shuts the filter down.

C-0-0042 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0 ms
Minimum input value:	0 ms
Maximum input value:	5000 ms
Default value:	50 ms
Access:	no write protection
Memory:	nvRAM

C-0-0043 Jogging speed

This parameter specifies jogging speed in increment width per second. This speed specifies the affect of jogging inputs.

Also see parameter "Reduced jogging speed" (C-0-0044).

C-0-0043 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1/sec
Minimum input value:	1
Maximum input value:	2000
Default value:	4
Access:	write protected in operating mode
Memory:	nvRAM

C-0-0044 Reduced jogging speed

A second jogging speed is here defined. This reduced speed is given as a per cent value of the "jogging speed" (C-0-0043).

It is possible to switch between the two speeds using a binary input.

C-0-0044 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} % of the jogging speed (C-0-0043)
Minimum input value:	1.0 %
Maximum input value:	100.0 %
Default value:	50.0 %
Access:	write protected in operating mode
Memory:	nvRAM

C-0-0045 reserved (Virtual master - position increment)

This parameter contains the increment for jogging the virtual master axis in setup mode.

C-0-0045 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0010 degree
Maximum input value:	10.0000 degree
Default value:	5.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0046 SYNAX - error source

This parameter provides an overview of the error status of the Synax system from a central location.

If this parameter = 0, then there is no error within the system.

If this parameter ≠ 0, then this parameter indicates whether the error has been assigned to the PPC or to one of the drives. If the error has been assigned to the PPC, then C-0-0046 = 0x10000. This parameter contains the drive address, if, for example, the error has occurred in one of the drives.

(See Trouble Shooting Guide, DOK-SYNAX*-SY*-07VRS**-WA01-EN-P)

C-0-0046 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0047 SYNAX - diagnostics text

This parameter describes the SYNAX system status in plain language.

C-0-0047 Attributes

Data length:	1 byte variable length (max: 60 bytes)
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0048 SYNAX - error number

This parameter contains an error number which, in the event of an error, offers additional information about the type of error which has occurred.

C-0-0048 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0049 High speed cam switches - control word

This parameter switches the high speed cam group on and off.

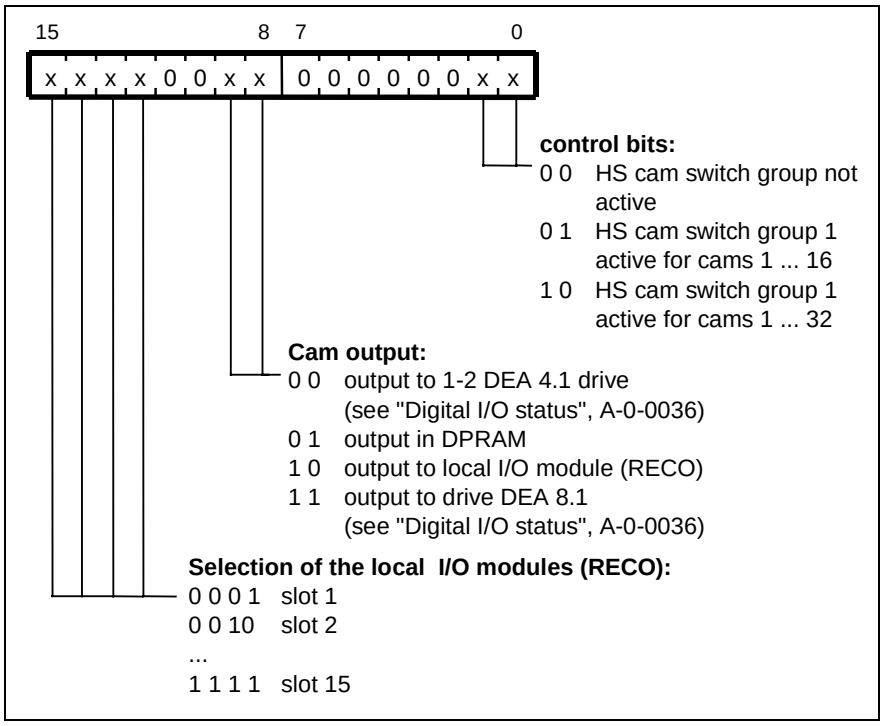

Fig. 4-8: Bit strip C-0-0049

C-0-0049 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

C-0-0050 High speed cam switches - ON/OFF angle

This parameter contains the list of all ON/OFF angles for the high speed cam switch group.

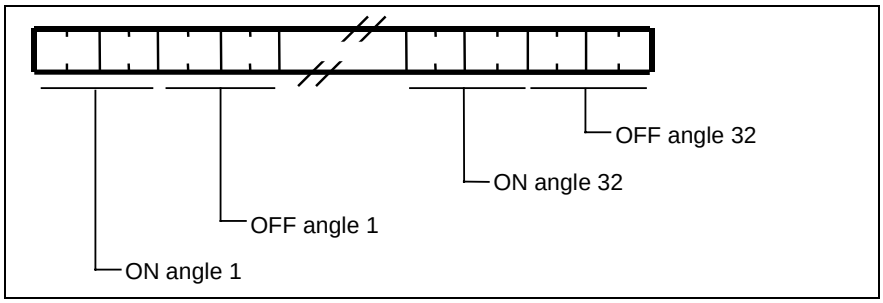

Fig. 4-9: The strucuture of the list (C-0-0050)

Note: The number of entries in this list cannot be changed in operating mode!

C-0-0050 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	0000 (actual length) 0256 (maximum length)
Access:	no write protection
Memory:	nvRAM

C-0-0051 reserved

C-0-0052 ELS master - speed operating points

This parameter contains the list of all operating points for the virtual master axis speed switching mechanism.

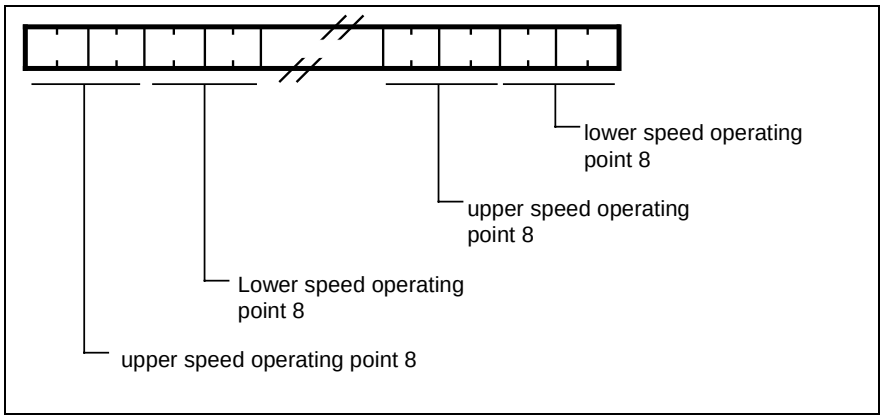

Fig. 4-10: The structure of the list (C-0-0052)

Note: The number of entries in this list cannot be changed in operating mode!

C-0-0052 Attributes

Data length:	4 bytes variable length (max: 64 bytes)
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	-10000,0000 rpm
Maximum input value:	10000.0000 rpm
Default value:	0008 (actual length) 0064 (maximum length) 11.0000 (upper operating point) 9.0000 (lower operating point)
Access:	no write protection
Memory:	nvRAM

C-0-0053 Virtual master - speed command presetting

This parameter contains the list of all presettings for virtual master axis speed command. The preset speed is effective if the "VM speed command preset" (_E:L01.02) input is set when changing to a new speed. The preset value is then copied to the "virtual master - speed commands" (C-0-0054) parameter.

Note: The actual length of this parameter cannot be changed in operating mode. This means that no element can be either added or cancelled. This is only possible in parametrization mode.

This parameter must contain the same number of elements as parameter "virtual master - speed commands" (C-0-0054), if the use of several master axis speeds is activated ("ELS master - control word" (C-0-0004) bit 15 = 1).

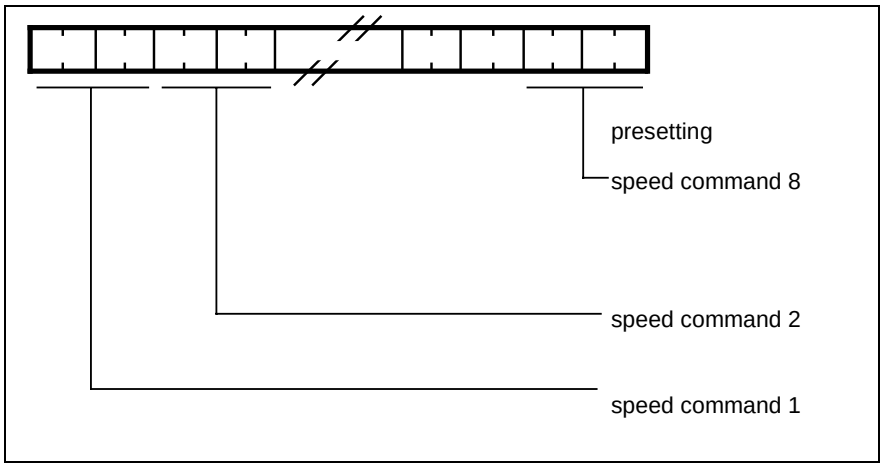

Fig. 4-11: The structure of the list (C-0-0053)

Note: The number of entries in this list cannot be changed in operating mode!

C-0-0053 Attributes

Data length:	4 bytes variable length (max: 32 bytes)
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	see C-0-0056
Maximum input value:	see C-0-0055
Default value:	0032 (actual length) 0032 (maximum length) 0.0000 (preset speed command 1) 0.0000 (preset speed command 2) 0.0000 (preset speed command 3) 0.0000 (preset speed command 4) 0.0000 (preset speed command 5) 0.0000 (preset speed command 6) 0.0000 (preset speed command 7) 0.0000 (preset speed command 8)
Access:	no write protection
Memory:	nvRAM

C-0-0054 Virtual master - speed commands

This parameter contains a list of all speed command values for the virtual master axis. If the speed command is changed by jogging, then the speed change is automatically adjusted in this parameter. If the input "VM speed command preset" (_E:L01.02) is set with a changeover, then, prior to changeover, a value changed by jogging will be replaced by a preset programmed value.

Bit 15 in parameter "ELS master - control word" (C-0-0004) sets whether this parameter of the "virtual master - speed-command 1" (C-0-0006) is active.

Note: The actual length of this parameter cannot be changed in operating mode. This means no element can either be added or cancelled. This is only possible when in parametrization mode.

At least one element must be entered in this parameter, if several master axis speeds are used ("ELS master - control word" (C-0-0004) bit 15 = 1).

Parameters C-0-0053, C-0-0055 and C-0-0056 must contain the same number of elements as in parameter "virtual master - speed commands" (C-0-0054), if several master axis speeds are used ("ELS master - control word" (C-0-0004) bit 15 = 1).

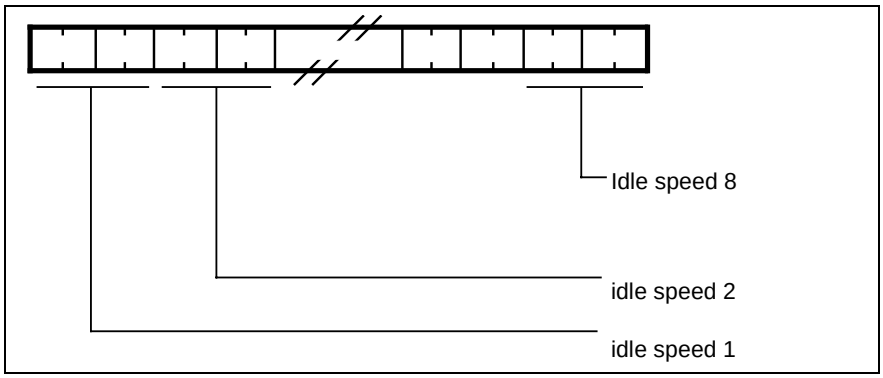

Fig. 4-12: The structure of the list (C-0-0054)

Note: The number of entries in this list cannot be changed in operating mode!

C-0-0054 Attributes

Data length:	4 bytes variable length (max: 32 bytes)
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	see C-0-0056
Maximum input value:	see C-0-0055
Default value:	0032 (actual length) 0032 (maximum length) 10.0000 (Speed command 1) 10.0000 (Speed command 2) 10.0000 (Speed command 3) 10.0000 (Speed command 4) 10.0000 (Speed command 5) 10.0000 (Speed command 6) 10.0000 (Speed command 7) 10.0000 (Speed command 8)
Access:	no write protection
Memory:	nvRAM

C-0-0055 Virtual master - speed command positive limits

This parameter contains the list of maximum legal speed commands for the virtual master axis. The programmed maximum value limits the input value and the speed command in jogging mode.

This parameter must have the same number of elements as in parameter "virtual master - speed commands" (C-0-0054), if several master axis speeds are set ("ELS master - control word" (C-0-0004) bit 15 = 1).

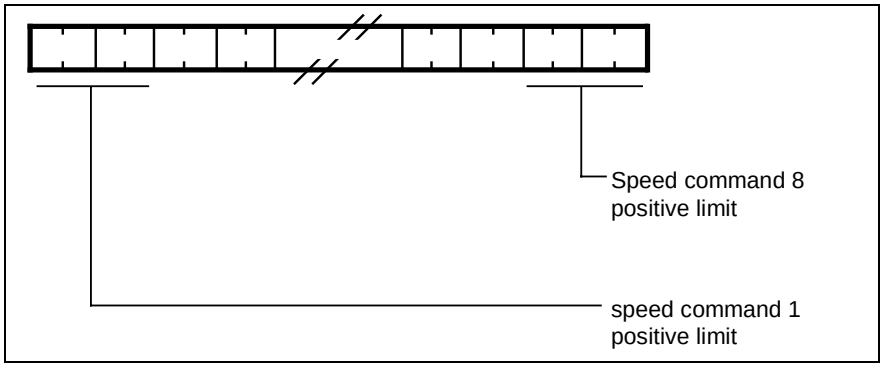

Fig. 4-13: The structure of the list (C-0-0055)

C-0-0055 Attributes

Data length:	4 bytes variable length (max: 32 bytes)
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	-10000.0000 rpm
Maximum input value:	10000.0000 rpm
Default value:	+3000.0000 rpm
Access:	write protected in operating mode
Memory:	FLASH

C-0-0056 Virtual master - speed command negative limits

This parameter contains the list of minimum legal speed commands for the virtual master axis. The programmed minimum value limits the speed commands in jogging mode and the input value.

This parameter must contain the same number of elements as in parameter "virtual master - speed commands" (C-0-0054), if several master axis speeds are activated ("ELS master - control word" (C-0-0004) bit 15 = 1).

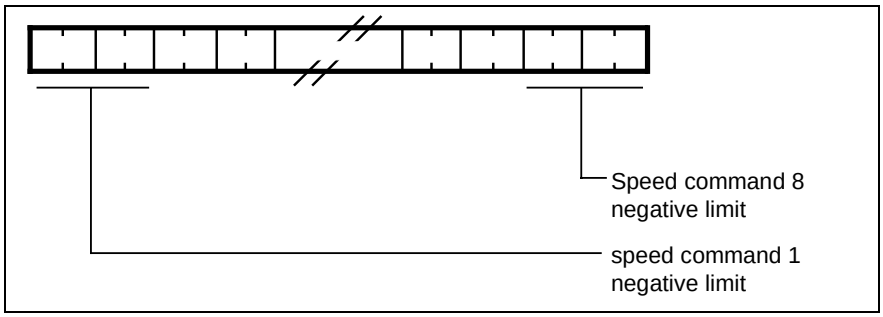

Fig. 4-14: The structure of the list (C-0-0056)

C-0-0056 Attributes

Data length:	4 bytes variable length (max: 32 bytes)
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	-10000.0000 rpm
Maximum input value:	10000.0000 rpm
Default value:	-3000.0000 rpm
Access:	write protected in operating mode
Memory:	FLASH

C-0-0057 Serial interface error number

An error code is stored here in the event of an error during transmissions via the serial interface.

C-0-0057 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0058 Configuration list data block 101

This list contains parameters which are configured for data block 101.

The entries are in SYNAX format.

In the event of A, S or P parameters, the address of the drive is in the highest value byte. There is a 0 in the case of a C parameter.

The parameters are allocated here with the first 16 elements to the relevant fieldbus objects in the process data channel during communications via feldbusses (see DOK-SYNAX*-SY*-07VRS**-FK01-EN-P, functional description, Appendix B, section 4.9 "Fieldbus objects for data exchange").

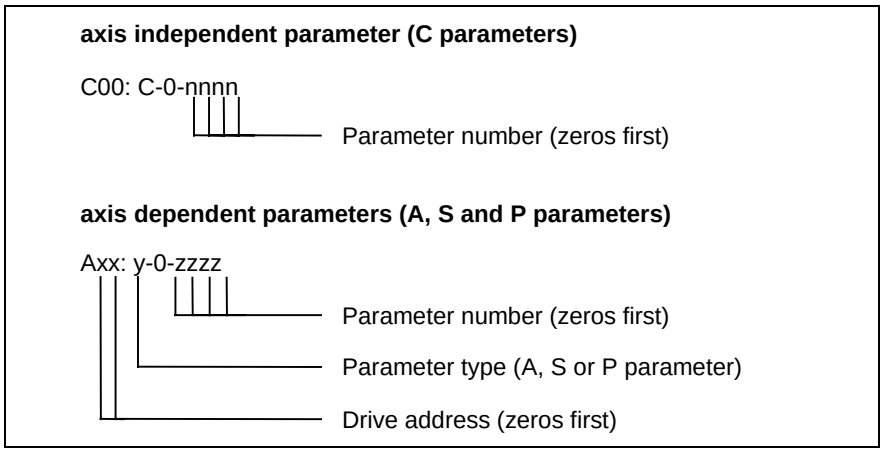

Fig. 4-15: Parameter structure

(See DOK-SYNAX*-SY*-07VRS**FK01-EN-P, functional description, appendix B "interfaces")

C-0-0058 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0059 Configuration list data block 102

Description see "Configuration list data block 101" (C-0-0058).

C-0-0059 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0060 Configuration list data block 103

Description see "Configuration list data block 101" (C-0-0058).

C-0-0060 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0061 Configuration list data block 104

Description see "Configuration list data block 101" (C-0-0058).

C-0-0061 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0062 Configuration list data block 105

Description see "Configuration list data block 101" (C-0-0058).

C-0-0062 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0063 Configuration list data block 106

Description see "Configuration list data block 101" (C-0-0058).

C-0-0063 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0064 Configuration list data block 107

Description see "Configuration list data block 101" (C-0-0058).

C-0-0064 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0065 Configuration list data block 108

Description see "Configuration list data block 101" (C-0-0058).

C-0-0065 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0066 ELS master - actual position value

Indicates the current master axis position.

C-0-0066 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	--
Maximum input value:	--
Default value:	0.0000 degree
Access:	write protected
Memory:	RAM

C-0-0067 ELS master - actual speed value

Indicates the current master axis speed.

C-0-0067 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	--
Maximum input value:	--
Default value:	0.0000 rpm
Access:	write protected
Memory:	RAM

C-0-0068 List of invalid A and C parameters

This list shows the A or C parameters which are detected as illegal

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

The entries are in SYNAX format.

In the event of an illegal A parameter, the address of the drive appears in the most significant byte. For a C parameter this is 0.

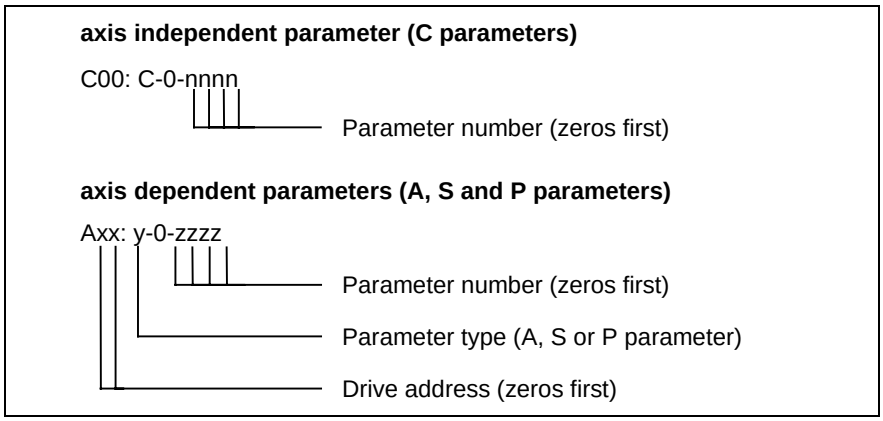

Fig. 4-16: Parameter structure

Examples

A15:	A-0-0003	address 15, parameter A-0-0003
C00:	C-0-0011	parameter C-0-0011

A maximum of 200 illegal parameters are stored in this list. If there are more illegal parameters on the PPC, then the superfluous ones are not displayed.

C-0-0068 Attributes

Data length:	4 bytes variable length (max: 800 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0800 (maximum length)
Access:	write protected
Memory:	RAM

C-0-0069 SYNAX - application type

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

This parameter has no influence on any of the functions in the PPC.

C-0-0069 Attributes

Data length:	1 bytes variable length (max: 60 bytes)
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	00 60 (actual length = 0, maximum length = 60)
Access:	no write protection
Memory:	nvRAM

C-0-0070 SYNAX - application data

A series of numbers can be entered in this parameter which, for example, contain the number of the application.

This parameter has no influence on the functions of the PPC.

C-0-0070 Attributes

Data length:	4 bytes variable length (max: 64 bytes)
Display format:	signed decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0064 (maximum length)
Access:	no write protection
Memory:	nvRAM

C-0-0071 SYNAX - current mode

This parameter contains the current mode of the PPC or the SYNAX:

0: "PPC in initialization mode"

1: "SERCOS interface phase 1"

2: "PPC in parametrization mode"

3: "SERCOS interface phase 3"

4: "PPC in operating mode"

C-0-0071 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0072 Real master - redundant encoder drive address

This parameter indicates the address of the drive to which an additional redundant master axis encoder has been mounted.

This additional master axis encoder is only required if a redundant system must be constructed for determining the real master axis position.

If this option is used, then the master axis position of the leading encoder is evaluated if one of the two encoders should fail.

If address 0 (default value) has been set, then a redundant master axis encoder is used.

C-0-0072 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	40
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

C-0-0073 Real master - redundant encoder monitoring window

If a redundant master axis encoder is used (see "real master - redundant encoder drive address" (C-0-0072)), then both master axis encoders are monitored for position deviations.

If the difference of both master axis position encoders is greater than the value set here, then the leading encoder is switched into and the output "RM redundant encoder error" is set (_A:L01.02).

The correct value for this parameter can be determined using the parameter "real master - redundant encoder max. position difference" (C-0-0074).

C-0-0073 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	180.0000 degree
Default value:	0.5000 degree
Access:	write protected in operating mode
Memory:	FLASH

C-0-0074 Real master - redundant encoder max. position difference

If a redundant master axis encoder is used (see "real master - redundant encoder drive address" (C-0-0072)), then both master axis encoders are monitored for position deviations.

The maximum value of the sum of the difference of both master axis position encoders is stored in this parameter. It can only be stored if a valid address has been stored in parameter "real master - redundant encoder drive address" (C-0-0072).

The correct value for parameter "real master - redundant encoder monitoring window" (C-0-0073) is determined using this parameter and the following procedure:

1. set C-0-0073 to 180.0000 degree
2. set C-0-0074 to 0.0000 degree
3. run several cycles with the real master axis
4. multiply the value of C-0-0074 by 2
5. enter this value in C-0-0073

C-0-0074 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	180.0000 degree
Default value:	0.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0075 Virtual master - preset position

If input "VM preset position" (_E:L01.20) is set when the virtual master axis is standing, then the contents of the parameter are accepted into parameter "ELS master - actual position value" (C-0-0066).

C-0-0075 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree
Minimum input value:	0.0000 degree
Maximum input value:	360.0000 degree
Default value:	0.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0076 SYNAX - language selection

0: german

1: english

C-0-0076 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	1
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

C-0-0077 Virtual master - bipolar jerk

The jerk of the virtual master axis is limited to this value when changing speeds. In an E-stop, the virtual master axis is brought to a standstill without a jerk.

C-0-0077 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 rad/s³
Minimum input value:	0 rad/s³
Maximum input value:	4000000000 rad/s³
Default value:	4000000000 rad/s³
Access:	no write protection
Memory:	nvRAM

C-0-0078 Configuration list data block 109

Description see "Configuration list data block 101" (C-0-0058).

C-0-0078 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0079 Configuration list data block 110

Description see "Configuration list data block 101" (C-0-0058).

C-0-0079 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0004 (actual length) 0256 (maximum length) PPC: C-0-0066
Access:	write protected in operating mode
Memory:	FLASH

C-0-0080 Configuration list data block 111

Description see "Configuration list data block 101" (C-0-0058).

C-0-0080 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0081 Configuration list data block 112

Description see "Configuration list data block 101" (C-0-0058).

C-0-0081 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0082 Configuration list data block 113

Description see "Configuration list data block 101" (C-0-0058).

C-0-0082 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0083 Configuration list data block 114

Description see "Configuration list data block 101" (C-0-0058).

C-0-0083 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0084 Configuration list data block 115

Description see "Configuration list data block 101" (C-0-0058).

C-0-0084 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0085 Configuration list data block 116

Description see "Configuration list data block 101" (C-0-0058).

C-0-0085 Attributes

Data length:	4 bytes variable length (max: 256 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length) 0256 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0086 Addresses deactivated drives

This list contains those drive addresses which have been temporarily removed from operations. These addresses must, however, be included in parameter "addresses projected drives" (C-0-0002).

If a drive is deactivated, then it is not relevant if it is physically in the LWL ring or not.

Note: If a deactivated drive is left in the LWL ring, then its display generates the message E4/10 "slave not scanned or address 0".

(See also C-0-0002, C-0-0087 and C-0-0088.)

C-0-0086 Attributes

Data length:	2 bytes variable length (max: 198 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	40
Default value:	0000 (actual length) 0198 (maximum length)
Access:	write protected
Memory:	RAM

C-0-0087 Addresses recognized drives

When switching from initialization into parametrization mode, the PPC searched the LWL ring for drives.

The drive addresses which the PPC has recognized, are stored in this list for diagnostic purposes.

(Also see C-0-0002, C-0-0086 and C-0-0088.)

C-0-0087 Attributes

Data length:	2 bytes variable length (max: 198 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	40
Default value:	0000 (actual length) 0198 (maximum length)
Access:	write protected
Memory:	RAM

C-0-0088 Addresses operatable drives

This list contains the drive adedresses which the PPC operates.

If a drive has been deactivated with, e.g., "drive deactivation" (A-0-0006), then it will not be operated by the PPC.

It applies:

	"addresses projected drives" (C-0-0002)
minus	"addresses deactivated drives (C-0-0086)
equals	addresses operable drives (C-0-0088)

Fig. 4-17: Equation C-0-0088

This parameter supports diagnostics.

(Also see C-0-0087)

C-0-0088 Attributes

Data length:	2 bytes variable length (max: 198 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	40
Default value:	0000 (actual length) 0198 (maximum length)
Access:	write protected
Memory:	RAM

C-0-0089 List of all C-parameters

This list includes all C parameters. All entires are in SYNAX format.

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

C parameters are stored in the order of these entries.

Example: C00: C-0-0024
C00: C-0-0032
C00: C-0-0069

C-0-0089 Attributes

Data length:	4 bytes variable length (max: 1024 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0090 List of all A-parameters

This list includes all A parameters. The entries are in SYNAX format.

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

A parameters are stored in the order of these entries.

Example: A00: A-0-0095
A00: A-0-0038
A00: A-0-0037
A00: A-0-0001
...

C-0-0090 Attributes

Data length:	4 bytes variable length (max: 1024 bytes)
Display format:	SYNAX - ID number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0091 Internal I/O: master axis inputs

This parameter represents the internal inputs of the master axis.
(e.g.,. _E:L01.01 → bit 0)

C-0-0091 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0092 Internal I/O: master axis outputs

This parameter represents the internal outputs of the master axis.
(E.g., _A:L01.01 → Bit 0)

C-0-0092 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0093 Internal I/O: PPC inputs

This parameter represents the internal inputs of the PPC.
(e.g.,. _E:C01.01 → Bit 0)

C-0-0093 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0094 Internal I/O: PPC outputs 1

This parameter represents the internal outputs of the PPC.
(e.g.,. _A:C01.01 → Bit 0)

C-0-0094 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0095 Internal I/O: cam switch group 1

This parameter represent the internal outputs of the cam switch group.
(e.g., _A:N01.01 → Bit 0)

C-0-0095 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0096 Internal I/O: pattern control inputs

This parameter represents the internal inputs of the pattern control.
(e.g., _E:M01.01 → Bit 0)

C-0-0096 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0097 Internal I/O: pattern control outputs

This parameter represents the internal outputs of the pattern controls.
(e.g., _A:M01.01 → Bit 0)

C-0-0097 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0098 Internal I/O: set inputs flip-flop 1-32

This parameter represents the internal set inputs of the Flip Flops 1-32.
(e.g., _E:S01.01 → Bit 0)

C-0-0098 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0099 Internal I/O: reset inputs flip-flop 1-32

This parameter represents the internal reset inputs of the Flip Flops 1-32.

(e.g., _E:R01.01 → Bit 0)

C-0-0099 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0100 Internal I/O: outputs flip-flop 1-32

This parameter represents the internal outputs of the Flip Flops 1-32.

(e.g., _A:Q01.01 → Bit 0)

C-0-0100 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0101 SYNAX - power up target mode

Once the control voltage has been powered up, the PPC runs up to the predefined mode.

Use these parameters to set this mode.

4: operating mode

2: parametrization — it is possible to write into all write protected parameters when in operating mode)

0: initialization — (no connected to the drives possible to write into C and A parameters not possible to write into S and P parameters)

C-0-0101 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	4
Access:	write protected in operating mode
Memory:	nvRAM

C-0-0102 PPC-link - control word

This parameter specifies in what and which function the PPC is working in the PPC link.

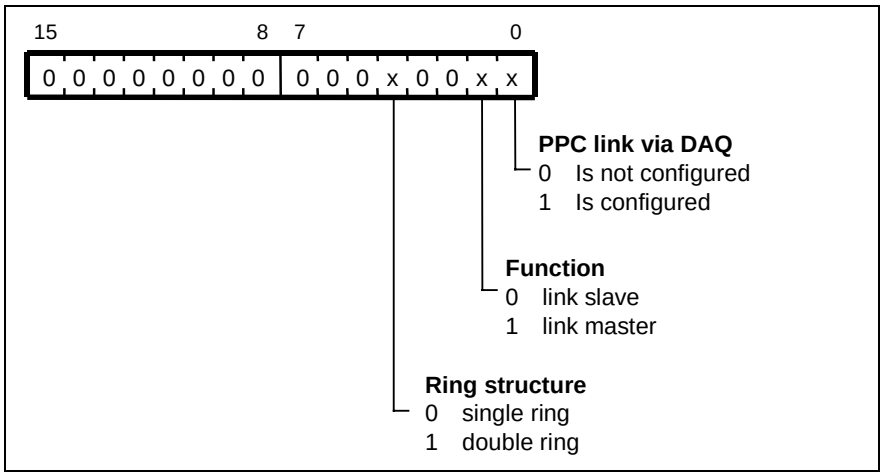

Fig. 4-18: Bit strip C-0-0102

C-0-0102 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 0000 0000 0000
Access:	write protected in operating mode
Memory:	FLASH

C-0-0103 PPC-link - fiber optic cable (LWL) length

With the use of this parameter, the output power of the DAQ is adjusted to the length of the fiber optic cable.

The length indicated relates to the LWL of X52 to the next connected DAQ.

Note: It generally suffices to ascribe a default value of 0.2 m to the LWL regardles of it actual length.

Note: This parameter can be changed in parametrization mode. However, it does not take effect until after one ON/OFF sequence or one hardware reset of the PPC.

C-0-0103 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} m
Minimum input value:	0.1 m
Maximum input value:	50.0 m
Default value:	0.2 m
Access:	write protected in operating mode
Memory:	FLASH

C-0-0104 Serial service interface - control word

Specifies source (port) and, if necessary, the transmission rate and protocol for serial (host) communications.

Note: If there‘s no more communication with SynTop because of fault parametrization, then it is possible to reach a default setting of the communication parameters C-0-0011, C-0-0033 and C-0-0104 with holding the pushbutton S1 after switching on the PPC. SynTop communicates on X10 with RS232 and 19200 Baud.

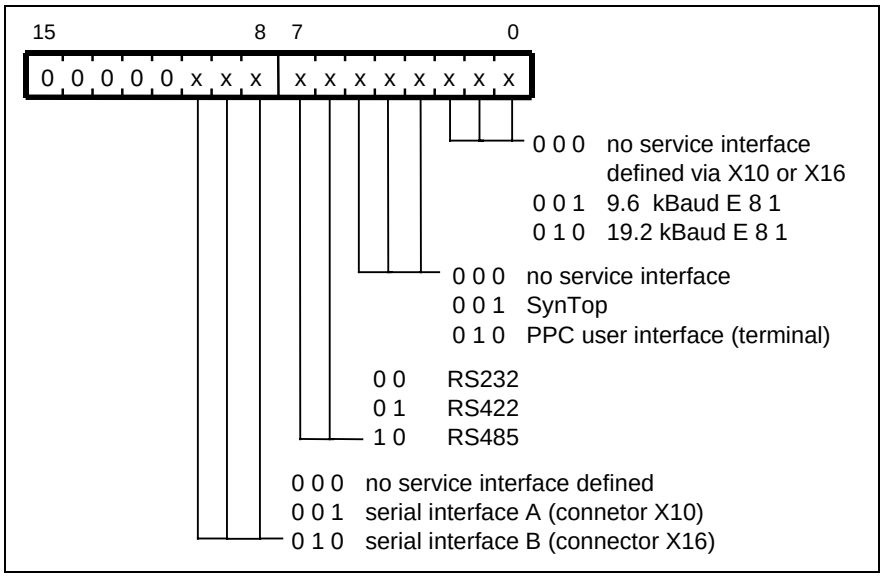

Fig. 4-19: Bit strip C-0-0104

Legal combinations (hexadecimal representation)

0x0000 no service interface defined, SynTop responds on any available interface.

0x010A SynTop, serial interface A (X10), RS232

0x020A SynTop, serial interface B (X16), RS232

0x014A SynTop, serial interface A (X10), RS422

0x024A SynTop, serial interface B (X16), RS422

0x018A SynTop, serial interface A (X10), RS485

0x028A SynTop, serial interface B (X16), RS485

0x0111 PPC user interface serial interface A

0x0211 PPC user interface serial interface B

Note: At RS485 bus mode the address is set with parameter "SynTop - address for RS485 bus" (C-0-0142).

C-0-0104 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0x010A
Access:	write protected in operating mode
Memory:	FLASH

C-0-0105 PPC-link - MDT error counter

Every link slave counts all illegal master data telegrams (MDT). If more than one MDT is sequentially skipped, then the PPC responds as follows:

1. All drives are brought to a standstill "deceleration as best as possible" (P-0-0119) best possible standstill.
2. All master axis positions remain.
3. All outputs "link participant # data valid" (_A:C02.#) are set to zero.
4. Error message "PPC link ring break" is generated.

With a double MDT failure, the "MDT error counter" stops counting.

The error counter has a stop at 65535. This means that in the case of a severely disrupted transmission, the value 65535 will come up after an extended period of time. To set the counter back, write 0 into it.

C-0-0105 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	65535
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0106 Internal I/O: PPC outputs 2

This parameter represents the second 32 internal outputs of the PPC. (e.g., _A:C:02.01 -> Bit 0)

C-0-0106 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0107 Oscilloscope function - control word

This parameter is used to activate the simultaneous triggering of the drives set in "oscilloscope function - drive addresses" (C-0-0108).

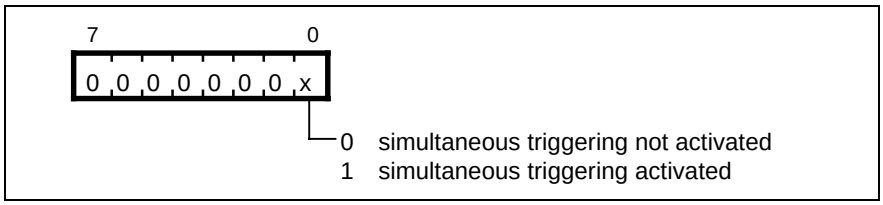

Fig. 4-20: Bit strip C-0-0107

C-0-0107 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

C-0-0108 Oscilloscope function - drive addresses

All those drive addresses involved in the oscilloscope function are entered in this list.

A triggering of one of the drives causes a simultaneous initiation of measuring of all the drives listed here.

The triggering must be transmitted per P parameter to the drive which is to initiate the triggering.

C-0-0108 Attributes

Data length:	2 bytes (max: 198 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	40
Default value:	0000 (actual length) 0198 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0109 PPC-link - fiber optic cable (LWL) length secondary ring

This parameter matches the output power of the DAQ to the length of the fiber optic cable.

The length indicated relates to the fiber optic cable from X52 to the next connected DAQ.

This parameter is only relevant with an activated double ring (C-0-0102) .

Note: It generally suffices to ascribe a value of 0.2m to length of the fiber optic cable regardless of its actual length.

Note: This parameter can be changed in parametrization mode. It does not, however, become effective until the unit has been switched off and on once or after a hardware reset of the PPC.

C-0-0109 Attribute

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} m
Minimum input value:	0.1m
Maximum input value:	50.0m
Default value:	0.2m
Access:	write protected in operating mode
Memory:	nvRAM

C-0-0110 Internal I/O: auxiliary register number

This parameter is used to select the number of the auxiliary marker the content of which is displayed in parameter "Internal I/O: auxiliary register value" (C-0-0111).

C-0-0110 Attribute

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	99
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0111 Internal I/O: auxiliary register value

This parameter represents the contents of the auxiliary register selected with "Internal I/O: auxiliary register number" (C-0-0110).

Example: C-0-0110 = 3

_A:H03.01 -> Bit 0 (from C-0-0111)

C-0-0111 Attribute

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0112 External I/O: Status local bus slot 1

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 1.

E.g.: Input module _E:Z01.00 -> I*.0.0,

output module _A:Z01.37 -> Q*.3.7

C-0-0112 Attribute

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0113 External I/O: Status local bus slot 2

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 2.

E.g.: Input module _E:Z02.00 -> I*.0.0,

output module _A:Z02.37 -> Q*.3.7

C-0-0113 Attribute

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0114 External I/O: Status local bus slot 3

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 3.

E.g.: Input module _E:Z03.00 -> I*.0.0,

output module _A:Z03.37 -> Q*.3.7

C-0-0114 Attribute

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0115 External I/O: Status local bus slot 4

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 4.

E.g.: Input module _E:Z04.00 -> I*.0.0,

output module _A:Z04.37 -> Q*.3.7

C-0-0115 Attribute

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0116 External I/O: Status local bus slot 5

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 5.

E.g.: Input module _E:Z05.00 -> I*.0.0,

output module _A:Z05.37 -> Q*.3.7

C-0-0116 Attribute

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0117 External I/O: Status local bus slot 6

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 6.

E.g.: Input module _E:Z06.00 -> I*.0.0,

output module _A:Z06.37 -> Q*.3.7

C-0-0117 Attribute

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0118 External I/O: x-inputs - number

This parameter is used to select the number of the external input word (_E:Xnn) the contents of which are displayed in parameter "external I/O: x-inputs - value" (C-0-0119).

C-0-0118 Attribute

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	99
Default value:	1
Access:	no write protection
Memory:	nvRAM

C-0-0119 External I/O: x-inputs - value

This parameter represents the inputs of the input word determined in parameter "external I/O: x-inputs - number" (C-0-0118).

C-0-0119 Attribute

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0120 External I/O: x-outputs - number

This parameter is used to select the number of the external output word (_A:Xnn) the contents of which are displayed in parameter "external I/O: x-outputs - value" (C-0-0121).

C-0-0120 Attribute

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	99
Default value:	1
Access:	no write protection
Memory:	nvRAM

C-0-0121 External I/O: x-outputs - value

This parameter represents the inputs of the output word determined in parameter "external I/O: x-outputs - number" (C-0-0120).

C-0-0121 Attribute

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0122 Command base parameter load

This parameter is only used for servicing.

C-0-0122 Attribute

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	--
Default value:	--
Access:	write protected in operating mode
Memory:	RAM

C-0-0123 EAENET2 - group identification number

In this parameter, every group member (PPC) of an EAENET2 group bears the group identification number. The PPC receives this number via the Net-PC of the EAENET2 group cyclically every 20 seconds. If this "sign of life" of the Net-PC is not sent, then the PPC sets this parameter to 0.

This parameter supports diagnostics.

C-0-0123 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

C-0-0124 Serial communication - time out

This parameter can set a time out for parameter requirements.

If the PPC-internal parameter processing takes longer than the time set, then a BUSY signal is sent. A setting of 0.0 seconds means no time out.

The time out applies to parameter requirements; whereby it counts for each individual parameter with data blocks.

C-0-0124 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weigthing / unit:	0.1 s
Minimum input value:	0.0 s
Maximum input value:	1000.0 s
Default value:	10.0 s
Access:	no write protection
Memory:	nvRAM

C-0-0125 Fieldbus address

This parameter can be used in profibuses to set the unit address of the DPS. For all communications interfaces, with the exception of the profibus, this parameter is generally write protected. Generally speaking, the Profibus is also write protected if the fieldbus master performed the configuration (C-0-0129, bit 0 = 0).

With an interbus, this parameter displays the communications reference (KR address) of the PCP channel determined by the master.

C-0-0125 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weigthing / unit:	--
Minimum input value:	2
Maximum input value:	126
Default value:	99
Access:	write protected in operating mode
Memory:	FLASH

C-0-0126 Fieldbus: length of process data channel

This parameter sets the length of the process data channel. Length is indicated in the unit [WORD].

This parameter is generally write protected if the fieldbus master performs the configuration (C-0-0129, bit 0 = 0).

Notes on Profibus: The number of words for the parameter channel are contained within the value of the parameter.

Notes on Interbus: The number of words for the PCP channel (presently one word) is NOT contained in the value of the parameter. The Interbus module therefore does not permit the input of 10, 12, 14 or 16 words.

C-0-0126 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weigthing / unit:	data word
Minimum input value:	1
Maximum input value:	16
Default value:	4
Access:	write protected in operating mode
Memory:	FLASH

C-0-0127 Fieldbus: object list of process input data

This parameter is a list of a maximum of 16 words which describe the input data of the process data channel. These data are sent by the PPC to the field bus master cyclically.

The data objects of the process data channel are entered in this list. For objects of the type "long" a dummy word with the value of "0" must be entered into the list after the object number (see default values).

This parameter is generally write protected if the fieldbus master performs the configuration (C-0-0129, bit 0 = 0).

If the parameter channel is active, than the first entry in the list corresponds to the first object after the parameter channel.

C-0-0127 Attributes

Data length:	2 bytes variable length (max: 32 bytes)
Display format:	hexadecimal number
Weigthing / unit:	--
Minimum input value:	0
Maximum input value:	0x5FFF
Default value:	0x8 (actual), 0x20 (max.), 0x5F91, 0x5F92, 0x5F10, 0x0 (dummy word)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0128 Fieldbus: object list of process output data

This parameter is a list of a maximum fo 16 words that describe the output data of the process data channel. These data are made available by the fieldbus master to the PPC cyclically.

The data objects of the process data channel are entered in this list. For objects of the type "long" a dummy word with the value of "0" must be entered into the list after the object number (see default values).

This parameter is generally write protected if the fieldbus master performs the configuration (C-0-0129, bit 0 = 0).

If the parameter channel is active, than the first entry in the list corresponds to the first object after the parameter channel.

C-0-0128 Attributes

Data length:	2 bytes variable length (max: 32 bytes)
Display format:	hexadecimal number
Weigthing / unit:	--
Minimum input value:	0
Maximum input value:	0x5FFF
Default value:	0x8 (actual), 0x20 (max.), 0x5FB1, 0x5FB2, 0x5FB3, 0x5FF1
Access:	write protected in operating mode
Memory:	FLASH

C-0-0129 Fieldbus - control word

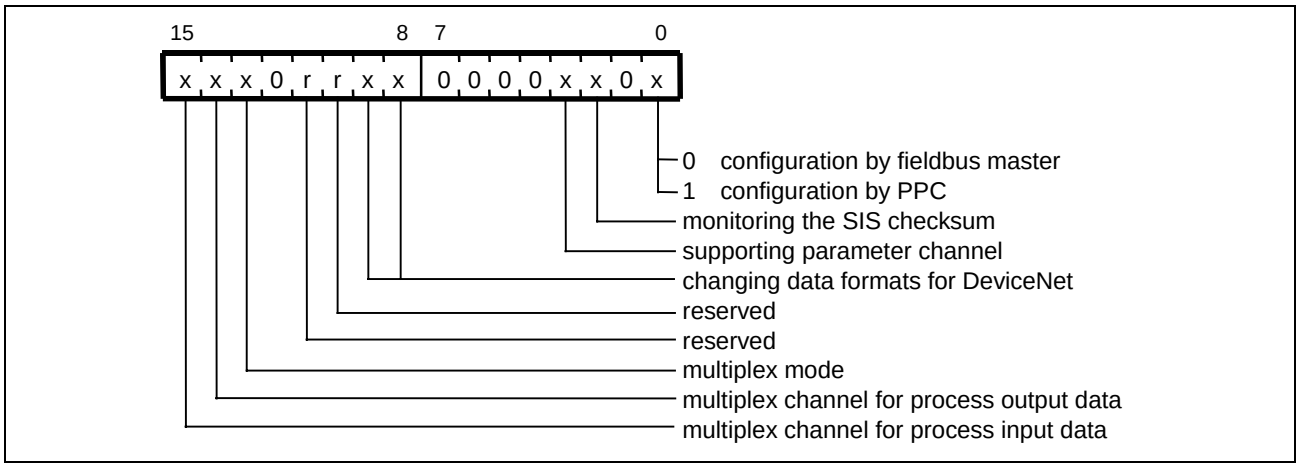

Fig. 4-21: Bit strip C-0-0129

Bit 0	
0	The fieldbus master configures the fieldbus slave. Fieldbus parameters C-0-0125 to C-0-0128, C-0-0131, C-0-0132 are only diagnosis.
1	The fieldbus slave is configured with parameters C-0-0125 to C-0-0128, C-0-0131, C-0-0132 and C-0-0151.

Bit 2 (Monitoring the SIS checksum).

- = 0, the checksum of the SIS protcol is monitored by SYNAX. An invalid checksum acknowledges SYNAX with status 0xF4 in the reaction telegram.
- = 1, the checksum of the SIS protocol not evaluated by SYNAX.

Bit 3 (parameter channel support, Profibus DP):

- = 0, the cyclical parameter channel is not supported meaning that only cyclical data can be transmitted in the process data channel.
- = 1, the cyclical parameter channel is not supported even if the PPC configures the fieldbus slave. The first six data words of the process data channel are reserved for the parameter channel.

Bit 8 (replacing words in the double word):

- = 0, both words of a double word retain their sequence.
- = 1, both words of a double word invert their sequence (high ↔ low).

Bit 9 (replacing bytes in the data exchange object):

- = 0, both words of a double word retain their sequence.
- = 1, both words of a double word invert their sequence (high ↔ low).

Bit 13 (multiplex mode):

- = 0, the fieldbus card manages the multiplex channel.
- = 1, SYNAX manages the multiplex channel.

Bit 14 (Release of the multiplex channel for process output data):

- = 0, then the multiplex channel is not released for process data output.

= 1, parameters C-0-0131 and C-0-0132 to configure the multiplex channel can be used for process output data if the fieldbus slave is configured via PPC parameters.

Bit 15 (release of multiplex channel for process input data):

- = 0, of the multiplex channel cannot be used for process intput data.
- = 1, parameters C-0-0131 and C-0-0132 to configure the multiplex channel can be used for process output data if the fieldbus slave is configured via PPC parameters.

C-0-0129 Attributes

Data length:	2 bytes
Display format:	binary number
Weigthing / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0x1
Access:	write protected in operating mode
Memory:	FLASH

C-0-0130 Internal I/O: high speed cam switches outputs

This parameter is the output for the high speed cam switch group (e.g., cam 1 -> bit 0).

C-0-0130 Attributes

Data length:	4 bytes
Display format:	binary number
Weigthing / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0131 Fieldbus - multiplex size

This parameter specifies how many objects can be multiplexed via the same address in the process data channel.

It affects both data directions, process input and output data eqaully.

This parameter is generally write protected if the fieldbus master performs the configuration (C-0-0129, bit 0 = 0).

C-0-0131 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weigthing / unit:	--
Minimum input value:	1
Maximum input value:	16
Default value:	1
Access:	write protected in operating mode
Memory:	FLASH

C-0-0132 Fieldbus - start address of multiplex channel

This parameter specifies at which address in the process data channel, the multiplex channel begins.

It applies C-0-0132 = n:

$1 \leq n \leq 15$ the multiplex channel starts at the nth data word (inclusive)

n=1 means that the first word after the parameter channel (Profibus) or the PCP channel must be multiplexed

This parameter is generally write protected if the fieldbus master performs the configuration (C-0-0129, bit 0 = 0).

C-0-0132 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weigthing / unit:	--
Minimum input value:	2
Maximum input value:	15
Default value:	8
Access:	write protected in operating mode
Memory:	FLASH

C-0-0133 PPC - hardware status

This parameter for PPC internal purposes only.

C-0-0133 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weigthing / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0134 PPC - expansion bus status

This parameter for PPC internal purposes only.

C-0-0134 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weigthing / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0135 Command shutdown in flash-programming-mode

This parameter is only used for servicing.

C-0-0135 Attributes

Data length:	2 bytes
Display format:	binary number
Weigthing / unit:	--
Minimum input value:	0
Maximum input value:	--
Default value:	--
Access:	write protected in operating mode
Memory:	RAM

C-0-0136 Real master - phase correction

This parameter sets the value for phase correction of the real master axis.

C-0-0136 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.00 %
Minimum input value:	0.00 %
Maximum input value:	100.00 %
Default value:	200 %
Access:	no write protection
Memory:	nvRAM

C-0-0137 Real master - acceleration correction

This parameter sets the value for acceleration correction of the real master axis.

C-0-0137 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.00 %
Minimum input value:	0.00 %
Maximum input value:	100.00 %
Default value:	100.00 %
Access:	no write protection
Memory:	nvRAM

C-0-0138 Real master - correction value smoothing time constant

This parameter sets the time constant for correction smoothing of the real master axis.

A value smaller than the SERCOS cycle time (S-0-0002) shuts the filter down.

C-0-0138 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0 ms
Minimum input value:	0 ms
Maximum input value:	1000 ms
Default value:	15 ms
Access:	no write protection
Memory:	nvRAM

C-0-0139 Real master - current phase deviation

This parameter shows the current phase deviation between actual encoder value and smoothed master axis actual value of the real master axis.

C-0-0139 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	0.0001 degree
Minimum input value:	--
Maximum input value:	--
Default value:	0.0000 degree
Access:	write protected
Memory:	nvRAM

C-0-0140 Real master - maximum positive phase deviation

This parameter shows the maximum positive phase deviation between actual encoder value and smoothed master axis actual value of the master axis.

To reset the parameter, write zero into it.

C-0-0140 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	0.0001 degree
Minimum input value:	- 10000.0000 degree
Maximum input value:	+ 10000.0000 degree
Default value:	0.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0141 Real master - maximum negative phase deviation

This parameter shows the maximum negative phase deviation between actual encoder value and smoothed master axis actual value of the real master axis.

To reset the parameter, write zero into it.

C-0-0141 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	0.0001 degree
Minimum input value:	- 10000.0000 degree
Minimum input value:	+ 10000.0000 degree
Default value:	0.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0142 SynTop - PPC address for RS485 bus

This parameter contains the station address of the PPC if SynTop has to access multiple PPCs via an RS485 bus.

The station address is open to selection and must be greater than 0 with bus operation. C-0-0142 = 0 only supports a point-to-point connection.

C-0-0142 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weigthing / unit:	--
Minimum input value:	0
Maximum input value:	255
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

C-0-0143 Master encoder - output revolutions

This parameter together with parameter "master encoder - input revolutions" (C-0-0144) fixes the measuring gear for the real master axis.

The master axis encoder actual value (P-0-0052) is converted with the measuring gear.

C-0-0143 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1
Minimum input value:	1
Maximum input value:	65535
Default value:	1
Access:	no write protection
Memory:	nvRAM

C-0-0144 Master encoder - input revolutions

This parameter together with parameter "master encoder - output revolutions" (C-0-0143) fixes the measuring for the real master axis.

The master axis encoder actual value (P-0-0052) is converted with the measuring gear.

C-0-0144 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1
Minimum input value:	1
Maximum input value:	65535
Default value:	1
Access:	no write protection
Memory:	nvRAM

C-0-0145 Master encoder - offset

With this parameter it is possible to add an offset to the master axis encoder actual value for the real master axis behind the measuring gear (C-0-0143, C-0-0144).

C-0-0145 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 degree
Minimum input value:	-10 000.0000
Maximum input value:	+10 000.0000
Default value:	0.0000
Access:	no write protection
Memory:	nvRAM

C-0-0146 ELS master - actual position value absolute format

This parameter specifies the current master axis position in absolute format (32 Bit).

The lower 20 bits of the absolute format correspond to parameter "ELS master - actual position value" (C-0-0066).

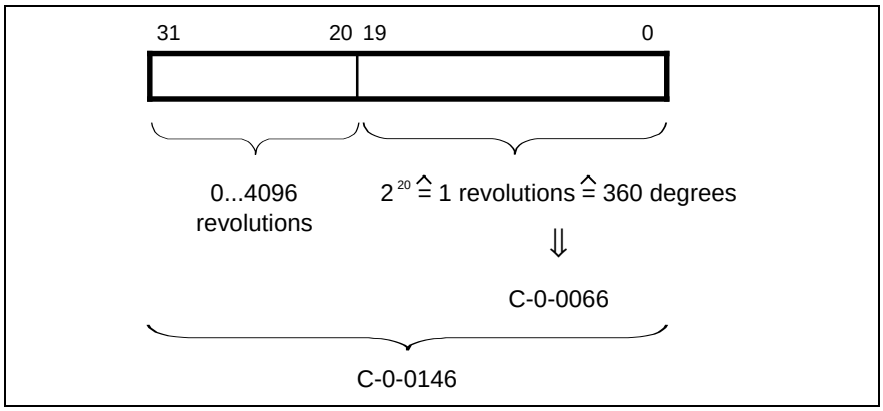

Fig. 4-22: Bit strip C-0-0146

C-0-0146 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1 increment
Minimum input value:	--
Maximum input value:	--
Default value:	0 increments
Access:	write protected
Memory:	RAM

C-0-0147 Host communication: error counter transmission line

A PPC internal error recorder (3964R aund ARCNET) of the host communications can be read out via this parameter.

It supplies information about the extent of the problem of the data line being used.

C-0-0147 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0148 Real master - absolute reference

If input "real master - set absolute measuring" (_E:L01.24) is set while the real master axis is standing, then the contents of C-0-0148 is assumed in parameters "ELS master - actual position value" (C-0-0066) and "ELS master - actual position value absolute format" (C-0-0146).

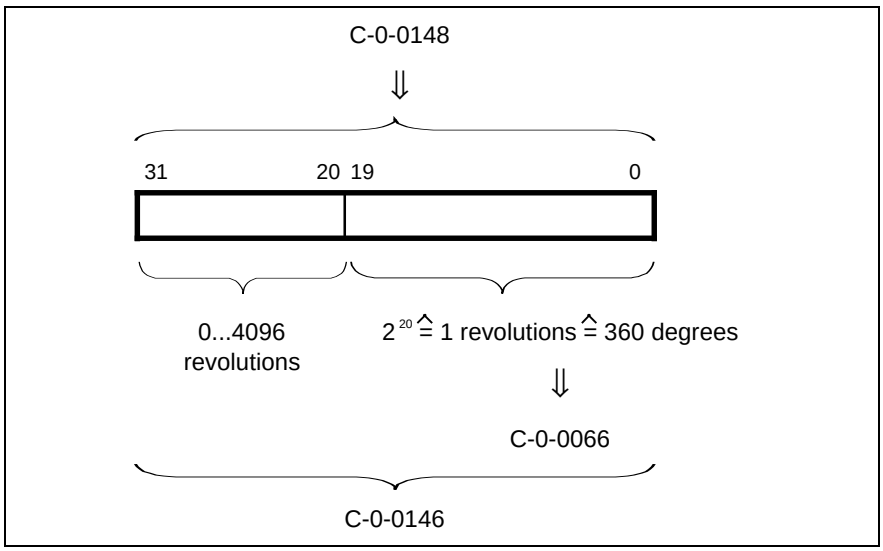

Fig. 4-23: Bit strip C-0-0148

C-0-0148 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1 increment
Minimum input value:	0 increments
Maximum input value:	4294967295 increments
Default value:	0 increments
Access:	no write protection
Memory:	nvRAM

C-0-0149 ELS master command value additive

The master axis command value additive is an offset of the master axis. It is run with "ELS master command value offset speed" (C-0-0150).

The preselected command value is only effective, if input "ELS master command value additive - enable" (_E:L01.25) is "high".

C-0-0149 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 degree
Minimum input value:	see C-0-0162
Maximum input value:	see C-0-0161
Default value:	0
Access:	no write protection
Memory:	nvRAM

C-0-0150 ELS master command value offset speed

The "ELS master command value offset speed" (C-0-0150) is the velocity at which parameter "ELS master command value additive" (C-0-0149) is run.

C-0-0150 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	10^{-4} rpm
Minimum input value:	0.01 rpm
Maximum input value:	740.0000 rpm
Default value:	10.0000 rpm
Access:	no write protection
Memory:	nvRAM

C-0-0151 DeviceNet - Baudrate

With this parameter the baudrate of the DeviceNet interface can be set.

The fieldbus module DNS03 supports baud rates of 125 000, 250 000 and 500 000.

Note: If a non-supported baud rate is input, then the DNS03 automatically internally goes to 125 000 bit/s.

C-0-0151 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting/ Unit:	bit/s
Minimum input value:	--
Maximum input value:	--
Default value:	125 000
Access:	write protected in operating mode
Memory:	FLASH

C-0-0152 Fieldbus - firmware version

This parameter contains the firmware version of the fieldbus card.

Example:

V01.034 08.10.99, V00001.00000T000

C-0-0152 Attributes

Data length:	1 byte variable length (max. 40 bytes)
Display format:	ASCII text
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	34 40 no fieldbus firmware registered
Access:	write protected
Memory:	RAM

C-0-0153 Error recorder - index

This parameter can be used to select any entry of the PPC internal error memory for system diagnostics. By using parameters "error recorder - diagnosis message" (C-0-0154) or "error recorder - diagnosis text" (C-0-0155) this parameter (C-0-0153) 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.

C-0-0153 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	--
Minimum input value:	1
Maximum input value:	31
Default value:	1
Access:	no write protection
Memory:	nvRAM

C-0-0154 Error recorder - diagnosis message

This parameter shows an excerpt of the PPC internal error memory for system diagnoses. By inputting n into parameter "error recorder - index" (C-0-0153) the nth entry of the error memory can be read out. The system errors occurred at these points in time (in ms) are displayed.

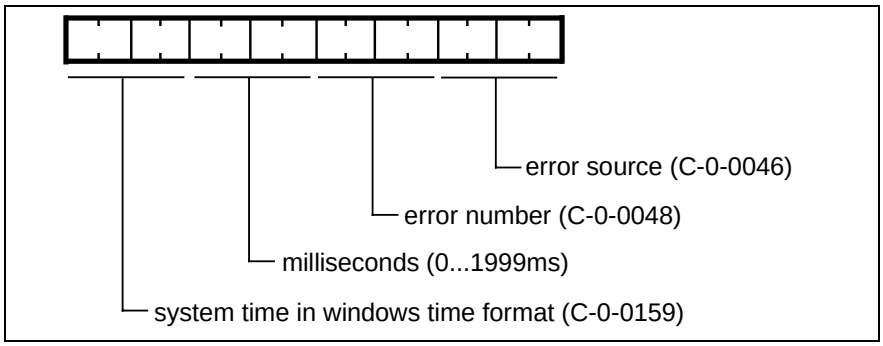

Fig. 4-24: Structure C-0-0154

C-0-0154 Attributes

Data length:	4 bytes variable length (max: 16 bytes)
Display format:	hexadecimal number
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	nvRAM

C-0-0155 Error recorder - diagnosis text

This parameter shows an excerpt of the PPC internal error memory for system diagnoses. By inputting n into parameter "error recorder - index" (C-0-0153) the nth entry of the error memory can be read out. The diagnosis text displays a short summary of the stored system error.

The operating data of parameter C-0-0155 is the same as the corresponding error situation contained in the entry of parameter "SYNAX - diagnostics text" (C-0-0047).

C-0-0155 Attributes

Data length:	1 byte variable length (max. 60 bytes)
Anzeigeformat:	ASCII text
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	nvRAM

C-0-0156 Error recorder

This parameter is used PPC internally for data exchange with SynTop.

C-0-0156 Attributes

Data length:	2 bytes variable length (max. 2818 bytes)
Display format:	hexadecimal number
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	nvRAM

C-0-0157 Data blocks - configurable S-/P-parameters, ID-number

To transmit data blocks that access drive parameters of deactivated drives, the PPC uses an internal preferred list of selected S and P parameters.

If drive parameters are to be transmitted that are not in the preferred list, then the internal list can be expanded by any seven S and P parameters.

Parameter C-0-0157 contains the ID numbers of the drive parameters and parameter C-0-0158 contains the corresponding data length to the added S and P parameters.

The entries in C-0-0157 are in format "ID number".

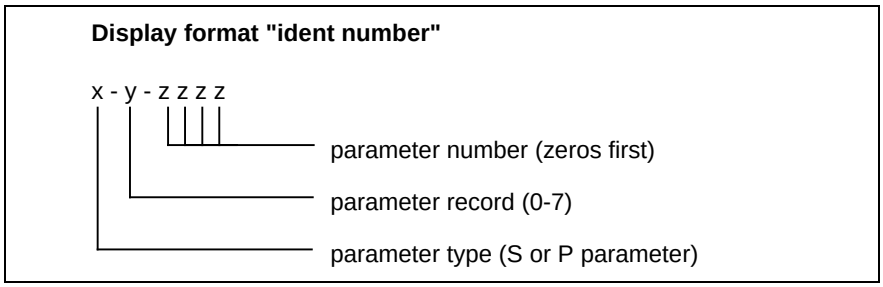

Fig. 4-25: Display format "ident number"

Example:

To enable switching between two cams (P-0-0072 and P-0-0092) in drive 1 "cam shaft control" (P-0-0088) is configured in one data block to select the cam while "cam shaft status" (P-0-0089) is configured in the other to be able to read the current cam. Upon deactivation of drive 1, the transmission of both data blocks is acknowledged as faulty because P-0-0088 and P-0-0089 are not in the internal preferred list.

By inputting

	C-0-0157	**C-0-0158**
Element 1	P-0-0088	2
Element 2	P-0-0089	2

These data blocks can be transmitted without any problem.

Note: The new entered S/P parameters are only considered when switching into operating mode.

The following parameters are deposited PPC internal:

Parameter number	Designation
S-0-0011	Status class 1
S-0-0012	Status class 2
S-0-0013	Status class 3
S-0-0028	MST error counter
S-0-0029	MDT error counter
S-0-0030	Manufacturer version
S-0-0036	Velocity command value
S-0-0037	Velocity command value additive
S-0-0040	Velocity actual value
S-0-0047	Position command value
S-0-0048	Additive position command value
S-0-0051	Actual position value 1 (motor encoder)
S-0-0053	Actual positon value 2 (external encoder)
S-0-0057	Positioning window
S-0-0080	Torque/force command value
S-0-0084	Torque/force actual value
S-0-0091	Velocity limit value bipolar
S-0-0092	Torque/force limit value bipolar
S-0-0095	Diagnostiv message
S-0-0100	Velocity loop P-gain
S-0-0101	Velocity loop integral action time
S-0-0103	Modulo value
S-0-0104	Position loop Kv-Factor
S-0-0108	Feedrate override
S-0-0121	Input revolutions of load gear
S-0-0122	Output revolutions of load gear
S-0-0123	Feed constant
S-0-0124	Standstill window
S-0-0125	Velocity threshold nx
S-0-0130	Probe value 1 positive edge
S-0-0131	Probe value 1 negative edge
S-0-0132	Probe value 2 positive edge
S-0-0133	Probe value 2 negative edge
S-0-0134	Master control word
S-0-0138	Bipolar acceleration limit value
S-0-0139	Command parking axis
S-0-0142	Application type
S-0-0150	Reference offset 1
S-0-0151	Reference offset 2
S-0-0157	Velocity window
S-0-0159	Monitoring window

S-0-0169	Probe control parameter
S-0-0170	Probing cycle procedure command
S-0-0182	Manufacturer class 3 diagnostics
S-0-0183	Velocity synchronisation window
S-0-0189	Lag distance
S-0-0193	Positioning jerk
S-0-0228	Position synchronisation window
S-0-0236	Master drive 1 revolution
S-0-0237	Slave drive 1 revolution
S-0-0258	Target position
S-0-0259	Positioning velocity
S-0-0260	Positioning acceleration
S-0-0346	Setup flag for relative command values
S-0-0347	Speed deviation
S-0-0349	Bipolar jerk limit value
S-0-0382	Intermediate power
S-0-0383	Motor temperature
S-0-0390	Diagnosis number
S-0-0393	Command value mode in modulo format
S-0-0401	Probe 1
S-0-0402	Probe 2
S-0-0403	Position feedback value status
S-0-0405	Probe 1 enable
S-0-0406	Probe 2 enable
P-0-0004	Velovity loop smoothing time constant
P-0-0009	Error number
P-0-0012	Command to set absolute dimension
P-0-0034	Position command additive actual value
P-0-0049	Target position pattern control profile
P-0-0052	Actual position value 3
P-0-0053	Lead drive position
P-0-0060	Filter time constant position command additive
P-0-0061	Angle offset profile start
P-0-0079	Info destination position
P-0-0081	Parallel output 1
P-0-0082	Parallel input 1
P-0-0083	Gain adjust
P-0-0087	Actual positive value 3 offset
P-0-0093	Cam hub
P-0-0094	Cam shaft switch angle
P-0-0098	Max. model deviation
P-0-0108	Polarity master drive
P-0-0109	Torqe/force peak limit
P-0-0121	Velocity mixfactor feedback 1 & 2
P-0-0127	Overload warning
P-0-0139	Analog output 1
P-0-0140	Analog output 2
P-0-0141	Thermal drive load

P-0-0142	Synchronization acceleration
P-0-0143	Synchronization velocity
P-0-0144	Transition angle cam hub
P-0-0151	Synchronization with modulo format
P-0-0154	Synchronization direction
P-0-0155	Synchronization mode
P-0-0156	Master drive gear input revolutions
P-0-0157	Master drive gear output revolutions
P-0-0158	Phase offset velocity
P-0-0159	Slave drive feed travel
P-0-0180	Rejection frequency velocity loop
P-0-0181	Rejection bandwidth velocity loop
P-0-0190	Operating hours control section
P-0-0191	Operating hours power section
P-0-0192	Error recorder diagnosis number
P-0-0193	Error recorder, operating hours control section
P-0-0202	Difference probe values 1
P-0-0203	Difference probe values 2
P-0-0214	Analog input 1, Scaling per 10V full scale
P-0-0215	Analog input 2, assignment
P-0-0532	Premagnetization factor
P-0-1201	Ramp 1 pitch
P-0-1222	Velocity command filter
P-0-4045	Active permanent current
P-0-4046	Active peak current

Fig. 4-26: Predefined S and P parameters for data blocks

C-0-0157 Attributes

Data length:	2 bytes variable length (max. 14 bytes)
Display format:	ident number
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length), 0014 (max. length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0158 Data blocks - configurable S-/P-parameters, data length

To transmit data blocks that access drive parameters of deactivated drives, the PPC uses an internal preferred list of selected S and P parameters.

If drive parameters are to be transmitted that are not in the preferred list, then the internal list can be expanded by any seven S and P parameters.

Parameter C-0-0157 contains the ID numbers of the drive parameters and parameter C-0-0158 contains the corresponding data length to the added S and P parameters.

Parameters with a fixed data length are:

Data lengths to be entered: 2 or 4 bytes

For parameters with variable data lengths (lists) it applies:

The data lengths to be entered are equal to the sum of four control bytes plus the actual length of of the parameter.

Ex.: For a parameter with data length of "4 byte var. length" and e.g., 3 entries, this equals an actual length of 3x4 bytes = 12 bytes. A data length of 16 bytes must be entered in parameter C-0-0158.

The total data length that can be transmitted via interface SIEMENS 3964R with data blocks equals a maximum of 128 bytes. This means the sum of all data lengths entered in parameter C-0-0158 may not exceed the maximum value. Thus in case of parameters with variable data lengths and actual lengths exceeding 124 bytes maximum, the first 124 bytes can be transmitted (value to be entered here in C-0-0158: 128 bytes).

Example:

see C-0-0157

Note: The new entered S/P parameters are only considered when switching into operating mode.

C-0-0158 Attributes

Data length:	2 bytes variable length (max. 14 bytes)
Display format:	unsigned decimal number
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0000 (actual length), 0014 (max. length)
Access:	write protected in operating mode
Memory:	FLASH

C-0-0159 SYNAX - system time

This parameter contains the SYNAX system time and can, e.g., be evaluated by a higher-ranking control (MS Windows time format).

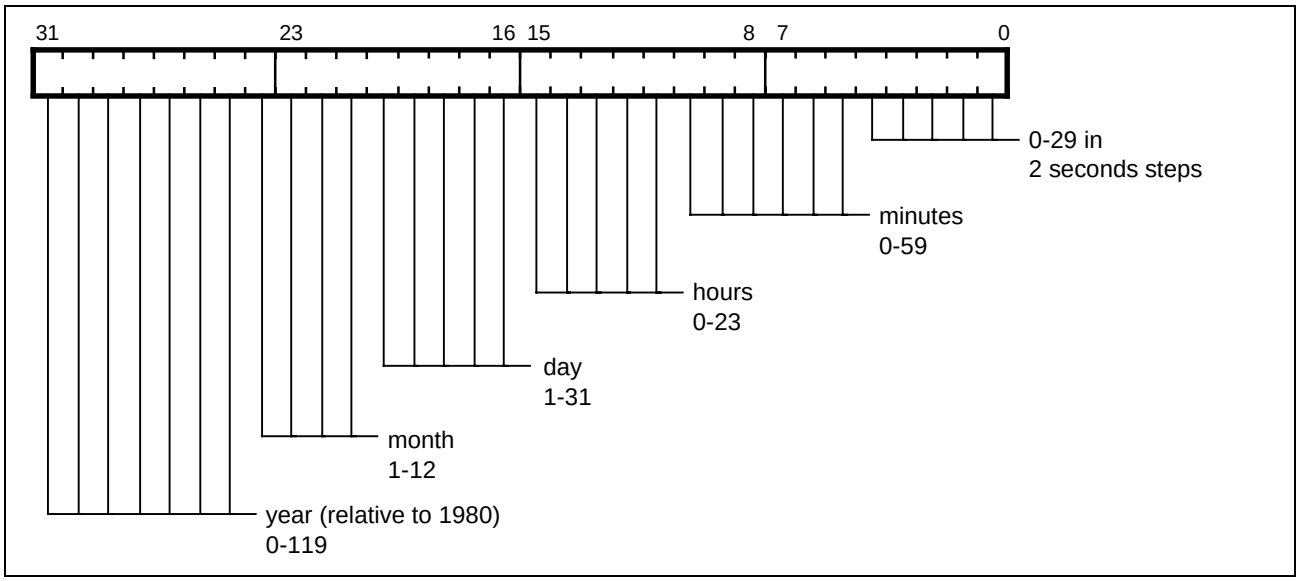

Fig. 4-27: Structure C-0-0159

Example: 20. Feb. 1999, 18:37:22

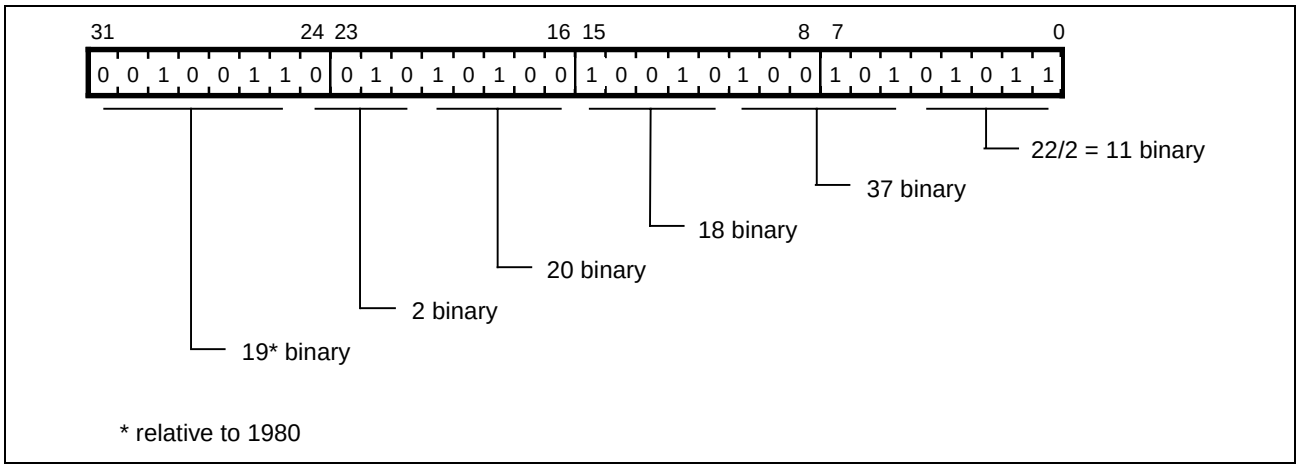

Fig. 4-28: Example C-0-0159

Enter in C-0-0159: 0x265494AB

C-0-0159 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / Unit:	--
Minimum input value:	0x00210000 (1980.1.1., 0:00:00)
Maximum input value:	0x8B9FBF7D (2049.12.31., 23:59:58)
Default value:	0x26210000 (1999.1.1., 0:00:00)
Access:	no write protection
Memory:	nvRAM

C-0-0160 ELS master - actual additive position value

This parameter displays the current additive master axis position.

C-0-0160 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 degree
Minimum input value:	--
Maximum input value:	--
Default value:	0.0000 degree
Access:	no write protection
Memory:	RAM

C-0-0161 ELS master command value additive - positive limit

This parameter limits the "ELS master command value additive" (C-0-0149) to a maximum value.

C-0-0161 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 degree
Minimum input value:	- 200000.0000 degree
Maximum input value:	+ 200000.0000 degree
Default value:	+ 180.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0162 ELS master command value additive - negative limit

This parameter limits the "ELS master command value additive" (C-0-0149) to a minimum value.

C-0-0162 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weigthing / Unit:	0.0001 degree
Minimum input value:	- 200000.0000 degree
Maximum input value:	+ 200000.0000 degree
Default value:	- 180.0000 degree
Access:	no write protection
Memory:	nvRAM

C-0-0163 SYNAX - time of diagnosis

This parameters sets the point in time of the last diagnosis in Windows time format (see "SYNAX - system time" (C-0-0159)).

The diagnosis is in parameters

- "SYNAX - error source" (C-0-0046),
- "SYNAX - diagnostics text" (C-0-0047) and
- "SYNAX - error number" (C-0-0048).

C-0-0163 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0x00000000
Access:	write protected
Memory:	nvRAM

C-0-0164 Command store A/C-parameters in PSM-module

This parameter is used for command to save A or C parameters in phase $\leq$ 3 in flash memory.

Parameter C-0-0164 is most used for SYNAX internal purposes. This means, for example, that SYNAX checks with a transition from phase 2 to 3 whether a parameter has been changed since the last transition command of the PC. If it has, then SYNAX generates command C-0-0164 internally.

If there is to be no transition after a parameter change from phases 2 to 3, then the A/C parameters must be secured as follows in phases 0 to 2.

When using SynTop:

- Use button to save A or C parameters.

When using the terminal:

- Enter the binary value "0000000000000011" (=0x0003) in parameter C-0-0164. This triggers the storage command.
- In conclusion, clear the command by inputting "0000000000000000" (=0x0000) in parameter C-0-0164.

C-0-0164 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected in operating mode
Memory:	RAM

C-0-0165 PPC - present local bus modules

This parameter is only used for internal purposes.

C-0-0165 Attributes

Data length:	2 bytes variable length (max. 32 bytes)
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0166 External I/O: Status local bus slot 7

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 7.

E.g.: Input module _E:Z07.00 -> I*.0.0,

output module _A:Z07.37 -> Q*.3.7

C-0-0166 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimun input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0167 External I/O: Status local bus slot 8

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 8.

E.g.: Input module _E:Z08.00 -> I*.0.0,

output module _A:Z08.37 -> Q*.3.7

C-0-0167 Attributes

Data length:	4 bytes
Display number:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0168 External I/O: Status local bus slot 9

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 9.

E.g.: Input module _E:Z09.00 -> I*.0.0,

output module _A:Z09.37 -> Q*.3.7

C-0-0168 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0169 External I/O: Status local bus slot 10

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 10.

E.g.: Input module _E:Z10.00 -> I*.0.0,

output module _A:Z10.37 -> Q*.3.7

C-0-0169 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0170 External I/O: Status local bus slot 11

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 11.

E.g.: Input module _E:Z11.00 -> I*.0.0,

output module _A:Z11.37 -> Q*.3.7

C-0-0170 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0171 External I/O: Status local bus slot 12

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 12.

E.g.: Input module _E:Z12.00 -> I*.0.0,

output module _A:Z12.37 -> Q*.3.7

C-0-0171 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0172 External I/O: Status local bus slot 13

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 13.

E.g.: Input module _E:Z13.00 -> I*.0.0,

output module _A:Z13.37 -> Q*.3.7

C-0-0172 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0173 External I/O: Status local bus slot 14

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 14.

E.g.: Input module _E:Z14.00 -> I*.0.0,

output module _A:Z14.37 -> Q*.3.7

C-0-0173 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0174 External I/O: Status local bus slot 15

This parameter represents the status of the inputs or outputs of the RECO module on bus slot 15.

E.g.: Input module _E:Z15.00 -> I*.0.0,

output module _A:Z15.37 -> Q*.3.7

C-0-0174 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0175 PPC - control unit temperature

This parameter contains the control unit temperature measured via sensor on the circuit board.

C-0-0175 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	1/degree
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

C-0-0176 PPC - maximum control unit temperature

This parameter contains the maximum measured control unit temperature since the last switch on. Also see C-0-0175.

C-0-0176 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	1/degree
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected
Memory	RAM

C-0-0177 I/O-Assignment - source file

The compressed source file of parameter C-0-0013 is stored in this parameter.

C-0-0177 Attributes

Data length:	2 bytes variable length (max. 10000 bytes)
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	--
Access:	write protected in operating mode
Memory:	FLASH

C-0-0178 I/O-assignment - source file-info

This parameter contains information about source file in format file name, data, time, processor family stored in parameter C-0-0177 .

Example:

"test.txt, 26.01.00, 13:00, PPC"

C-0-0178 Attributes

Data length:	1 byte variable length (max. 60 bytes)
Display format:	ASCII text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	No source file stored
Access:	write protected
Memory:	FLASH

C-0-0179 PPC-link - address

This parameter contains the link address of the PPC.

C-0-0179 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	32
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

C-0-0180 ARCNET participant number

This parameter contains the ARCNET participant number.

C-0-0180 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	255
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

5 A parameter descriptions

A-0-0001 Axis type

The type of axis is set in this parameter.

Whether a rotary or translatory axis, i.e., with linear motion, is used is set here in bit 0.

The format modulo must be set in bit 1 in the case of infinite motion, in particular, in the case of electronic gears. The format absolute is set in axes with a finite traversing range.

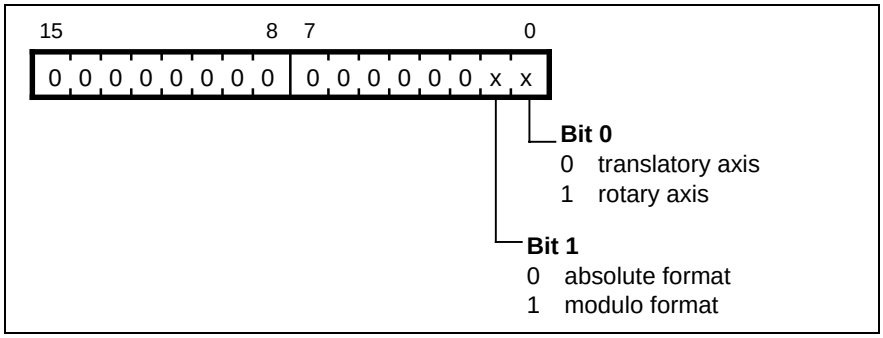

Fig. 5-1: Bit strip A-0-0001

A-0-0001 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0x0000 0000 0000 0011
Access:	write protected in operating mode
Memory:	FLASH

A-0-0002 Position command offset - preset value

Parameter "position command offset" (A-0-0004) can be preset to this value with the binary input "preset position offset" (_E:F#.08).

Binary input "preset position offset" (_E:F#.08) only affects parameter "position command offset" (A-0-0004) when in operating mode "electronic gearboxes phase synchronization" or "cam".

A-0-0002 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0018
maximum input value:	see A-0-0017
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0003 Synchronization mode

a) most significant word (applies in conjunction with band c)

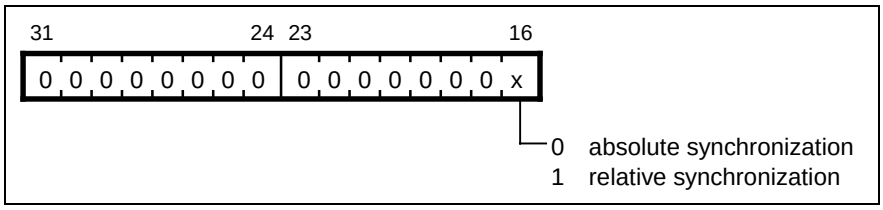

Fig. 5-2: Bit strip A-0-0003 a)

b) synchronization mode with underlying position control

least significant word:

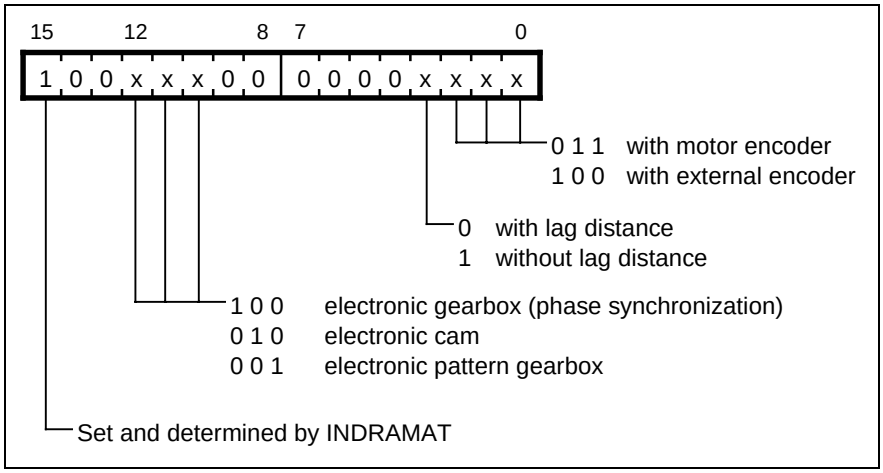

Fig. 5-3: Bit strip A-0-0003 b)

c) synchronization mode with underlying speed control

least significant word:

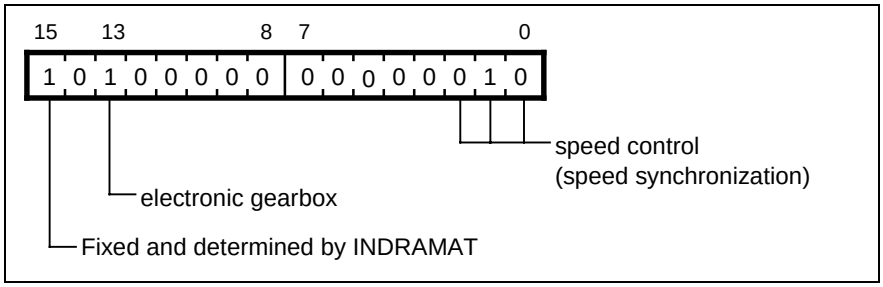

Fig. 5-4: Bit strip A-0-0003 c)

Examples (only least significant word):

0xA002 speed synchronization
0x9004 angle synchronization, with lag distance, external encoder
0x9003 angle synchronization, with lag distance, motor encoder
0x900B angle synchronization, without lag distance, motor encoder
0x8804 cam, with lag distance, external encoder
0x8403 electronic pattern control with lag distance, motor encoder
0x0000 no synchronization mode

d) no synchronization mode

least significant word:

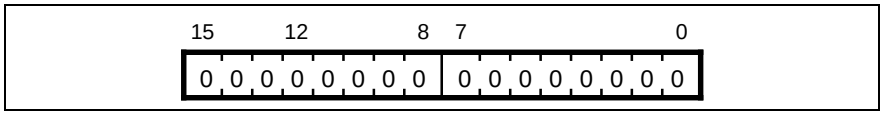

Fig. 5-5: Bit strip A-0-0003 d)

Note: Given a parametrized synchronization mode with underlying position control (e.g., phase synchronization) the same encoder must be selected as in set up mode (see A-0-0009) or special operating mode (see A-0-0070).

A-0-0003 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0xA002
Access:	write protected in operating mode
Memory:	FLASH

A-0-0004 Position command offset

This parameter is a constant position offset which affects the actual position value additively (generated by drive) in all synchronization modes.

If the synchronization mode 0 is chosen, then A-0-0004 is continously fed with "synchronization acceleration" (P-0-0142) and "synchronization velocity" (P-0-0143).

If the synchronization mode 1 is chosen, then the "position command offset" (A-0-0004) is continously fed with "position command offset speed" (A-0-0005) and "filter time constant additional pos. command" (P-0-0060) (see functional description DOK-SYNAX*-SY*-07VRS**-FK01-EN-P, section 3.7, "position adjustments during synchronization").

A-0-0004 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0018
maximum input value:	see A-0-0017
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0005 Position command offset speed

This parameter is only effective if synchronization mode is 1 (see functional description DOK-SYNAX*-SY*-07VRS**-FK01-EN-P, Fig.: 3-67: example: position adjustment with synchronization mode 1).

Once the drive has synchronized, then "position command value additive" (S-0-0048) is fed to parameter "position command offset" (A-0-0004).

The speed of this transaction is limited by this parameter.

A-0-0005 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	0.0025 rpm or 0.001000 m/min
maximum input value:	740.0000 rpm or 200.000000 m/min
Default value:	10.0000 rpm or 0.100000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0006 Drive deactivation

Drives are deactivated using this parameter.

'...0000' = drive activated

'...0001' = drive deactivated

The current list of all deactivated drives can be read out in parameter "addresses deactivated drives" (C-0-0086).

A-0-0006 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	0000 0000 0000 0000
Maximum input value:	0000 0000 0000 0001
Default value:	0000 0000 0000 0000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0007 Incremental jogging position of following axis

A brief key press displaces the axis by the amount programmed here. See DOK-SYNAX*-SY*-07VRS**-FK01-EN-P, functional description, section 11, "jogging functions".

A-0-0007 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	0.0010 degree or 0.0010 mm
maximum input value:	10.0000 degree or 10.0000 mm
Default value:	5.0000 degree or 5.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0008 Analogue channels - analog input control word

This parameter activates analogue inputs.

An activated analogue input must have a corresponding input in parameter "analogue channels - select source parameters" (C-0-0039).

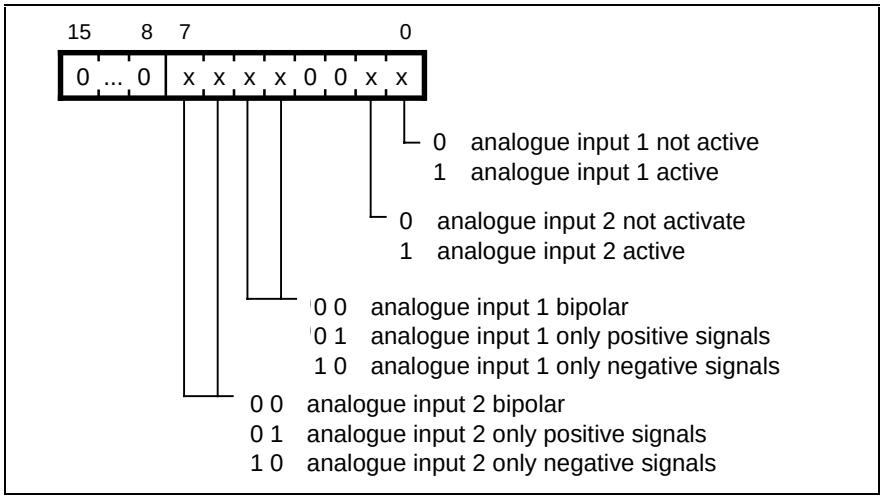

Fig. 5-6: Bit strip A-0-0008

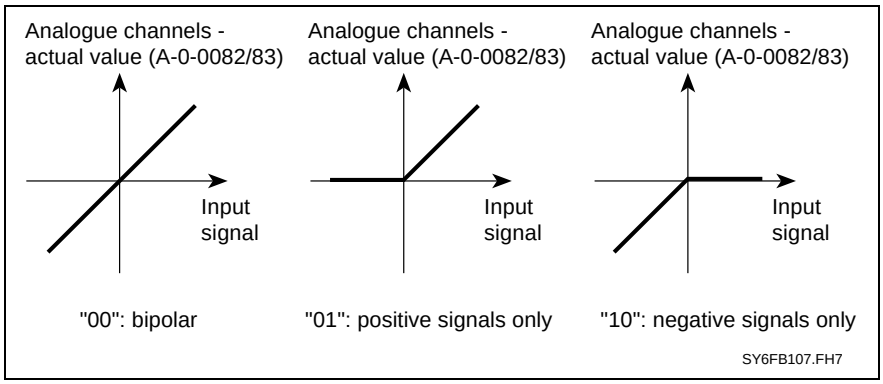

Fig. 5-7: Signals with analogue channels

Legal combinations (hexadecimal representation):

0x0000 no analogue input active
0x0001 analogue input 1 bipolar
0x0011 analogue input 1 positive
0x0021 analogue input 1 negative
0x0002 analogue input 2 bipolar
0x0042 analogue input 2 positive
0x0082 analogue input 2 negative
0x0003 analogue inputs 1 bipolar. 2 bipolar
0x0013 analogue inputs 1 positive. 2 bipolar
0x0023 analogue inputs 1 negative. 2 bipolar
0x0043 analogue inputs 1 bipolar. 2 positive
0x0053 analogue inputs 1 positive. 2 positive
0x0063 analogue inputs 1 negative. 2 positive
0x0083 analogue inputs 1 bipolar. 2 negative
0x0093 analogue inputs 1 positive. 2 negative
0x00A3 analogue inputs 1 negative. 2 negative

A-0-0008 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0x0000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0009 Configuration idle mode / set up mode

The auxiliary modes of the drive, viz.,

- idle and
- setup

are parametrized in this parameter.

a) most significant word: idle

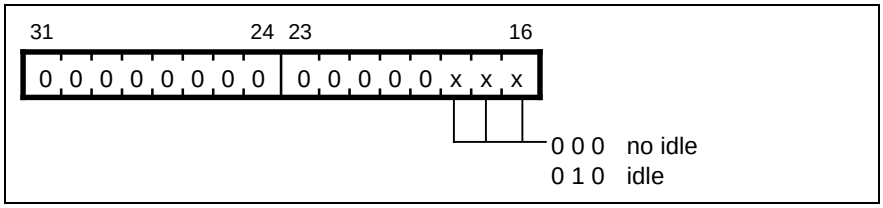

Fig. 5-8: Bit strip A-0-0009 a)

b) least significant word: set up mode

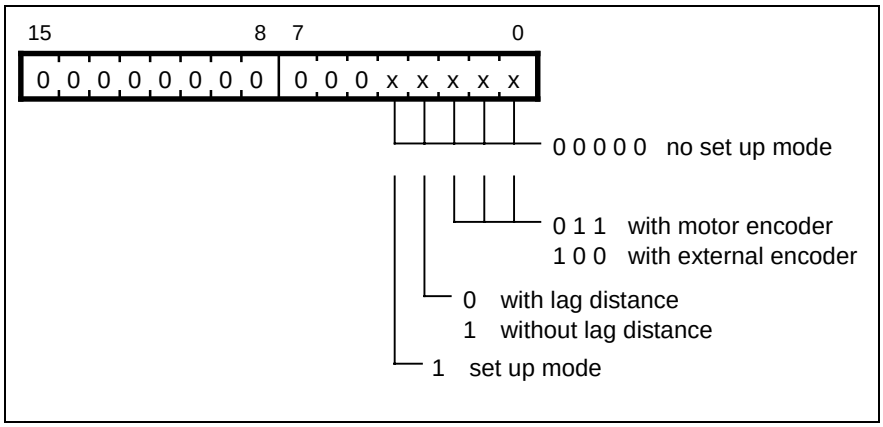

Fig. 5-9: Bit strip A-0-0009 b)

Examples: 0x0000 0013 no idle, set up mode with lag distance, motor encoder

0x0002 0000 idle, no set up mode

0x0002 001C idle, set up mode without lag distance, external encoder

Note: Given a parametrized synchronization mode with underlying position control (e.g., phase synchronization) (see A-0-0003 the same encoder must be selected as in set up mode or special operating mode (see A-0-0070).

A-0-0009 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0x0000 0000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0010 Reserved

A-0-0011 Idle speed 0

The "velocity command value" (S-0-0036) of the following drive follows in idle mode if "idle speed 0" (A-0-0011) is selected taking "idle acceleration" (A-0-0012) into account.

This idle speed is selected by the combination of the following binary signals.

Signal	Value
select idle speed bit 0	0
select idle speed bit 1	0

A-0-0011 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	see A-0-0024
Maximum input value:	see A-0-0023
Default value:	10.0000 rpm or 0.100000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0012 Idle - acceleration

The "velocity command value" (S-0-0036) of the following drive is continuously adjusted in idle mode to "idle speed 0" (A-0-0011) taking "idle acceleration" (A-0-0012) into account.

This value decelerates to standstill, if the input "idle mode - speed command enable" (_E:F#.26) is removed or cancelled.

A-0-0012 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-3} rad/s² or 10^{-6} m/s²
minimum input value:	0.002 rad/s² or 0.010000 m/s²
maximum input value:	7400.000 rad/s² or 200.000000 m/s²
Default value:	10.000 rad/s² or 0.010000 m/s²
Access:	no write protection
Memory:	nvRAM

A-0-0013 Jogging mode with speed synchronization

This parameter specifies which parameter is affected by the jogging inputs. This distinction is necessary for speed synchronization.

Selectable variables:

0 - "fine adjustment" (A-0-0060)

1 - "velocity synchronization - speed offset" (A-0-0031)

2 - "process command value 1" (A-0-0026)

4 - "master drive gear output revolutions" (A-0-0126)

A-0-0013 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	write protected in operating mode
Memory:	nvRAM

A-0-0014 Fine adjustment increments

This parameter determines the value by which the fine adjustment is periodically incremented or decremented if a signal is present at one of the jogging inputs.

A-0-0014 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-2} %
minimum input value:	0.01 %
maximum input value:	100.00 %
Default value:	1.00 %
Access:	no write protection
Memory:	nvRAM

A-0-0015 Speed offset increments

This parameter determines the value by which the speed offset is periodically incremented or decremented if a signal is present at one of the jogging inputs.

A-0-0015 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	0.0010 rpm or 0.000010 m/min
maximum input value:	10.0000 rpm or 0.100000 m/min
Default value:	1.0000 rpm or 0.010000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0016 Idle speed increments

This parameter determines the value by which the idle speed is periodically incremented or decremented if a signal is present at one of the jogging inputs.

A-0-0016 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	0.0010 rpm or 0.000010 m/min
maximum input value:	10.0000 rpm or 0.100000 m/min
Default value:	1.0000 rpm or 0.010000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0017 Position command offset - positive limit

This parameter specifies a limit value with a positive direction.

This limit value affects parameters A-0-0002 and A-0-0004.

A-0-0017 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	-214748.3648 degree or mm (or 0.0000 with modulo axes)
maximum input value:	+214748.3647 degree or mm (or "modulo value" S-0-0103 with modulo axes)
Default value:	+360.0000 degree or mm
Access:	write protected in operating mode
Memory:	FLASH

A-0-0018 Position command offset - negative limit

This parameter specifies a limit value with a negative direction.

This limit value affects parameters A-0-0002 and A-0-0004.

A-0-0018 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	-214748.3648 degree or mm (or 0.0000 with modulo axes)
maximum input value:	+214748.3647 degree or mm (or "modulo value" S-0-0103 with modulo axes)
Default value:	0.0000 degree or mm
Access:	write protected in operating mode
Memory:	FLASH

A-0-0019 Fine adjustment - positive limit

This parameter specifies the maximum value for parameter "gain adjust" (P-0-0083).

A-0-0019 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-2} %
minimum input value:	-327.68 %
maximum input value:	+327.67 %
Default value:	+327.67 %
Access:	write protected in operating mode
Memory:	FLASH

A-0-0020 Fine adjustment - negative limit

This parameter specifies the minimum value for parameter "gain adjust" (P-0-0083).

A-0-0020 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-2} %
minimum input value:	-327.68 %
maximum input value:	+327.67 %
Default value:	-327.68 %
Access:	write protected in operating mode
Memory:	FLASH

A-0-0021 Speed offset - positive limit

This parameter specifies the maximum value for "velocity synchronization - speed offset" (A-0-0031).

A-0-0021 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	-200000.0000 rpm or -2000.000000 m/min
maximum input value:	+200000.0000 rpm or +2000.000000 m/min
Default value:	+200000.0000 rpm or +2000.000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0022 Speed offset - negative limit

This parameter specifies the minimum value "velocity synchronization - speed offset" (A-0-0031).

A-0-0022 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	-200000.0000 rpm or -2000.000000 m/min
maximum input value:	+200000.0000 rpm or +2000.000000 m/min
Default value:	-200000.0000 rpm or -2000.000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0023 Idle speed 0 - positive limit

This parameter specifies the maximum value for the "idle speed 0" (A-0-0011).

A-0-0023 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	-200000.0000 rpm or -2000.000000 m/min
maximum input value:	+200000.0000 rpm or +2000.000000 m/min
Default value:	+200000.0000 rpm or +2000.000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0024 Idle speed 0 - negative limit

This parameter specifies the minimum value for the "idle speed 0" (A-0-0011).

A-0-0024 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	-200000.0000 rpm bzw. -2000.000000 m/min
maximum input value:	+200000.0000 rpm bzw. +2000.000000 m/min
Default value:	-200000.0000 rpm bzw. -2000.000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0025 Process control - control word 1

This parameter is used for activation and setting of the register control.

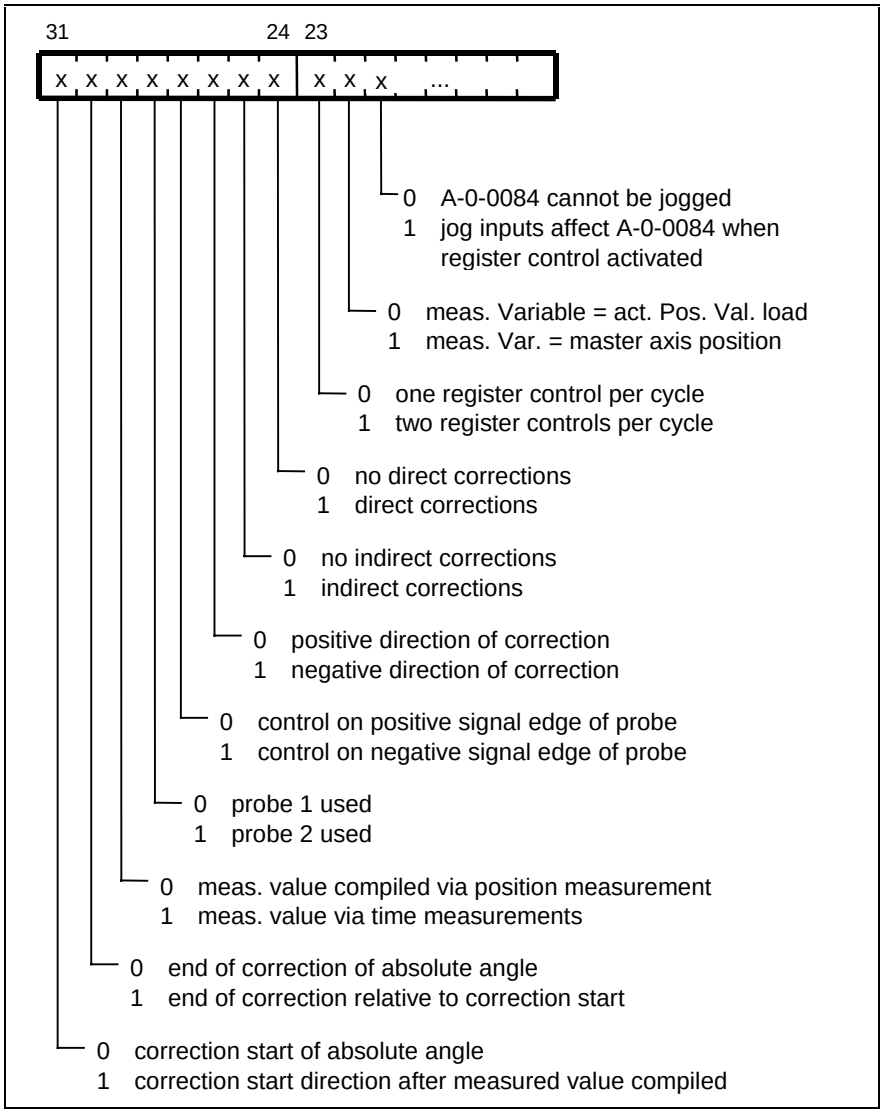

Fig. 5-10: Register control

Explanation of the bits:

- Jogging "Register control - position command" (Bit 21)
  As long as a synchronization mode without register control is activated, the jog inputs continue with the variables given. If a register control is parametrized and activated, then the jog inputs affect, with bit 21 set, the "Register control - position command" (A-0-0084).
- Measured variable (Bit 22):
  see "SYNAX register control", sec. 7
- Register control cycle (Bit 23):
  see "SYNAX register control", sec. 7
- Direct correction, indirect correction (Bit 24. Bit 25):
  This selects the two different correction types "direct and indirect" correction.
- Rotational direction positive/negative (Bit 26):
  This reverses the direction of the corrective action. This may be necessary, e.g., if the measuring axis is not the same as the axis to be corrected, e.g., if the correction is to affect transport axes.
- Positive / negative signal edges (Bit 27):
  It is possible with this bit to set which signal edge of the testing key signal should be evaluated. The terminating edge must be set here for timing, e.g., the negative signal edge wih positive clock pulses.
- Testing key 1 or 2 used (Bit 28):
  For positioning, this specifies that teting key input at which the testing signal is connected. For timing, this bit specifies that testing key input at which the time proportional signal is connected (not the prefixed).
- Measured data acquisition via measuring key function /timing (Bit 29):
  This selects whether the register controller directly detects the position of the measuring axis via the measuring key function, or whether it executes the correction with the use of a timing signal.
- End correction absolute angle / relative to begin correction (Bit 30):
  This sets whether the correction should end to phase as per A-0-0086 (absolute angle), or whether the correction should end relative to the beginning as per the duration of the correction derived from the difference between parameter A-0-0086 and A-0-0085.
- Begin correction absolute phase / relative to begin correction (Bit 31):
  Begin correction is derived from parameter A-0-0085 at this point, or it begins diretly after measured data acquisition (measurement of position or timing).

A-0-0025 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / unit:	
minimum input value:	--
maximum input value:	--
Default value:	0x00000000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0026 Process command value 1

The process controller command value is specified in this parameter.

A-0-0026 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1}
minimum input value:	0.0
maximum input value:	100000.0
Default value:	0.0
Access:	no write protection
Memory:	nvRAM

A-0-0027 Process actual value

This parameter generates the actual value for the process controller.

A-0-0027 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1}
minimum input value:	--
maximum input value:	--
Default value:	0.0
Access:	write protected
Memory:	RAM

A-0-0028 Analogue channels - analogue input weighting

This parameter sets the weighting of the analogue inputs.

The data is a list of variable length. The "i" element of the list corresponds to the "i" analogue input.

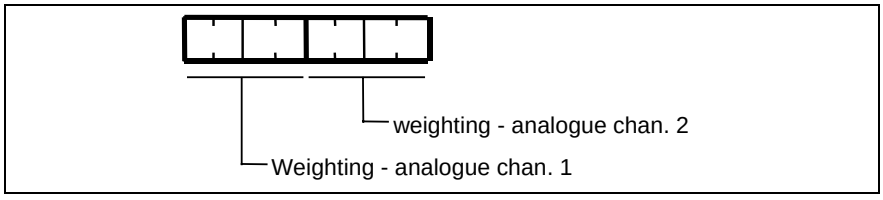

Fig. 5-11: The structure of the list A-0-0028

A-0-0028 Attributes

Data length:	4 bytes variable length (max: 8 bytes)
Display format:	signed decimal number
Weighting / unit:	1/10V
minimum input value:	-1000000000
maximum input value:	1000000000
Default value:	10000
Access:	no write protection
Memory:	nvRAM

A-0-0029 Process controller - integral action time 1

The process controller can be a PI controller. Then the process controller variable is made up of proportional and an integral action. This parameter can be used to set the integral action time of the PI controller. The action time equals that time in which the integral action time grows to the value of the variable of the proportional share. If this time is 0, then the integral action time is switched off.

The parameter is relevant for the following functions:

- tension control with load cell
- dancer control
- winding control with dancer

A-0-0029 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 ms
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0030 Process controller - proportional gain 1

The parameter is relevant for the following functions:

- tension control with load cell
- dancer control
- winding control with dancer

A-0-0030 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	0,0001
minimum input value:	--
maximum input value:	--
Default value:	0,0000
Access:	no write protection
Memory:	nvRAM

A-0-0031 Velocity synchronization - speed offset

This parameter presets the speed offset for a drive in speed synchronization (see A-0-0003).

A-0-0031 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	see A-0-0022
maximum input value:	see A-0-0021
Default value:	0.0000 rpm or 0.000000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0032 Pattern control - grid dimension

The grid dimensions are stored in this parameter.

This parameter is only relevant for mode "electronic pattern control".

A-0-0032 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	0.0010 degree or 0.0010 mm
maximum input value:	10.0000 degree or 10.0000 mm
Default value:	1.0000 degree or 1.0000 mm
Access:	write protected in operating mode
Memory:	FLASH

A-0-0033 Pattern control - compensation value weighting

The weighting of the compensation value is stored in this parameter.

This parameter is a per cent value of the "pattern control - grid dimension" (A-0-0032).

This parameter is only relevant for mode "electronic pattern control".

A-0-0033 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-2} %
minimum input value:	--
maximum input value:	--
Default value:	5.00 %
Access:	no write protection
Memory:	nvRAM

A-0-0034 Set up positions - positive limits

Limit values in a positive direction are stored here.

These values affect parameters

A-0-0056 (1st element), A-0-0057 (2nd element), A-0-0058 (3rd element) and A-0-0059 (4th element).

All four elements of this list must be written into!

A-0-0034 Attributes

Data length:	4 bytes variable length (max. 16 bytes)
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	-214748.3648 degree or mm (or 0.0000 with modulo axes)
maximum input value:	+214748.3647 degree or mm (or "modulo value" S-0-0103 with modulo axes)
Default value:	+360.0000 degree or mm
Access:	write protected in operating mode
Memory:	FLASH

A-0-0035 Set up positions - negative limits

This parameter specifies a limit value in negative direction.

These values affect parameters

A-0-0056 (1st element), A-0-0057 (2nd element), A-0-0058 (3rd element) and A-0-0059 (4th element).

All four elements of this list must be written into!

A-0-0035 Attributes

Data length:	4 bytes variable length (max. 16 bytes)
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	-214748.3648 degree or mm (or 0.0000 with modulo axes)
maximum input value:	+214748.3647 degree or mm (or "modulo value" S-0-0103 with modulo axes)
Default value:	0.0000 degree or mm
Access:	write protected in operating mode
Memory:	FLASH

A-0-0036 Digital I/O - configuration

This parameter specifies whether a DEA card is used for the high-speed cam switch group in the relevant drive.

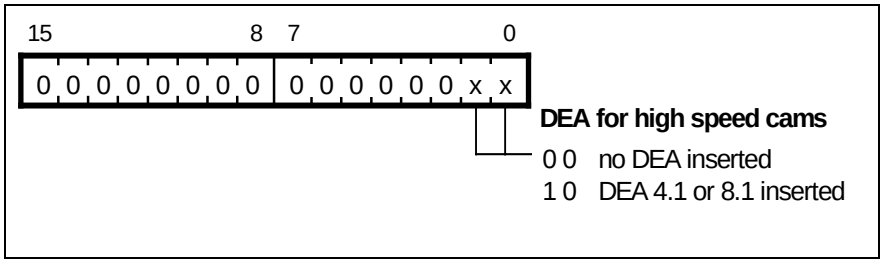

Fig. 5-12: Bit strip A-0-0036

Note: One DEA card (DEA 4.1 or DEA 8.1) can be used in each drive.

A-0-0036 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0037 Bipolar torque limit - reduced

Input "torque reduced" (_E:F#.24) selects the maximum torque of the drive.

If this input is set, then the reduced torque programmed here, affects parameter S-0-0092 in the drive.

The value set is a per cent value of the torque of the motor at zero speed.

A-0-0037 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} %
minimum input value:	0.1 %
maximum input value:	3276.7 %
Default value:	100.0 %
Access:	write protected in operating mode
Memory:	FLASH

A-0-0038 Bipolar torque limit

Input "torque reduced" (_E:F#.24) selects the maximum torque of the drive.

If this input is reset, then the torque programmed here, affects parameter S-0-0092 in the drive.

The value set is a per cent value of the torque of the motor at zero speed.

A-0-0038 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} %
minimum input value:	0.1 %
maximum input value:	3276.7 %
Default value:	100.0 %
Access:	write protected in operating mode
Memory:	FLASH

A-0-0039 Negative pattern limit

The negative pattern limit value specifies the maximum legal pattern value of the axis in a negative direction.

This limit only applies in operating mode "electronic pattern control" during a cyclical transmission of the pattern data.

A-0-0039 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	-200000.0000 degree or -200000.0000 mm
maximum input value:	+200000.0000 degree or +200000.0000 mm
Default value:	-200000.0000 degree or -200000.0000 mm
Access:	write protected in operating mode
Memory:	FLASH

A-0-0040 Positive pattern limit

The positive pattern limit value specifies the maximum legal pattern value of the axis in a positive direction.

This limit only applies in operating mode "electronic pattern control" with a cyclical transmission of the pattern data.

A-0-0040 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	-200000.0000 degree or -200000.0000 mm
maximum input value:	+200000.0000 degree or +200000.0000 mm
Default value:	+200000.0000 degree or +200000.0000 mm
Access:	write protected in operating mode
Memory:	FLASH

A-0-0041 Pattern control - target position 1A

Specifies target position 1 of the range A (the first half turn of the master axis).

This parameter will only affect the drive, if cyclical pattern data transmission has not been selected (see parameter C-0-0011).

A-0-0041 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0039
maximum input value:	see A-0-0040
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0042 Pattern control - target position 2A

Specifies target position 2 of the range A (the first half turn of the master axis).

This parameter will only affect the drive, if cyclical pattern data transmission has not been selected (see parameter C-0-0011).

A-0-0042 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0039
maximum input value:	see A-0-0040
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0043 Pattern control - target position 3A

Specifies target position 3 of the range A (the first half turn of the master axis).

This parameter will only affect the drive, if cyclical pattern data transmission has not been selected (see parameter C-0-0011).

A-0-0043 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0039
maximum input value:	see A-0-0040
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0044 Pattern control - target position 1B

Specifies target position 1 of the range B (the second half turn of the master axis).

This parameter will only affect the drive, if cyclical pattern data transmission has not been selected (see parameter C-0-0011).

A-0-0044 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0039
maximum input value:	see A-0-0040
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0045 Pattern control - target position 2B

Specifies target position 2 of the range B (the second half turn of the master axis).

This parameter will only affect the drive, if cyclical pattern data transmission has not been selected (see parameter C-0-0011).

A-0-0045 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0039
maximum input value:	see A-0-0040
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0046 Pattern control - target position 3B

Specifies target position 3 of the range B (the second half turn of the master axis).

This parameter will only affect the drive, if cyclical pattern data transmission has not been selected (see parameter C-0-0011).

A-0-0046 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0039
maximum input value:	see A-0-0040
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0047 Pattern control - step mode A

Specifies step mode of the range A (the first half turn of the master axis).

This parameter will only affect the drive, if cyclical pattern data transmission has not been selected (see parameter C-0-0011).

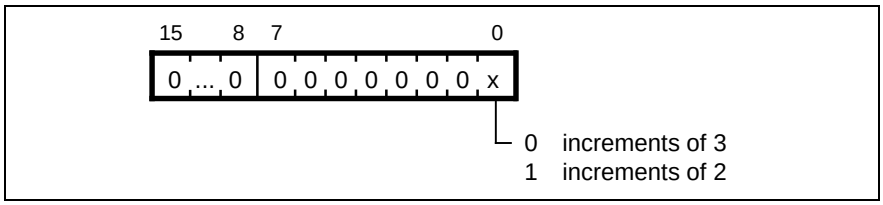

Fig. 5-13: Bit strip A-0-0047

A-0-0047 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0000000000000000
Access:	no write protection
Memory:	nvRAM

A-0-0048 Pattern control - step mode B

Specifies step mode of the range B (the second half turn of the master axis).

This parameter will only affect the drive, if cyclical pattern data transmission has not been selected (see parameter C-0-0011).

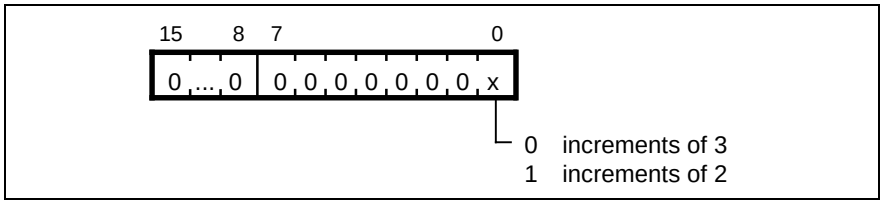

Fig. 5-14: Bit strip A-0-0048

A-0-0048 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0000000000000000
Access:	no write protection
Memory:	nvRAM

A-0-0049 Pattern control - limits between received target positions

This defines the maximum legal increment width for the "electronic gearbox" mode with transmission of pattern data from the pattern computer.

This parameter is only effective if the monitoring of increment width if activated (see Parameter C-0-0014).

A-0-0049 Attributes

Data length:	4 bytes variable length (Max: 24 bytes)
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	--
maximum input value:	--
Default value:	0000 (actual length) 0024 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

A-0-0050 Pattern control - received target position 1A

Specifies target position 1 of range A (first half turn of the master axis) received during the pattern data transmission from the pattern computer. This parameter serves diagnostic purposes only.

A-0-0050 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	--
maximum input value:	--
Default value:	0.0000 degree or 0.0000 mm
Access:	write protected
Memory:	RAM

A-0-0051 Pattern control - received target position 2A

Specifies target position 2 of range A (first half turn of the master axis) received during the pattern data transmission from the pattern computer. This parameter serves diagnostic purposes only.

A-0-0051 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	--
maximum input value:	--
Default value:	0.0000 degree or 0.0000 mm
Access:	write protected
Memory:	RAM

A-0-0052 Pattern control - received target position 3A

Specifies target position 3 of range A (first half turn of the master axis) received during the pattern data transmission from the pattern computer. This parameter serves diagnostic purposes only.

A-0-0052 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	--
maximum input value:	--
Default value:	0.0000 degree or 0.0000 mm
Access:	write protected
Memory:	RAM

A-0-0053 Pattern control - received target position 1B

Specifies target position 1 of range B (second half turn of the master axis) received during the pattern data transmission from the pattern computer. This parameter serves diagnostic purposes only.

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A-0-0053 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	--
maximum input value:	--
Default value:	0.0000 degree or 0.0000 mm
Access:	write protected
Memory:	RAM

A-0-0054 Pattern control - received target position 2B

Specifies target position 2 of range B (second half turn of the master axis) received during the pattern data transmission from the pattern computer. This parameter serves diagnostic purposes only.

A-0-0054 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	--
maximum input value:	--
Default value:	0.0000 degree or 0.0000 mm
Access:	write protected
Memory:	RAM

A-0-0055 Pattern control - received target position 3B

Specifies target position 3 of range B (second half turn of the master axis) received during the pattern data transmission from the pattern computer. This parameter serves diagnostic purposes only.

A-0-0055 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	--
maximum input value:	--
Default value:	0.0000 degree or 0.0000 mm
Access:	write protected
Memory:	RAM

A-0-0056 Set-up position 0

This parameter contains setup position 0. This setup position is selected by combining the following binary signals.

Signal	Value
select setup position bit 0	0
select setup position bit 1	0

Fig. 5-15: Table A-0-0056

Note: When activating setup mode, with active setup position 0, or when selecting setup mode 0, in setup mode, then the PPC replaces this parameter with the most current actual value of the drive.

A-0-0056 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0035 (element 1)
maximum input value:	see A-0-0034 (element 1)
Default value:	0.0000 mm or 0.0000 degree
Access:	no write protection
Memory:	nvRAM

A-0-0057 Set-up position 1

This parameter contains setup position 1. This parameter contains setup position 0. This setup position is selected by combining the following binary signals.

Signal	Value
select setup position bit 0	1
select setup position bit 1	0

Fig. 5-16: Table A-0-0057

A-0-0057 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0035 (element 2)
maximum input value:	see A-0-0034 (element 2)
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0058 Set-up position 2

This parameter contains setup position 2. This setup position is selected by combining the following binary signals.

Signal	Wert
select setup position bit 0	0
select setup position bit 1	1

Fig. 5-17: Table A-0-0058

A-0-0058 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0035 (element 3)
maximum input value:	see A-0-0034 (element 3)
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0059 Set-up position 3

This parameter contains setup position 3. This setup position is selected by combining the following binary signals.:

Signal	Wert
select setup position bit 0	1
select setup position bit 1	1

Fig. 5-18: Table A-0-0059

A-0-0059 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	see A-0-0035 (element 4)
maximum input value:	see A-0-0034 (element 4)
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0060 Fine adjustment

This parameter can preset the fine adjustment of a gear ratio for a drive in speed synchronization (see A-0-0003).

If process control is active, then the preset value could be modified by the process controller.

A-0-0060 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-2} %
minimum input value:	see A-0-0020
maximum input value:	see A-0-0019
Default value:	0.00 %
Access:	no write protection
Memory:	nvRAM

A-0-0061 Process variable window

This parameter sets a window for monitoring the process variable.

Binary output "process variable in process window" (_A:F#.20) is set once the following conditions are met:

(A-0-0026 - A-0-0026 x A-0-0061) < (A-0-0027) < (A-0-0026 + A-0-0026 x A-0-0061)

Monitoring is also effective if process controller is not active.

Example:

- A-0-0026 = 100mm
- A-0-0061 = 10%
- (A-0-0026 - A-0-0026 x A-0-0061) = 90mm
- (A-0-0026 + A-0-0026 x A-0-0061) = 110mm
- Requirement for setting binary output "process variable in process window" (_A:F#.20): 90mm < A-0-0027 < 110mm

A-0-0061 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} % of the process variable command value (A-0-0026)
minimum input value:	--
maximum input value:	--
Default value:	10.0 %
Access:	no write protection
Memory:	nvRAM

A-0-0062 Maximum process variable - monitoring window

This parameter monitors the actual value of the process variable.

If the maximum process variable is exceeded, then binary output "max. process variable exceeded" (_A:F#.22) is set.

This monitor is active even if the process controller is not.

This parameter does not limit the actual value of the process variable.

Example:

- A-0-0026 = 150mm
- A-0-0062 = 150%
- Requirement for setting binary output "maximum process variable exceeded" (_A:F#.22): 225mm < A-0-0027

A-0-0062 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} % of the process variable command value (A-0-0026)
minimum input value:	--
maximum input value:	--
Default value:	150.0
Access:	no write protection
Memory:	nvRAM

A-0-0063 Minimum process variable - monitoring window

This parameter monitors the actual value of the process variable.

If the minimum process variable is not achieved, then binary output "min. process variable exceeded" (_A:F#.21) is set.

This monitor is active even if the process controller is not.

This parameter does not limit the actual value of the process variable.

Example:

- A-0-0026 = 150mm
- A-0-0063 = 50%
- Requirement for setting binary output "min. process variable exceeded" (_A:F#.21): A-0-0027 < 75mm

A-0-0063 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} % of the process variable command value (A-0-0026)
minimum input value:	--
maximum input value:	--
Default value:	50.0
Access:	no write protection
Memory:	nvRAM

A-0-0064 Process variable increments

This parameter sets the value with which the parrameter "process command value 1" (A-0-0026) is changed with a short jogging signal.

A-0-0064 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1}
minimum input value:	1.0
maximum input value:	1000.0
Default value:	1.0
Access:	no write protection
Memory:	nvRAM

A-0-0065 Analogue channels - analogue input offset

This parameter sets the offset of an analogue input (compensated). The value set in the parameter is subtracted from the analogue input value.

The data is given in the form of a list of variable length. The "i" element of the list corresponds to the "i" analogue input.

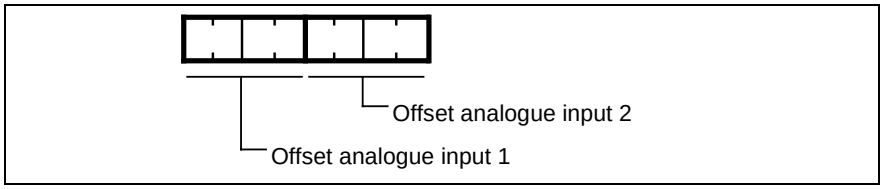


Fig. 5-19: The structure of the list A-0-0065

A-0-0065 Attributes

Data length:	2 bytes variable length (max: 4 bytes)
Display format:	signed decimal number
Weighting / unit:	1 mV
minimum input value:	-16384 mV
maximum input value:	+16383 mV
Default value:	0000 (actual length) 0004 (maximum length)
Access:	no write protection
Memory:	nvRAM

A-0-0066 Analogue channels - smoothing time constant

This parameter sets the time constant for the smoothing of the analogue channel.

The data is given in the form of a list of variable length. The "i" element of the list corresponds to the "i" analogue input.

The filter is off with a value of 0ms.

The filter is also switched off if the smoothing time constant value at this point is smaller than:

"Sercos cycle time" (see S-0-0002) x number of process control axes

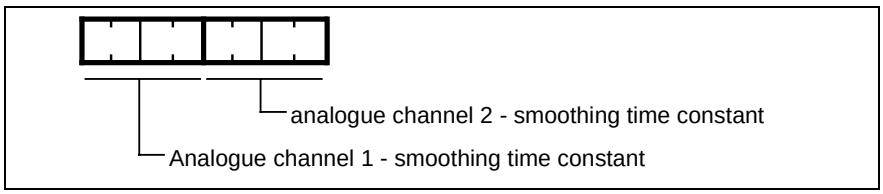


Fig. 5-20: The structure of the list A-0-0066

A-0-0066 Attributes

Data length:	2 bytes variable length
Display format:	unsigned decimal number
Weighting / unit:	1 ms
minimum input value:	--
maximum input value:	--
Default value:	0000 (actual length) 0004 (maximum length)
Access:	no write protection
Memory:	nvRAM

A-0-0067 Process controller - actual value 1 (fine adjustment)

If the process controller is active and effecting the process controller output on the fine adjustment (configuration in parameter "process control - control word 2" (A-0-0146)), then the PPC writes the current variable 1 of the process controller into this parameter. This parameter serves only diagnostics purposes.

The parameter is relevant for the following functions:

- tension control with load cell
- winding control, without sensor
- winding control with dancer

A-0-0067 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-2} %
minimum input value:	see A-0-0069
maximum input value:	see A-0-0068
Default value:	0.00 %
Access:	write protected
Memory:	nvRAM

A-0-0068 Process controller - positive limit 1

This parameter limits variable 1 of the process controller to its maximum value.

The parameter is relevant for the following functions:

- tension control with load cell
- winding control, without sensor
- winding control with dancer

A-0-0068 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-2} %
minimum input value:	-327.67 %
maximum input value:	327.67 %
Default value:	327.67 %
Access:	no write protection
Memory:	nvRAM

A-0-0069 Process controller - negative limit 1

This parameter limits variable 1 of the process controller to its minimum value.

The parameter is relevant for the following functions:

- tension control with load cell
- winding control, without sensor
- winding control with dancer

A-0-0069 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-2} %
minimum input value:	-327.67 %
maximum input value:	327.67 %
Default value:	-327.67 %
Access:	no write protection
Memory:	nvRAM

A-0-0070 Special operation mode

This operating mode implements such basic functions as:

interpolating (positioning)	see A-0-0071
position control	see A-0-0072
speed control	see A-0-0073

If a **PPC-P** is used, then real-time data can be transmitted via the parallel interface of the PPC-P (dual port ram).

The configuration of this real-time data is set, depending on the selected special operating mode, in one of the parameters A-0-0071 to A-0-0073.

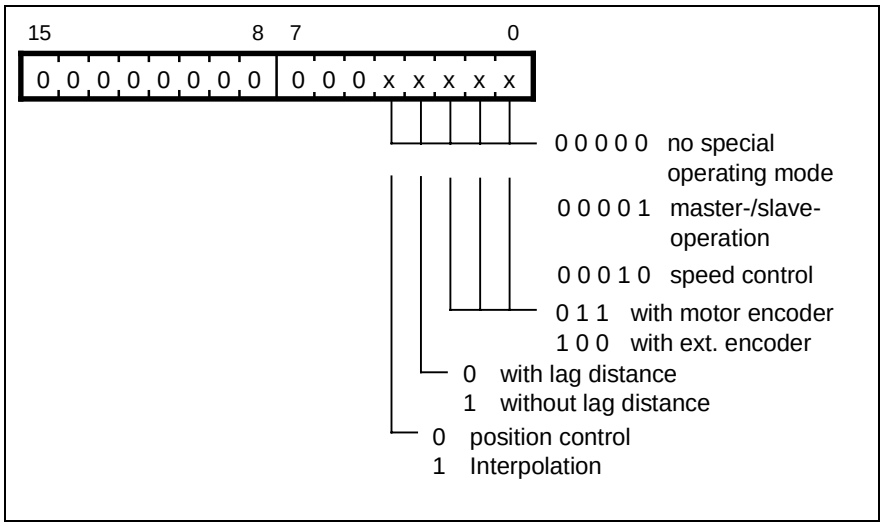


Fig. 5-21: Bit strip A-0-0070

Examples:

0x0000	no special operating mode
0x0001	master- /slave-operation (analogue torque control)
0x0002	speed control
0x0003	position control, with lag distance, motor encoder
0x0004	position control, with lag distance, external encoder
0x000B	position control, without lag distance, motor encoder
0x000C	position control, without lag distance, external encoder
0x0013	interpolation, with lag distance, motor encoder
0x0014	interpolation, with lag distance, external encoder
0x001B	interpolation, without lag distance, motor encoder
0x001C	interpolation, without lag distance, external encoder
0x0213	relative interpolation, with lag distance, motor encoder
0x0214	relative interpolation, with lag distance, external encoder
0x021B	relative interpolation, without lag distance, motor encoder
0x021C	relative interpolation, without lag distance, external encoder

Note: Given a parametrized synchronization mode with underlying position control (e.g., phase synchronization) (see A-0-0003) the same encoder must be selected as in set up mode (see A-0-0009) or special operating mode.

A-0-0070 Attributes

Data length:	2 bytes
Display format:	hexadecimal number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0x0000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0071 Real-time data - special operation mode positioning

If special position mode (position control with command filter) is set in parameter A-0-0070, then the master data telegram of the relevant drive is configured with parameter "real-time data - special operating mode positioning" (A-0-0071).

The parameters designated with "1" are configured in the cyclical telegram of the drive and depicted in the dual port ram of the PPC-P.

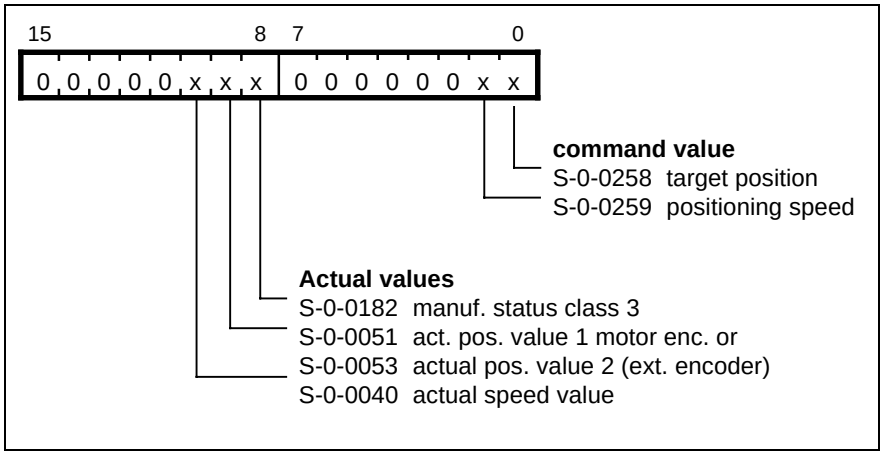


Fig. 5-22: Bit strip A-0-0071

Bit definition:

0: Parameter not configured

1: Parameter configured

A-0-0071 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0072 Real-time data - special operation mode position control

If special position control operating mode is set in parameter A-0-0070, then the master data telegram of the relevant drive is configured with parameter "real-time data - special operating mode position control" (A-0-0072).

The parameters designated with "1" are configured in the cyclical telegram of the drive and depicted in the dual port ram of the PPC-P.

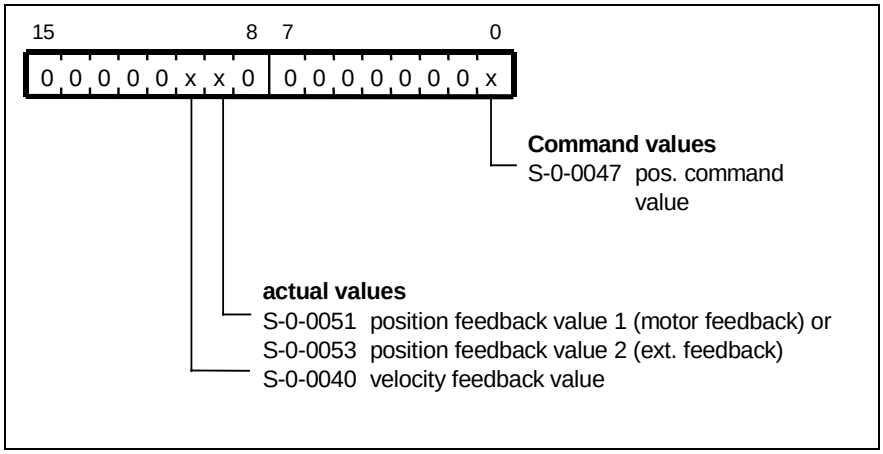


Fig. 5-23: Bit strip A-0-0072

Bit definition:

0: Parameter not configured

1: Parameter configured

A-0-0072 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0073 Real-time data - special operation mode velocity control

If special position control operating mode is set in parameter A-0-0070, then the master data telegram of the relevant drive is configured with parameter "Real-time data - special operation mode velocity control" (A-0-0073).

The parameters designated with "1" are configured in the cyclical telegram of the drive and depicted in the dual port RAM of the PPC-P.

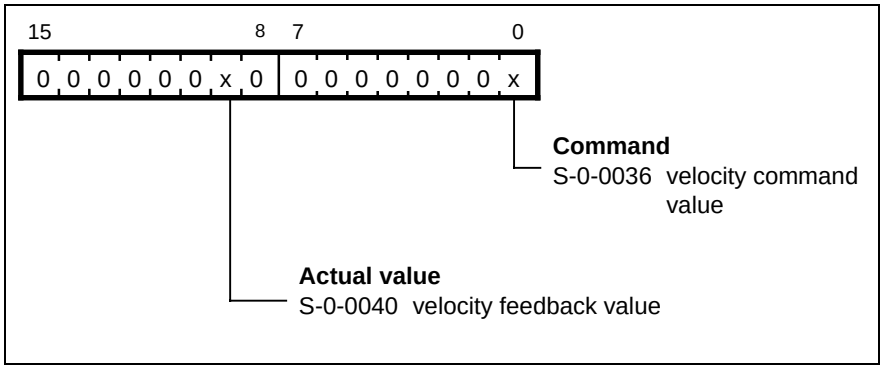


Fig. 5-24: Bit strip A-0-0073#

0: Parameter not configured

1: Parameter configured

A-0-0073 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0074 Register control - dead band

With the help of this parameter it is possible to freeze the variables with small register errors (dead band).

If the register deviation (A-0-0120) is smaller than the parametrized value, then only 1/16 of the register deviation is used for control purposes. The P integral is also not taken into account with indirect register control.

By inputting "0,0000" the dead zone can be deactivated.

A-0-0074 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	0.0001mm or 0.0001 degree
Minimum input value:	0.0000
Maximum input value:	400 000.0000
Default value:	0.0000
Access:	no write protection
Memory:	nvRAM

A-0-0075 Process controller - preset 1 (fine adjustment)

This parameter is required for the tension control with load cell (see "process control - control word 2" (A-0-0146)).

If the input "process controller ON" (_E:F#.18) is not active and the input "process controller preset" (_E:F#.19) is set, then this parameter will be accepted in the parameter "process controller - actual value 1 (fine adjustment)" (A-0-0067).

A-0-0075 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-2} %
minimum input value:	see A-0-0069
maximum input value:	see A-0-0068
Default value:	0.00 %
Access:	no write protection
Memory:	nvRAM

A-0-0076 Process controller - minimum reel diameter

This parameter is relevant for the winding function with dancer. The minimum diameter of the reel is entered here.

The minimum diameter of the reel is relevant for diameter smoothing (see parameters A-0-0147 and A-0-0148) and for binary output "process controller - min. reel diameter exceeded" (_A:F#.39).

A-0-0076 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.0001 mm
minimum input value:	0.0001 mm
maximum input value:	400 000.0000 mm
Default value:	0.0001 mm
Access:	write protected in operating mode
Memory:	FLASH

A-0-0077 Process controller - current reel diameter

This parameter contains the current reel diameter.

This parameter serves diagnostic purposes if the winding function is used.

A-0-0077 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} mm
minimum input value:	--
maximum input value:	--
Default value:	0.0000 mm
Access:	write protected
Memory:	nvRAM

A-0-0078 Process controller - reel diameter - preset

If the input "process controller ON" (_E:F#.18) is not active and the input "process controller preset" (_E:F#.19) is set, then this parameter is assumed in parameter "process controller - current reel diameter" (A-0-0077).

This parameter is required for the winding function.

A-0-0078 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} mm
minimum input value:	0.0001 mm
maximum input value:	400000.0000 mm
Default value:	0.0001 mm
Access:	no write protection
Memory:	nvRAM

A-0-0079 Process variable setpoint 2

This parameter is relevant for winding function without sensor.

It sets command value 2 for the process controller.

Control:	Unit:
winding function without sensor	N (tension at standstill)

A-0-0079 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1}
minimum input value:	0.0
maximum input value:	100000000.0
Default value:	0.0
Access:	no write protection
Memory:	nvRAM

A-0-0080 Friction at standstill

This parameter is relevant for winding function without sensor. It specifies the constant basic friction of the winding at standstill or low speeds. The basic friction is taken into consideration in the function "winding axis without sensor".

The friction is a per cent value of the continuous torque at standstill of the motor.

A-0-0080 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} %
minimum input value:	0.0 %
maximum input value:	100.0 %
Default value:	0.0 %
Access:	no write protection
Memory:	nvRAM

A-0-0081 Friction at maximum speed

This parameter is relevant for winding function without sensor. It describes the friction caused by the speed set in parameter "bipolar velocity limit value" (S-0-0091). The friction at maximum speed is allowed for in the function "winding axis without sensor".

The friction is a per cent value of the continuous torque at standstill of the motor.

A-0-0081 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1} %
minimum input value:	0.0 %
maximum input value:	100.0 %
Default value:	0.0 %
Access:	no write protection
Memory:	nvRAM

A-0-0082 Analogue channels - actual value analogue input 1

This parameter specifies the actual value of analogue channel 1, making allowances for the following:

- the offset (A-0-0065, element 1)
- the weighting (A-0-0028, element 1)
- the smoothing (A-0-0066, element 1).

This parameter serves display or diagnostics in operating mode as well as allocation as source parameter in parameter "analogue channels - select source parameters" (C-0-0039) in parametrization mode.

This parameter has no defined weighting. The weighting depends on parameter "analogue channels - analogue input weighting" (A-0-0028).

Example: Parameter "analogue channels - analogue input weighting" (A-0-0028), element 1 = 1000000 1/10V

With a voltage of 5 V at the analogue input, parameter A-0-0082 has a value of 500000.

A-0-0082 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

A-0-0083 Analogue channels - actual value analogue input 2

This parameter contains the actual value of analogue channel 2 making allowances for:

- the offset (A-0-0065, element 2)
- the weighting (A-0-0028, element 2)
- the smoothing (A-0-0066, element 2).

For details on function weighting see parameter A-0-0082.

A-0-0083 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

A-0-0084 Register control - position command

This parameter defines the position command value to which the register control sets. The position command value relates to that point in time when the input signal of the probe function becomes active - for function and description of probe see drive documentation.

A-0-0084 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	0.0000 degree or numerical limit (-)
maximum input value:	modulo value (S-0-0103) or numerical limit (+)
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0085 Register control - start of correction angle

This parameter defines that actual position value at which the correction procedure may begin.

A-0-0085 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	0.0000 degree or numerical limit (-)
maximum input value:	modulo value (S-0-0103) or numerical limit (+)
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0086 Register control - end of correction angle

This parameter specifies that actual position value at which direct correction must be concluded.

Any direct correction procedures coming thereafter may not start until the previous procedure is concluded - start by scanning actual position value. This sequence can be set with parameters.

A-0-0086 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	0.0000 degree or numerical limit (-)
maximum input value:	modulo value (S-0-0103) or numerical limit (+)
Default value:	0.0000 degree or 0.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0087 Process control - drive addresses

This parameter is relevant for:

- tension control with load cell
- dancer control
- register control

This parameter specifies those drive addresses that the selected control is to effect (see A-0-0025, A-0-0146).

If a register control was selected, then in those drives entered here, parameter P-0-0155 = 1 must be set.

A-0-0087 Attributes

Data length:	2 bytes variable length (max: 8 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
minimum input value:	1
maximum input value:	40
Default value:	0000 (actual length) 0008 (maximum length)
Access:	write protected in operating mode
Memory:	FLASH

A-0-0088 Register control - negative limit monitoring window

This parameter describes the position difference when monitoring the register control. If the actual position value should, at the time of the probe, be within the range,

[A-0-0084 - A-0-0088 ... A-0-0084 + A-0-0089].

then, if direct correction is activated, this will be conducted, otherwise no correction will be conducted.

In addition, the binary output "process variable in process window" (_A:F#.20) is set or cancelled, depending upon this range.

A-0-0088 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	0 degree or 0 mm
maximum input value:	modulo value (S-0-0103) or numerical limit (+)
Default value:	10.0000 degree or 10.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0089 Register control - positive limit monitoring window

This parameter describes the position difference when monitoring the register control. If the actual position value should, at the time of the probe, be within the range,

[A-0-0084 - A-0-0088 ... A-0-0084 + A-0-0089].

then, if direct correction is activated, this will be conducted, otherwise no correction will be conducted.

In addition, the binary output "process variable in process window" (_A:F#.20) is set or cancelled, depending upon this range.

A-0-0089 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	0 degree or 0 mm
maximum input value:	modulo value (S-0-0103) or numerical limit (+)
Default value:	10.0000 degree or 10.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0090 Register control - smoothing time constant

This parameter specifies the smoothing time constant with which indirect correction of control deviation is smoothed.

A-0-0090 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-1}
minimum input value:	0
maximum input value:	65535
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0091 Register control - proportional gain

This parameter describes the proportional gain of the control for indirect correction.

Synchronization mode: (see A-0-0003)	Control deviation:	Contents A-0-0091:	Controller output:
phsae synchr. cam	1.0000 degree	1	0.0001 degree
speed synchronization	1.0000 degree	1	0.01 %

Fig. 5-25: Table A-0-0091

A-0-0091 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4}
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0092 Register control - integral action time

This parameter describes the integral action time of the controller for indirect correction.

A-0-0092 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-2}
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0093 Direct register control - correction value

This parameter defines in increments the manipulated variables of the direct register control. Every drive controlled directly by a register controller contains the manipulated variables specifically calculated for it.

The variable is unweighted, i.e., it is an integer without decimal.

A-0-0093 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	--
Access:	write protected
Memory:	nvRAM

A-0-0094 Indirect register control - correction value

This parameter defines in increments the manipulated variables of the indirect register control. Every drive controlled indirectly by a register controller contains the manipulated variables specifically calculated for it.

The variable is unweighted, i.e., it is an integer without decimals.

A-0-0094 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	--
Access:	write protected
Memory:	nvRAM

A-0-0095 Drive type

When switching to parameter mode, the PPC checks which type of drive is connected.

Different functions are either permitted or not, depending upon the results.

Example: Operated mode cam is only available for drives of the "DIAX03" type.

Possible entries are:

- "drive not in ring
- "not supported drive type"
- "DIAX03"
- "Ecodrive"

A-0-0095 Attributes

Data length:	1 byte variable length (max: 40 bytes)
Display format:	ASCII - Text
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	--
Access:	write protected
Memory:	RAM

A-0-0096 Phase offset begin of cam shaft profile

This parameter influences drive parameter "phase offset begin profile" (P-0-0061).

A-0-0096 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree
minimum input value:	0.0000 degree
maximum input value:	+ 359.9999 degree
Default value:	0.0000 degree
Access:	no write protection
Memory:	nvRAM

A-0-0097 Tension speed

This parameter is relevant for the following functions:

- tension control with load cell
- winding control, without sensor

Using the velocity set here the tension of the goods is set.

A-0-0097 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	0.000001 m/min or 0,0001 rpm
minimum input value:	- 200000.0000 rpm or - 2000.000000 m/min
maximum input value:	+ 200000.0000 rpm or + 2000.000000 m/min
Default value:	0.0000 rpm or 0.000000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0098 Register control - time measuring weighting

If register control with measured data acquisition is selected in parameter "process control - control word 1" (A-0-0025) via pulsing, then the weighting of the pulse is entered in this parameter.

The weighting of the pulse specifies the phase change that the pulse should produce per clock unit.

A-0-0098 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	0.01 degree/second
minimum input value:	- 20000000 degree/sec
maximum input value:	+ 20000000 degree/sec
Default value:	0.00 degree/sec
Access:	write protected in operating mode
Memory:	FLASH

A-0-0099 Set-up speeds

This list defines four setup speeds which are active with a corresponding number of setup positons.

Setup position Bit 1	Setup position Bit 0	Setup position	Setup speed A-0-0009
0	0	A-0-0056	element 1
0	1	A-0-0057	element 2
1	0	A-0-0058	element 3
1	1	A-0-0059	element 4

Fig. 5-26: Table A-0-0099

The setup position selected is approached with the set speed.

When inputting, do not exceed "bipolar velocity limit value" (S-0-0091). This is not monitored for such.

Note: All four elements of this list must be written into!

A-0-0099 Attributes

Data length:	4 bytes variable length (max: 16 bytes)
Display format:	signed decimal number
Weighting / unit:	10^{-4} rpm or 10^{-6} m/min
minimum input value:	0.0000 rpm or 0.000000 m/min
maximum input value:	214748.3647 rpm or 2147.483647 m/min
Default value:	100.000 mm/min or 10.0000 rpm
Access:	no write protection
Memory:	nvRAM

A-0-0100 Winding control - reference axis drive address

The drive which the winding references is selected with this parameter:

0 = master axis

1 ... 99 = drive address

A-0-0100 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
minimum input value:	0
maximum input value:	40
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

A-0-0101 Internal I/O: following axis inputs 1-32

This parameter represents internal inputs 1-32 of the following axis.
(e.g., _E:F01.01 → Bit 0)

A-0-0101 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0102 Internal I/O: following axis outputs 1-32

This parameter represents the internal outputs 1-32 of the following axis.
(e.g., _A:F01.01 → Bit 0)

A-0-0102 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

A-0-0103 Internal I/O: following axis outputs 33-64

This parameter represents the internal outputs 33-64 of the following axis.
(e.g., _A:F01.33 → Bit 0)

A-0-0103 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0
Access:	write protected
Memory:	RAM

A-0-0104 PPC-link - master selection

If a following axis should not follow the PPC of the master axis physically allocated to it, then the link address of the external master axis must be entered in this parameter.

If the following axis should follow the master axis of the PPC physically allocated to it, then the value 0 must be entered.

If the PPC link is not configured (see "PPC link - control word" (C-0-0102)) the following axis will follow the master axis physically allocated to it regardless of the value set in this parameter.

A-0-0104 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
minimum input value:	0
maximum input value:	32
Default value:	0
Access:	write accessible if no synchronization mode is applied (no drive enable)
Memory:	nvRAM

A-0-0105 Direct register control - correction value weighting

The deviation of the register control is multiplied by this factor and used as correction value.

The parameter is allocated to the correction axis. In other words, each correction axis can be allocated its own factor.

The register control automatically takes transmission ratios into consideration. This means that they are not included in this parameter.

Given a value of 1.0000 the register deviation is assumed unchanged as a correction value.

A-0-0105 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4}
minimum input value:	- 200000.0000
maximum input value:	+ 200000.0000
Default value:	1.0000
Access:	no write protection
Memory:	nvRAM

A-0-0106 Register control - maximum correction

This parameter specifies the maximum correction of the register control with each control step.There is only one control step for each measuring release procedure. In other words, any remaining deviation is not automatically corrected.

If the control movement is not limited, then this value must be set to a maximum value.

A-0-0106 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
minimum input value:	0.0001 degree or 0.0001 mm
maximum input value:	200000.0000 degree or 200000.0000 mm
Default value:	200000.0000 degree or 200000.0000 mm
Access:	no write protection
Memory:	nvRAM

A-0-0107 Register control - target parameter selection

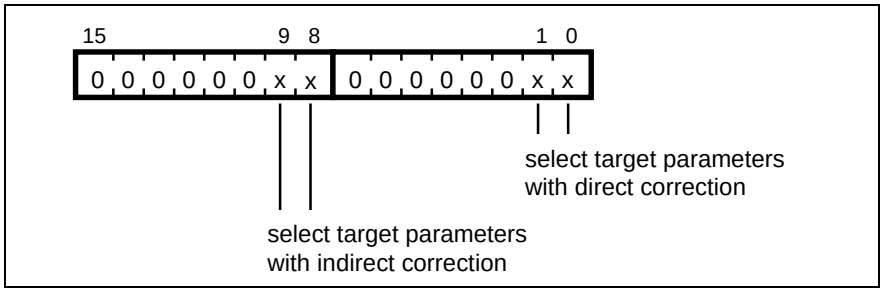


Fig. 5-27: Selecting the target parameters

Target parameters with direct correction

A-0-0107 Bit 1 - 0	Angle-synchronization	Speed synchronization	Electronic cam
0 0	position command value additional (S-0-0048)	additive velocity command value (S-0-0037)	phase offset begin of profile (P-0-0061)
0 1	---	gain adjust (P-0-0083)	position command value additional (S-0-0048)
1 0	---	---	cam shaft distance (P-0-0093)
1 1	master axis gear output revolutions (P-0-0157)	master axis gear output revolutions (P-0-0157)	master axis gear output revolutions (P-0-0157)

Fig. 5-28: Target parameters with direct correction

Target parameters with indirect correction

A-0-0107 Bit 9 - 8	Angle-synchronization	Speed synchronization	Electronic cam
0 0	position command value additional (S-0-0048)	gain adjust (P-0-0083)	phase offset begin of profile (P-0-0061)
0 1	---	additive velocity command value (S-0-0037)	position command value additional (S-0-0048)
1 0	---	---	cam shaft distance (P-0-0093)
1 1	master axis gear output revolutions (P-0-0157)	master axis gear output revolutions (P-0-0157)	master axis gear output revolutions (P-0-0157)

Fig. 5-29: Target parameters with indirect correction

A-0-0107 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
minimum input value:	--
maximum input value:	--
Default value:	0000000000000000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0108 AT error counter

This parameter counts all the simple, illegal AT's in communication phases 3 and 4.

If two sequential AT's of a drive are skipped, then the error "double drive telegram failure" 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-0-0108 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
minimum input value:	0
maximum input value:	65535
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0109 Idle speed 1 - positive limit

The maximum value for "idle - speed 1" (A-0-0115) is set in this parameter.

A-0-0109 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} U/min or 10^{-6} m/min
Minimum input value:	-200000.0000 U/min or -2000,000000 m/min
Maximum input value:	+200000.0000 U/min or +2000,000000 m/min
Default value:	+200000.0000 rpm or +2000,000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0110 Idle speed 1 - negative limit

The minimum value for "idle - speed 1" (A-0-0115) is set in this parameter.

A-0-0110 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	-200000.0000 rpm or -2000,000000 m/min
Maximum input value:	+200000.0000 rpm or +2000,000000 m/min
Default value:	-200000.0000 rpm or -2000,000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0111 Idle speed 2 - positive limit

The maximum value for "idle - speed 2" (A-0-0116) is set in this parameter.

A-0-0111 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	-200000.0000 rpm or -2000.000000 m/min
Maximum input value:	+200000.000 rpm or +2000.000000 m/min
Default value:	+200000.0000 rpm or +2000.000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0112 Idle speed 2 - negative limit

The minimum value for "idle - speed 2" (A-0-0116) is set in this parameter.

A-0-0112 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	-200000,0000 rpm or -2000.000000 m/min
Maximum input value:	+200000,0000 rpm or +2000.000000 m/min
Default value:	-200000,0000 rpm or -2000.00000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0113 Idle speed 3 - positive limit

The maximum value for "idle - speed 3" (A-0-0117) is set in this parameter.

A-0-0113 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	-200000.0000 rpm or -2000.000000 m/min
Maximum input value:	+200000.0000 rpm or +2000.000000 m/min
Default value:	+200000.0000 rpm or +2000.000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0114 Idle speed 3 - negative limit

The minimum value for "idle - speed 3" (A-0-0117) is set in this parameter.

A-0-0114 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	-200000.0000 rpm or -2000.000000 m/min
Maximum input value:	+200000.0000 rpm or +2000.000000 m/min
Default value:	-200000.0000 rpm or -2000.000000 m/min
Access:	write protected in operating mode
Memory:	FLASH

A-0-0115 Idle speed 1

The command speed (S-0-0036) of the following axis follows in idle mode with "idle - speed 1" (A-0-0115) selected taking into account "idle - acceleration" (A-0-0012).

This idle speed is selected by the combination of the following binary signals.

Signal	Value
select idle speed bit 0	1
select idle speed bit 1	0

A-0-0115 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	see A-0-0110
Maximum input value:	see A-0-0109
Default value:	10.0000 rpm or 0.100000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0116 Idle speed 2

The command speed (S-0-0036) of the following axis follows in idle mode with "idle - speed 2" selected (A-0-0116) taking into account "idle - acceleration" (A-0-0012).

This idle speed is selected by the combination of the following binary signals.

Signal	Value
select idle speed bit 0	0
select idle speed bit 1	1

A-0-0116 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	see A-0-0112
Maximum input value:	see A-0-0111
Default value:	10.0000 rpm or 0.100000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0117 Idle speed 3

The command speed (S-0-0036) of the following axis follows in idle mode with selected "idle - speed 3" (A-0-0117) taking "idle - acceleration" into account (A-0-0012).

This idle speed is selected by means of the following combination of binary signals.

Signal	Value
select idle speed bit 0	1
select idle speed bit 1	1

A-0-0117 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} rpm or 10^{-6} m/min
Minimum input value:	see A-0-0114
Maximum input value:	see A-0-0113
Default value:	10.000 rpm or 0.100000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0118 Internal I/O: following axis inputs 33-64

This parameter represents the internal inputs 33-64 of the following axis (e.g., _E:F01.33 -> Bit 0).

A-0-0118 Attributes

Data length:	4 bytes
Display format:	binary number
Weighting / Unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0119 Phase offset begin of cam shaft profile speed

"Phase offset begin of profile" (P-0-0061) is entered in parameter "phase offset begin of cam shaft profile" (A-0-0096) at this speed.

A-0-0119 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	10^{-4} rpm
Minimum input value:	0.0025 rpm
Maximum input value:	740.0000 rpm
Default value:	10.0000 rpm
Access:	no write protection
Memory:	nvRAM

A-0-0120 Register control - register deviation

This parameter specifies the angle between the feedback value of the register control and the command value.

Only the measured values within the expectation window are used as feedback values.

A-0-0120 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001mm or 0.00001 degree
Minimum input value:	--
Maximum input value:	--
Default value:	0 mm or degree
Access:	write protected
Memory:	nvRAM

A-0-0121 Register control - probe distance

This parameter is used to set the distance of the sensor (e.g,. mark sensor) to the register control axis.

If "0" is input, then the measured deviation in the window immediately following is settled. Otherwise, the correction is delayed by the set product cycle (master axis revolutions, formates).

This implements a "Shift register function".

A-0-0121 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	product cycle
Minimum input value:	0
Maximum input value:	30
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0122 Indirect register control - positive control output limit

This parameter can be used to limit the control output of the indirect register control.

Input is in increments, i.e., it must relate to the target parameter of the indirect register control (e.g., position command value additional has four decimal places, adjustment has two).

Example: Adjustment, limited to + 3.00%; input: 300 increments

A-0-0122 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	increments
Minimum input value:	- 2 000 000 000
Maximum input value:	+ 2 000 000 000
Default value:	+ 2 000 000 000
Access:	no write protection
Memory:	nvRAM

A-0-0123 Indirect register control - negative control output limit

This parameter can be used to limit the control output of the indirect register control.

Input is in increments, i.e., it must relate to the target parameter of the indirect register control (e.g., position command value additional has four decimal places, adjustment has two).

Example: Adjustment, limited to - 5.00%; input: - 500 increments

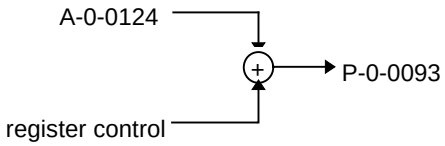
A-0-0123 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	increments
Minimum input value:	- 2 000 000 000
Maximum input value:	+ 2 000 000 000
Default value:	- 2 000 000 000
Access:	no write protection
Memory:	nvRAM

A-0-0124 Cam shaft distance

This parameter affects drive parameters "cam shaft distance" (P-0-0093).

This parameter is only affective if register control is activated.



If this register control feature is not used, then use parameter "cam shaft distance" (P-0-0093).

A-0-0124 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 mm or degree
Minimum input value:	- 2 000 000 000
Maximum input value:	+ 2 000 000 000
Default value:	0.0000 mm or degree
Access:	no write protection
Memory:	nvRAM

A-0-0125 Register control - position command increments

The value with which "register control position command“ (A-0-0084) is periodically incremented or decremented is set in this parameter, if a signal is pending at one of the jog inputs.

A-0-0125 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	10^{-4} mm or 10^{-4} degree
Minimum input value:	0.0010 degree or 0.0010mm
Maximum input value:	10.0000 degree or 10.0000mm
Default value:	1.0000 degree or 1.0000 mm
Access:	write protected in operating mode
Memory:	nvRAM

A-0-0126 Master drive gear output revolutions

Drive parameter "master drive gear output revolution" (P-0-0157) is tracked by the PPC by this parameter.

This parameter is effective if

- the drive is controlled by a tension control (with load cell and effect on the master drive gear),
- the drive is controlled by a register control,
- if in parameter "register control - target parameter selection" (A-0-0107) the master axis gear has been selected as the manipulated variable,
- if in parameter "jogging mode with speed synchronization" (A-0-0013) the master axis gear has been selected as a jogging variable,
- if in parameter "jogging mode with phase synchronization" (A-0-0153) the master axis gear has been selected as a jogging variable.

A-0-0126 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1 or 1
Minimum input value:	A-0-0152
Maximum input value:	A-0-0151
Default value:	1
Access:	no write protection
Memory:	nvRAM

A-0-0127 Register control - max. register mark losses

The register control monitors the occurrence of register marks.

If several marks are sequentially lost, i.e., more than set in this parameter, then the binary output "register control - mark loss" (_A:F#.37) is set.

(Once the register marks begin arriving again, then the binary outputs are cleared again.)

A-0-0127 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	--
Minimum input value:	0
Maximum input value:	65 535
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0128 Register control - probe delay time compensation

The delay time of the sensor (mark sensor) can be compensated with this parameter.

A-0-0128 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / Unit:	1µs or 1µs
Minimum input value:	-32768µs
Maximum input value:	+32767µs
Default value:	0µs
Access:	no write protection
Memory:	nvRAM

A-0-0129 Register control - mark gating

This parameter can be used to program a mark cycle, i.e., only every n^{th} mark is used for register control.

A-0-0129 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	marks / cycle
Minimum input value:	1
Maximum input value:	20
Default value:	1
Access:	write protected in operating mode
Memory:	FLASH

A-0-0130 Process controller 1 - p-gain adaption operation point 1

This parameter can be used to parametrize a velocity-dependent adaption of the p-gain of the tension controller.

The adaption operation replaces parameter "process controller - proportional gain 1" (A-0-0030) and is activated in parameter "process control - control word 2" (A-0-0146).

How it works:

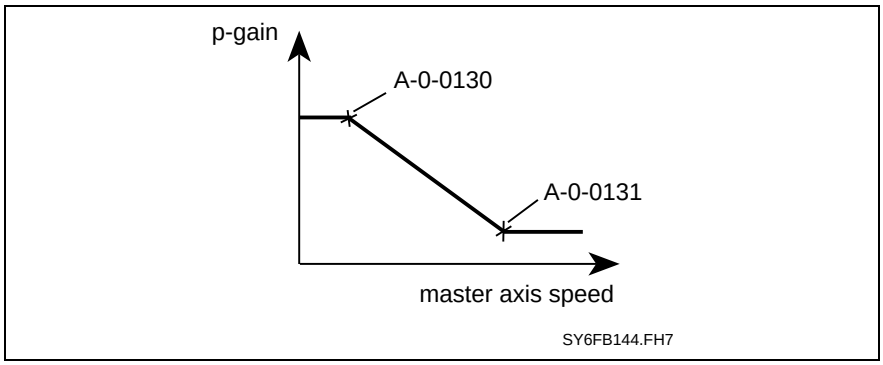


Fig. 5-30: How it works

The parameter is organized as a list of variable length with two values and corresponds to one value pair.

The first value is the master axis velocity in rpm/min; the second the P-gain (A-0-0030).

A-0-0130 Attributes

Data length:	4 bytes variable length (max: 8 bytes)
Display format:	signed decimal number
Weighting / Unit:	0.0001U/min; %/N
Minimum input value:	--
Maximum input value:	--
Default value:	10.000 U/min; 0.0000 %/N
Access:	no write protection
Memory:	nvRAM

A-0-0131 Process controller 1 - p-gain adaption operation point 2

This parameter can be used to parametrize a velocity-dependent adaption of the p-gain of the tension control.

The adaption operation replaces parameter "process controller - proportional gain 1" (A-0-0030) and is activated in parameter "process control - control word 2" (A-0-0146).

How it works:

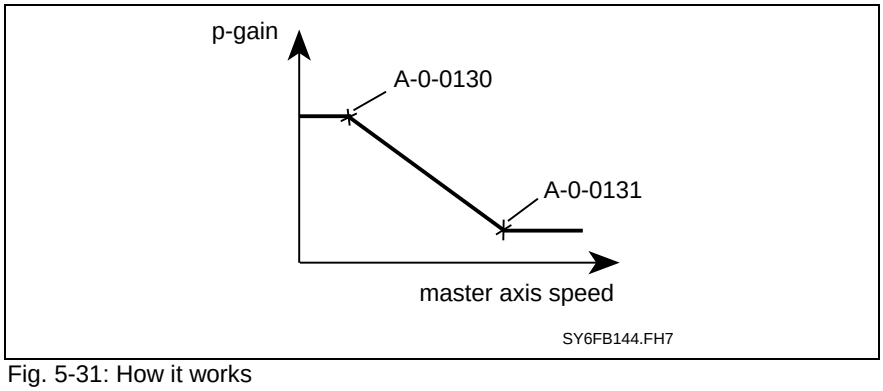


Fig. 5-31: How it works

The parameter is organized as a list of variable length with two values and corresponds to one value pair.

The first value is the master axis velocity in rpm/min; the second the P-gain (A-0-0030).

A-0-0131 Attributes

Data length:	4 bytes variable length (max: 8 bytes)
Display format:	signed decimal number
Weighting / Unit:	0.0001U/min; %/N
Minimum input value:	--
Maximum input value:	--
Default value:	10.000 U/min; 0.0000 %/N
Access:	no write protection
Memory:	nvRAM

A-0-0132 Group command value additive 1

With the help of this parameter it is possible to change one parameter in several drives simultaneously (see "group command value 1 - drive addresses", A-0-0133).

The altered parameter is the "position command offset" (A-0-0004) of phase synchronization or cam.

The parameter is modified with "group command value 1 - offset speed" (A-0-0154).

A-0-0132 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001mm; 0.0001 degree
Minimum input value:	see A-0-0162
Maximum input value:	see A-0-0161
Default value:	0.0000
Access:	no write protection
Memory:	nvRAM

A-0-0133 Group command value 1 - drive addresses

The drive addresses are stored in this list which are effected by "group command value additive 1" (A-0-0132).

A "0" as drive address is ignored.

A-0-0133 Attributes

Data length:	2 bytes variable length (max: 16 bytes)
Display format:	unsigned decimal number
Weighting / Unit:	--
Minimum input value:	0
Maximum input value:	40
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

A-0-0134 Group command value 1 - weighting

With the help of this parameter it is possible to scale the group command value for each drive assigned to "group command value 1".

Note: The PPC internally accounts for the electronic gear ratio ("Lead drive 1 rotation", S-0-0236 **and** "Slave drive rotation I", S-0-0237).

A-0-0134 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	-0.000001
Minimum input value:	-2000.000000
Maximum input value:	+2000.000000
Default value:	1.000000
Access:	no write protection
Memory:	nvRAM

A-0-0135 Setup mode relative - travel distance

This parameter specifies the distance to be travelled by the axis in operating mode "relative setup".

A-0-0135 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001mm or 0.0001 degree
Minimum input value:	-2000000.0000 mm or degree
Maximum input value:	+200000.0000 mm or Grad
Default value:	0.0000 mm or degree
Access:	no write protection
Memory:	nvRAM

A-0-0136 Master drive gear output revolutions increments

The value with which the "master axis gear output revolutions" can be periodically incremented or decremented when a signal is pending at a jog input is set in this parameter.

If the "master axis gear output revolutions" are jogged, then there must be relevant settings (e.g., 10000) at parameter "master axis gear input revolutions" (P-0-0156).

A-0-0136 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1 or 1
Minimum input value	0
Maximum input value:	65535
Default value:	1
Access:	no write protection
Memory:	nvRAM

A-0-0137 Process controller - actual value 2 (additive velocity)

If the process control is active, then the PPC writes the current variable 2 of the process control into this parameter. This parameter serves only diagnostics purposes.

The parameter is relevant for the following functions:

- dancer control
- winding control with dancer

A-0-0137 Attributes

Data length:	4 Byte
Display format:	signed decimal number
Weighting / Unit:	0.000001 m/min or 0.0001 rpm
Minimum input value:	see A-0-0139
Maximum input value:	see A-0-0138
Default-Wert:	0.0000 rpm or 0.000000 m/min
Access:	write protected
Memory:	nvRAM

A-0-0138 Process controller - positive limit 2 operation point 2

This parameter is relevant to the following functions:

- dancer control
- winding control with dancer

With the help of this parameter the speed-dependent variable limit for variable 2 of the process controller (A-0-0137) can be parametrized.

How it works:

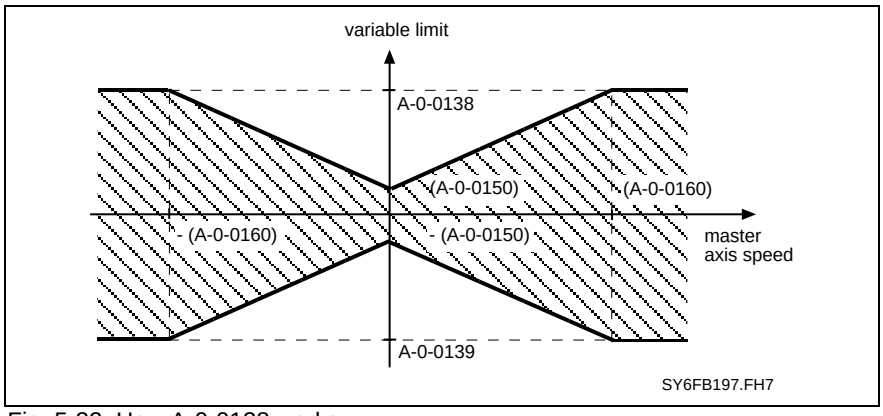


Fig. 5-32: How A-0-0138 works

A-0-0138 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.000001 m/min or 0.0001 rpm
Minimum input value:	-200000.0000rpm or -2000.000000m/min
Maximum input value:	+200000,0000rpm or +2000.000000m/min
Default value:	+200000.0000rpm or +2000.000000m/min
Access:	no write protection
Memory:	nvRAM

A-0-0139 Process controller - negative limit 2 operation point 2

This parameter is relevant to the following functions:

- dancer control
- winding control with dancer

With the help of this parameter the speed-dependent variable limit for variable 2 of the process controller (A-0-0137) can be parametrized.

How it works:

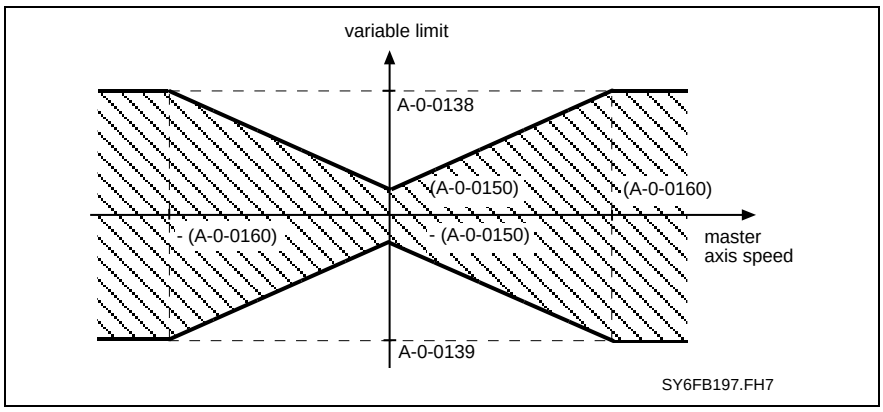


Fig. 5-33: How A-0-0139 works

A-0-0139 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.000001 m/min or 0.0001 rpm
Minimum input value:	-200000.0000rpm or -2000.000000m/min
Maximum input value:	+200000.0000rpm or +2000.000000m/min
Default value:	-200000.0000rpm or -2000.000000m/min
Access:	no write protection
Memory:	nvRAM

A-0-0140 Process controller - actual value 3 (master drive gear)

If the process controller is active and effecting the process controller output on the master drive gear (configuration with parameter "process control - control word 2" (A-0-0146)), then the PPC writes the current variable 3 of the process controller into this parameter. This parameter serves only diagnostics purposes.

The parameter is relevant for the following functions:

- tension control with load cell

A-0-0140 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	1
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected
Memory:	nvRAM

A-0-0141 Process controller - positive limit 3

This parameter limits variable 3 of the process control (A-0-0140) to its maximum value.

The parameter is relevant for the following functions:

- tension control with load cell

A-0-0141 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	1
Minimum input value:	-65536
Maximum input value:	+65535
Default value:	65535
Access:	no write protection
Memory:	nvRAM

A-0-0142 Process controller - negative limit

This parameter limits variable 3 of the process controller (A-0-0140) to its minimum value.

The parameter is relevant for the following functions:

- tension controller with load cell

A-0-0142 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	1
Minimum input value:	-65536
Maximum input value:	+65535
Default value:	1
Access:	no write protection
Memory:	nvRAM

A-0-0143 Process controller - preset 3 (master drive gear)

This parameter is required for tension control with load cell (see "process control - control word 2" (A-0-0146)).

If the input "process controller ON" (_E:F#.18) is not active and the input "process controller preset" (_E:F#.19) is set, then this parameter will be accepted in the parameter "process controller - actual value 3 (master drive gear)" (A-0-0140).

A-0-0143 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	1
Minimum input value:	see A-0-0142
Maximum input value:	see A-0-0141
Default value:	1
Access:	no write protection
Memory:	nvRAM

A-0-0144 Process controller - maximum reel diameter

This parameter is relevant for winding functions with dancer. The maximum diameter of the reel is entered here.

The maximum diameter of the reel is relevant to diameter smoothing (see parameters A-0-0147 and A-0-0148) and for binary output "process controller - max. reel diameter exceeded" (_A:F#.40).

A-0-0144 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	0.0001mm
Minimum input value:	0.0001mm
Maximum input value:	400000.0000mm
Default value:	0.0001mm
Access:	no write protection
Memory:	nvRAM

A-0-0145 Reserved

A-0-0146 Process control - control word 2

This parameter is relevant for the process controller functions "tension controller", "dancer controller" and "winding controller". The process controller is activated here and the features of the process controllers are set here.

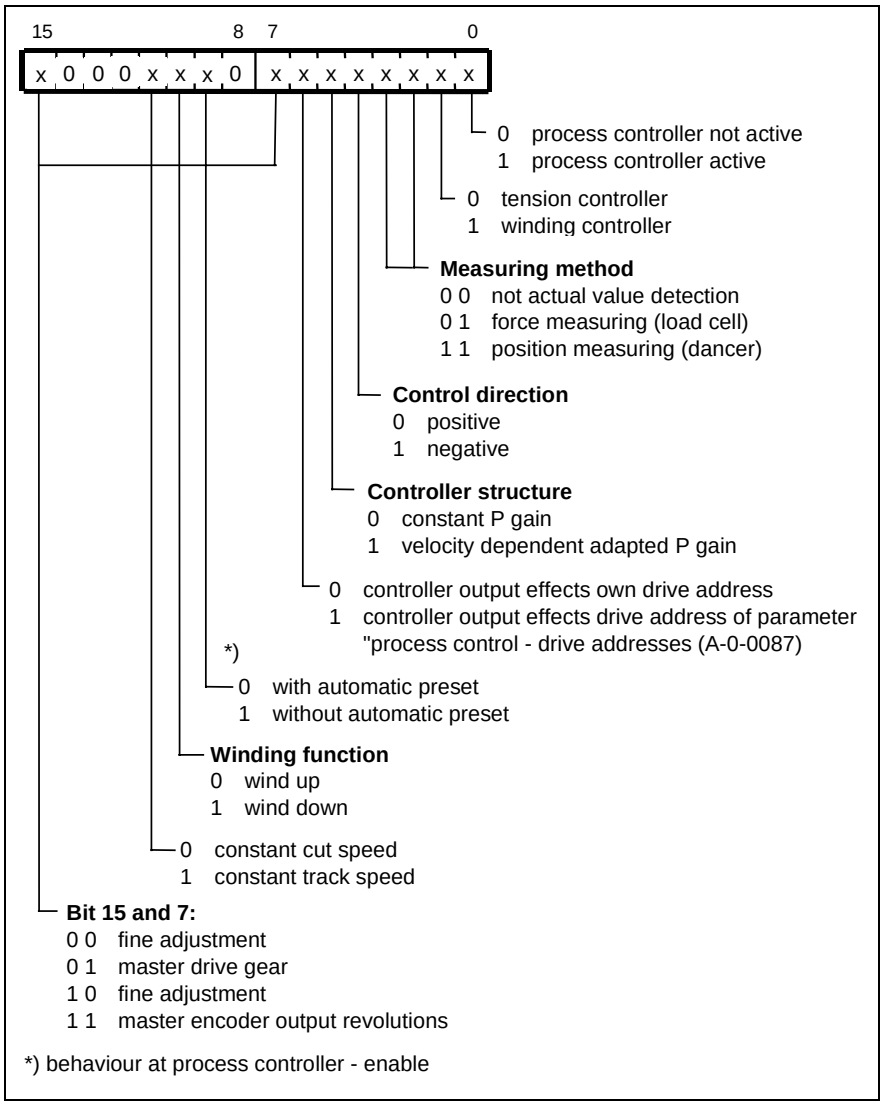


Fig. 5-34: Bit strip "process control - control word 2"

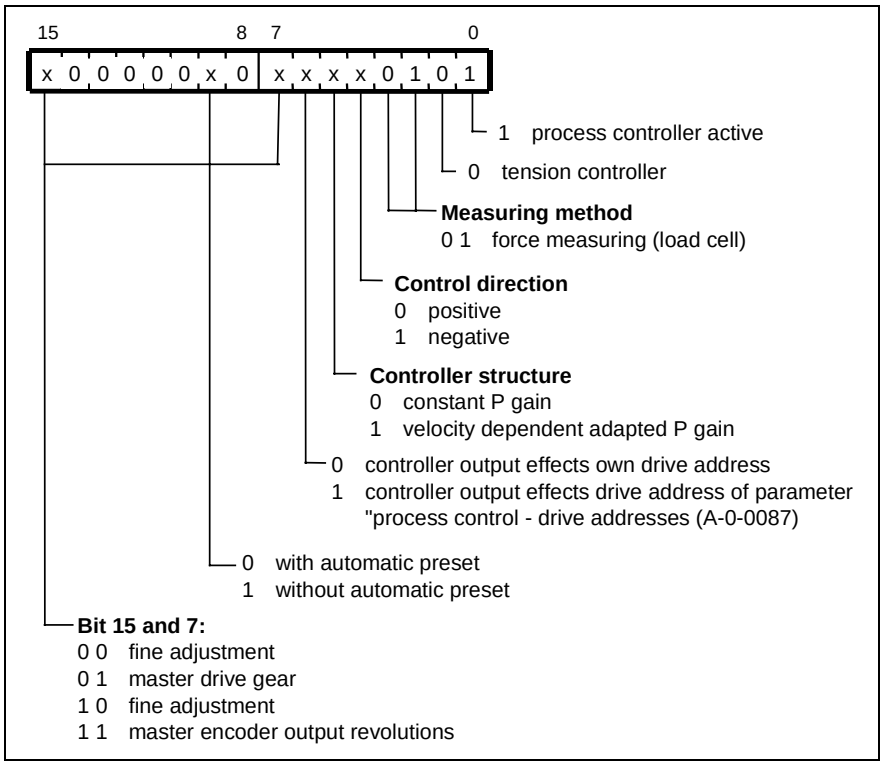


Fig. 5-35: Bit strip tension controller with load cell

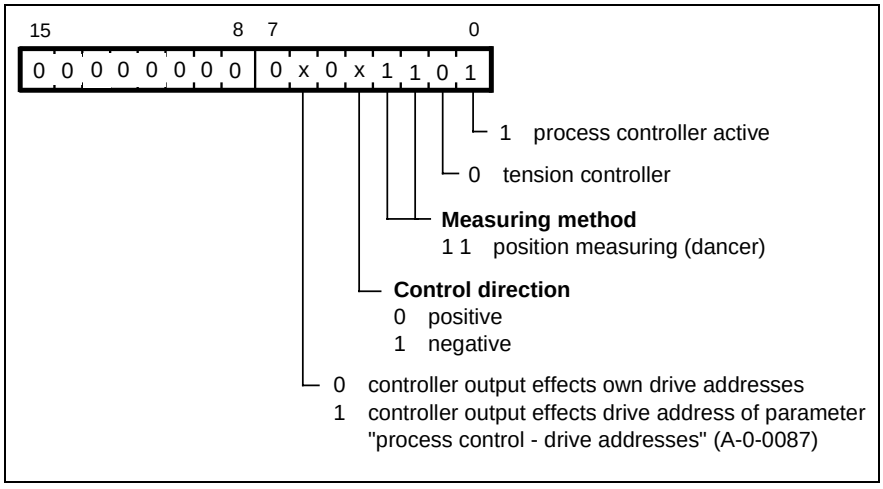


Fig. 5-36: Bit strip dancer control

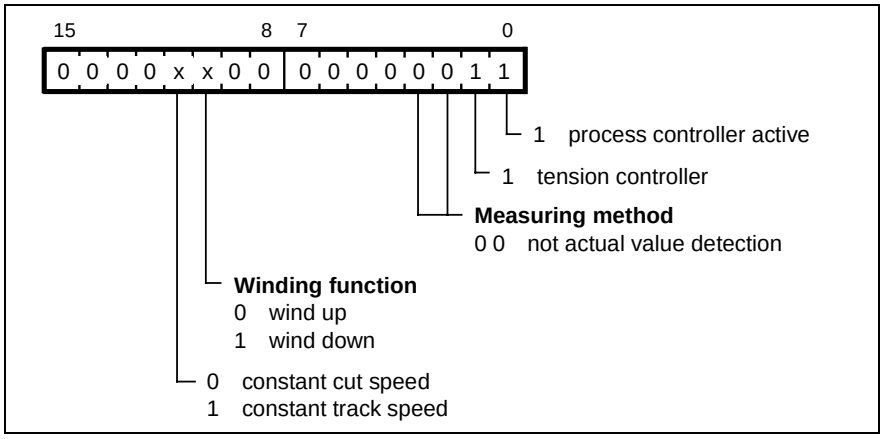


Fig. 5-37: Bit strip winding controller, without sensor

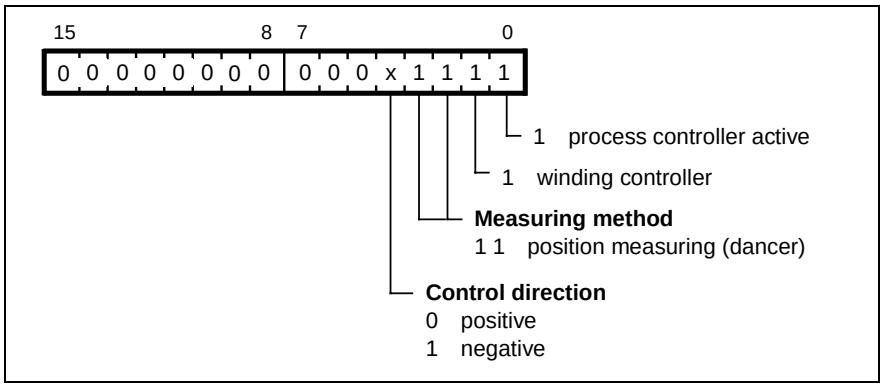


Fig. 5-38: Bit strip winding controller with dancer

A-0-0146 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / Unit:	
Minimum input value:	--
Maximum input value:	--
Default value:	0x00000000
Access:	write protected in operating mode
Memory:	FLASH

A-0-0147 Process controller - diameter smoothing time op. point 1

This parameter is relevant to winding functions with dancer. With the help of this parameter, the diameter-dependent adaptation of diameter smoothing is parametrized.

How it works:

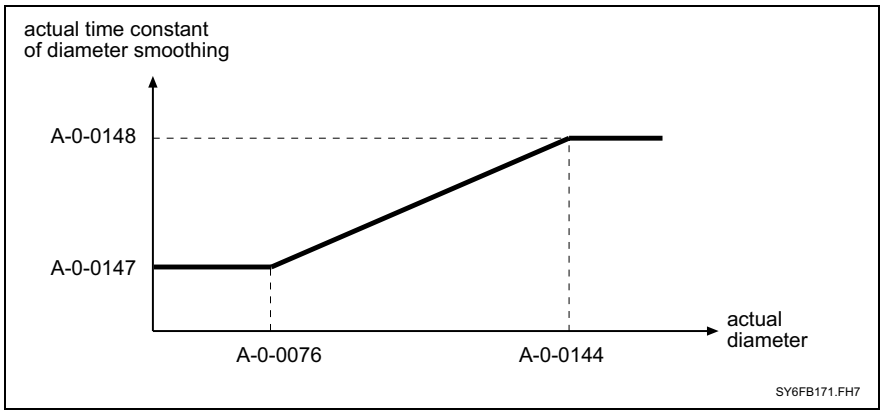


Fig. 5-39: How it works: A-0-0147

A-0-0147 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1 ms
Minimum input value:	0 ms
Maximum input value:	60000 ms
Default value:	1000 ms
Access:	no write protection
Memory:	nvRAM

A-0-0148 Process controller - diameter smoothing time op. point 2

This parameter is relevant to winding functions with dancer. With the help of this parameter, the diameter-dependent adaptation of diameter smoothing is parametrized.

How it works:

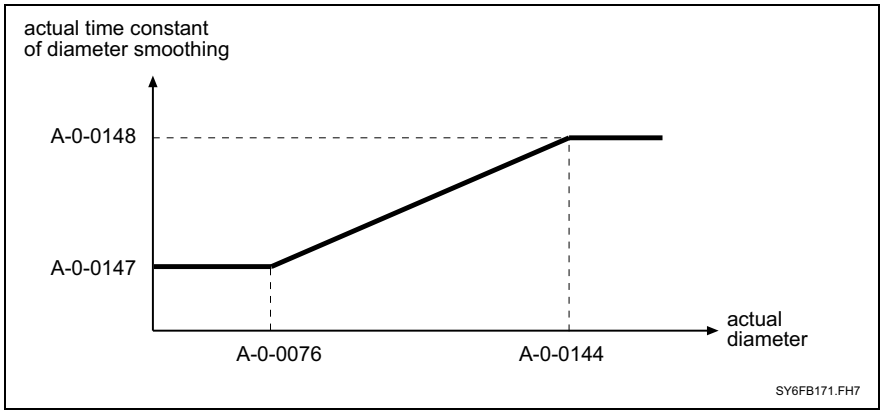


Fig. 5-40: How it works: A-0-0148

A-0-0148 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1 ms
Minimum input value:	0 ms
Maximum input value:	60000 ms
Default value:	4000 ms
Access:	no write protection
Memory:	nvRAM

A-0-0149 Process controller - reference diameter

This parameter is relevant to winding functions with dancer. If the current reel diameter (A-0-0077) exceeds this value, then binary output "process controller - actual diameter > reference diameter" (_A:F#.38) is set. If the current reel diameter exceeds this reference diameter, then the binary output "process controller - actual diameter > reference diameter" (_A:F#.38) is reset.

A-0-0149 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	0.0001 mm
Minimum input value:	0.0001 mm
Maximum input value:	400 000 mm
Default value:	0.0001 mm
Access:	no write protection
Memory:	nvRAM

A-0-0150 Process controller - bipolar limit value 2 op. point 1

This parameter is relevant to the following functions:

- dancer control
- winding control with dancer

With the help of this parameter the speed-dependent variable limit for variable 2 of the process controller (A-0-0137) can be parametrized.

How it works:

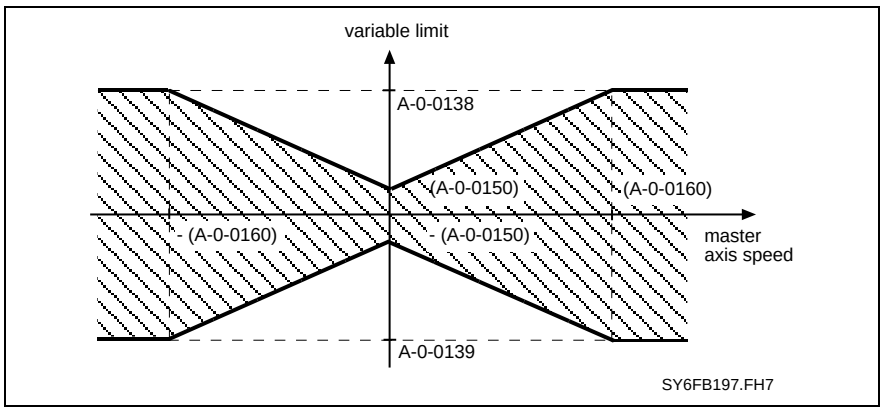


Fig. 5-41: How A-0-0150 works

A-0-0150 Attributes

Data length:	4 bytes
Anzeigeformat:	signed decimal number
Weigthing / Unit:	0,000001 m/min or 0,0001 rpm
Minimum input value:	see A-0-0139
Maximum input value:	see A-0-0138
Default value:	1,0000 U/min oder 0,010000 m/min
Access:	no write protection
Memory:	nvRAM

A-0-0151 Master drive gear output revolutions - positive limit

The maximum value for the parameter "master drive gear output revolutions" (A-0-0126) is set in this limit value.

A-0-0151 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1 or 1
Minimum input value:	1
Maximum input value:	65535
Default value:	65535
Access:	write protected in operating mode
Memory:	FLASH

A-0-0152 Master drive gear output revolutions - negative limit

The minimum value for the parameter "master drive gear output revolutions" (A-0-0126) is set in this limit value.

A-0-0152 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	1 or 1
Minimum input value:	1
Maximum input value:	65535
Default value:	1
Access:	write protected in operating mode
Memory:	FLASH

A-0-0153 Jogging mode with phase synchronization

This parameter specifies which variable is effected by the jogging inputs in phase synchronization.

Available variables:

0 - "position command offset" (A-0-0004)

1 - "master drive gear output revolutions" (A-0-0126)

2 - "process command value 1" (A-0-0026)

A-0-0153 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Default value:	0
Access:	write protected in operating mode
Memory:	nvRAM

A-0-0154 Group command value 1 - offset speed

The position command value additive entered in A-0-0132 is transmitted at this speed to the drive entered in A-0-0133.

A-0-0154 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	0.000001 m/min or 0.0001 rpm
Minimum input value:	0.001000 m/min or 0.0025 rpm
Maximum input value:	200.000000 m/min or 740.0000 rpm
Default value:	0.1 m/min or 10 rpm
Access:	no write protection
Memory:	nvRAM

A-0-0155 Group command value additive 2

With the use of this parameter it is possible to change a parameter simultaneously in several drives (see "group command value 2 - drive addresses", A-0-0156).

The changed parameter is the "position command offset" (A-0-0004) of the axes in operating modes phase synchronization or cam.

The parameter is altered with the use of "group command value 2 - offset speed" (A-0-0158).

A-0-0155 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 m/min or 0.0001 degree
Minimum input value:	see A-0-0164
Maximum input value:	see A-0-0163
Default value:	0
Access:	no write protection
Memory:	nvRAM

A-0-0156 Group command value - drive addresses

This list contains drive addresses that are effected by "group command value additive 2" (A-0-0155).

A "0" as drive address is ignored.

A-0-0156 Attributes

Data length:	2 bytes variable length (max. 16 bytes)
Display format:	unsigned decimal number
Weighting / Unit:	--
Minimum input value:	0
Maximum input value:	40
Default value:	0
Access:	write protected in operating mode
Memory:	FLASH

A-0-0157 Group command value 2 - weighting

With the use of this parameter it is possible to scale "group command value additive 2" (A-0-0155) for every axis.

A-0-0157 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	0.000001 or 0.000001
Minimum input value:	-2000.000000
Maximum input value:	+2000.000000
Default value:	1.000000
Access:	no write protection
Memory:	nvRAM

A-0-0158 Group command value 2 - offset speed

The position command value additive entered in A-0-0155 is transmitted to the drives entered in A-0-0156 at the velocity set here.

A-0-0158 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	0.000001 m/min or 0.0001 rpm
Minimum input value:	0.001000 m/min or 0.0025 rpm
Maximum input value:	200.000000 m/min or 740.0000 rpm
Default value:	0.1 m/min or 10 rpm
Access:	no write protection
Memory:	nvRAM

A-0-0159 ELS master command value additive selection

In a PPC link each PPC can calculate one ELS master and process one "ELS master command value additive" (C-0-0149). The master positions and all additive command values are transmitted in the PPC link.

Using parameter "ELS master command value additive selection" any command value additive can be assigned to each following axis in the PPC link. Parameter A-0-0159 must contain the link address of the PPC which is processing the additive command value.

A-0-0159 = 0: - no additive command value effective -

A-0-0159 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / Unit:	--
Minimum input value:	0
Maximum input value:	32
Default-Wert:	0
Access:	write accessible if no synchronization mode is applied (no drive enable)
Memory:	nvRAM

A-0-0160 Process controller - bipolar speed operation point 2

This parameter is relevant to the following functions:

- dancer control
- winding control with dancer

With the help of this parameter the speed-dependent variable limit for variable 2 of the process controller (A-0-0137) can be parametrized.

How it works:

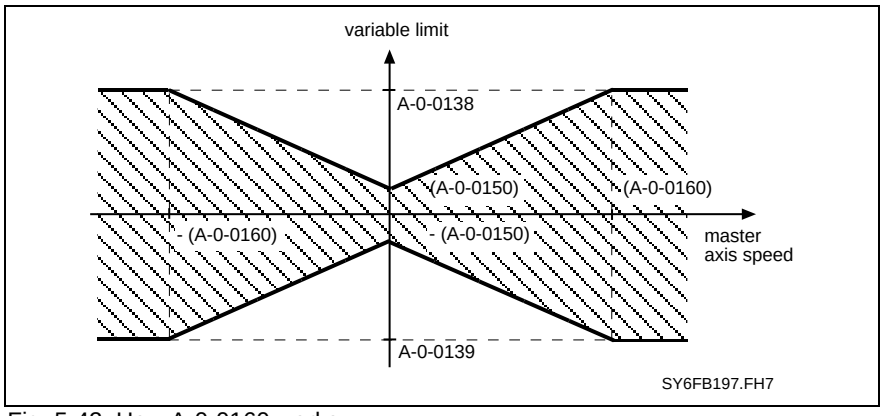


Fig. 5-42: How A-0-0160 works

A-0-0160 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / Unit:	0.0001 rpm
Minimum input value:	0
Maximum input value:	+100000.0000 rpm
Default value:	1000.0000 rpm
Access:	no write protection
Memory:	nvRAM

A-0-0161 Group command value 1 - positive limit

With this parameter, the "group command value additive 1" (A-0-0132) is limited to the maximum value.

A-0-0161 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 degree
Minimum input value:	-100000.0000 degree
Maximum input value:	+100000.0000 degree
Default value:	+ 180.0000 degree
Access:	no write protection
Memory:	nvRAM

A-0-0162 Group command value 1 - negative limit

With this parameter, the "group command value additive 1" (A-0-0132) is limited to the minimum value.

A-0-0162 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 degree
Minimum input value:	-100000.0000 degree
Maximum input value:	+100000.0000 degree
Default value:	- 180.0000 degree
Access:	no write protection
Memory:	nvRAM

A-0-0163 Group command value 2 - positive limit

With this parameter, the "group command value additive 2" (A-0-0155) is limited to the maximum value.

A-0-0163 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 degree
Minimum input value:	-100000.0000 degree
Maximum input value:	+100000.0000 degree
Default value:	+ 180.0000 degree
Access:	no write protection
Memory:	nvRAM

A-0-0164 Group command value 2 - negative limit

With this parameter, the "group command value additive 2" (A-0-0155) is limited to the minimum value.

A-0-0164 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / Unit:	0.0001 degree
Minimum input value:	-100000.0000 degree
Maximum input value:	+100000.0000 degree
Default value:	- 180.0000 degree
Access:	no write protection
Memory:	nvRAM

6 S parameter descriptions

General information

The S parameters determine the behavior of the individual SYNAX axes.

The S parameters are equivalent to the parameters outlined in the SERCOS interface standards.

There is a complete description of all S parameters in the documentation "DIAX04 drive with electric gear functions", DOK-DIAX04-ELS-05VRS**-FKB1-EN-P.

S-0-0011 Class 1 diagnostics

This parameter displays the errors which could lead to drive locking.

A class 1 diagnostic error detected by the drive means that the drive:

Reacts as per parameters:

- "NC reaction in error situation" (P-0-0117)
- "power switch OFF in error situation" (P-0-0118)
- "deceleration as best as possible" (P-0-0119)

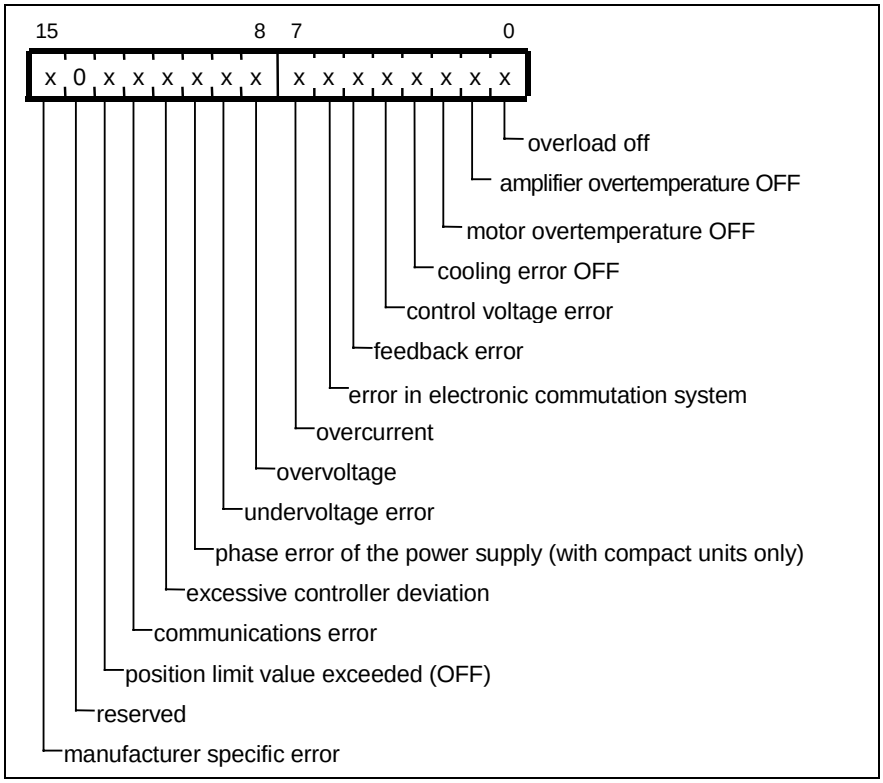


Fig. 6-1: Bit strip S-0-0011

S-0-0011 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected, for diagnostics only

Comments:: Bit = 0 ⇒ no error

Bit = 1 ⇒ error applied

S-0-0012 Class 2 diagnostics

This parameter specifies an operating state which triggers an OFF warning.

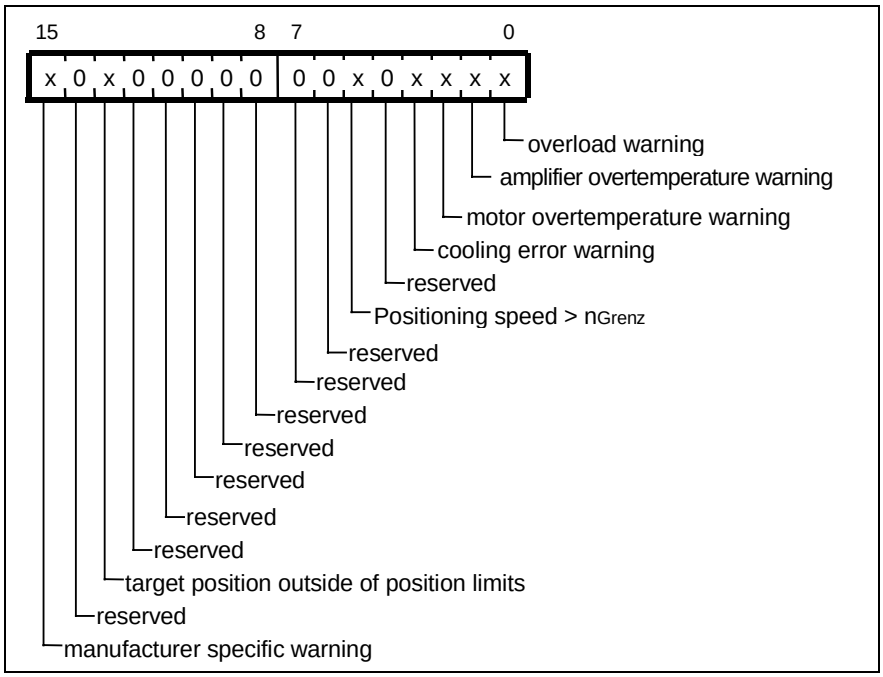


Fig. 6-2: Bit strip S-0-0012

Comments: Bit = 0 ⇒ no OFF warning

Bit = 1 ⇒ OFF warning applied

S-0-0012 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected, for diagnostics only

S-0-0013 Class 3 diagnostics

Operating status messages

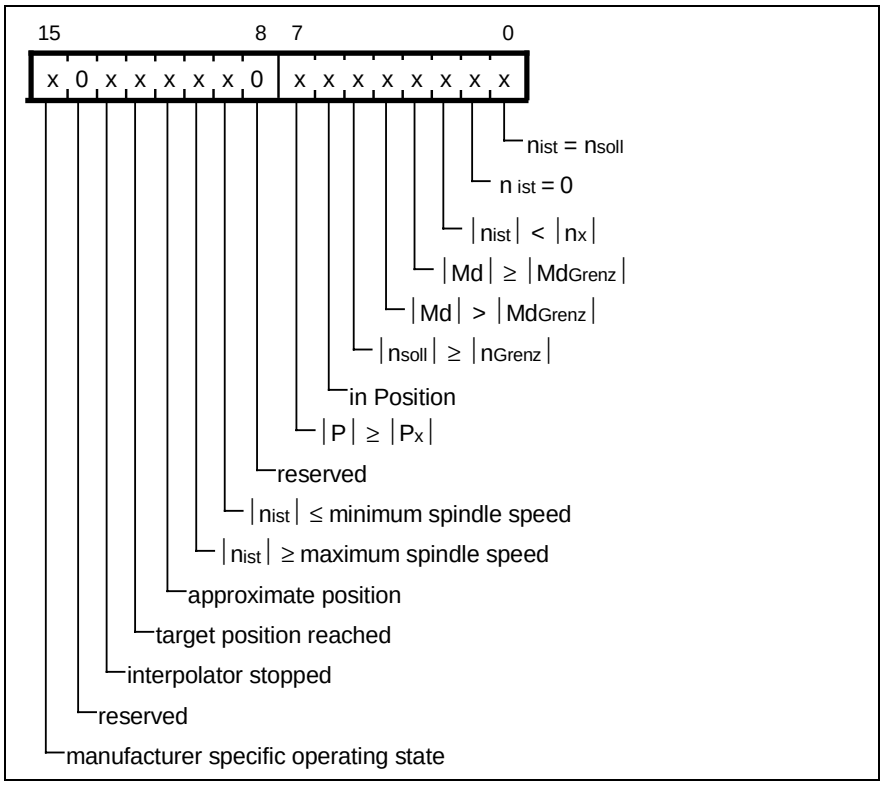


Fig. 6-3: Bit strip S-0-0013

Comments: Bit = 0 ⇒ no error
Bit = 1 ⇒ error applied

S-0-0013 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected, for diagnostics only

S-0-0021 IDN list of invalid operating data for communications phase 2

The drive enters those parameter numbers into the IDN list which are recognized as invalid when switching from communiations phase (parametrization mode) to 3.

S-0-0021 Attributes

Data length:	2 bytes variable length
Display format:	identification number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0022 IDN list of invalid operating data for communications phase 3

The drive enters those parameter numbers into the IDN list which are recognized as invalid when switching from communications phase 3 (parametrization mode) to 4.

S-0-0022 Attributes

Data length:	2 bytes variable length
Display format:	identification number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0030 Manufacturer version

This parameter includes the following information from Indramat:

1. the type of circuit board included in the firmware
2. the version and release number and type of the firmware

Example: "DSM2.3-ELS-03V10" (DIAX03 family of drives)

S-0-0030 Attributes

Data length:	1 byte variable length
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0036 Velocity command value

Input into the SYNAX system by the PPC.

S-0-0036 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ rpm or $1x10^{-6}$ m/min
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0037 Additive velocity command value

In the drive, the "additive speed command value" is added to "velocity command value" (S-0-0036).

S-0-0037 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ rpm or $1x10^{-6}$ m/min
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0040 Velocity feedback value

S-0-0040 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ rpm or $1x10^{-6}$ m/min
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	write protected

S-0-0041 Homing velocity

Speed with which homing is executed.

S-0-0041 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-4}$ rpm or $1x10^{-6}$ m/min
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0042 Homing acceleration

Homing accel and decel.

S-0-0042 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-3}$ rad/s² or $1x10^{-6}$ m/s²
Minimum input value:	0
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0043 Velocity polarity parameter

The identical polarities must be entered for all speeds (command value, additive command and feedback values).

Possible values:

0000000000000000 polalrity positive

0000000000000111 polarity negative

Note: The polarity set here must also be set in the "position polarity parameter" (S-0-0055) and in the "torque/force polarity parameter" (S-0-0085).

The structure of the speed polarity parameter:

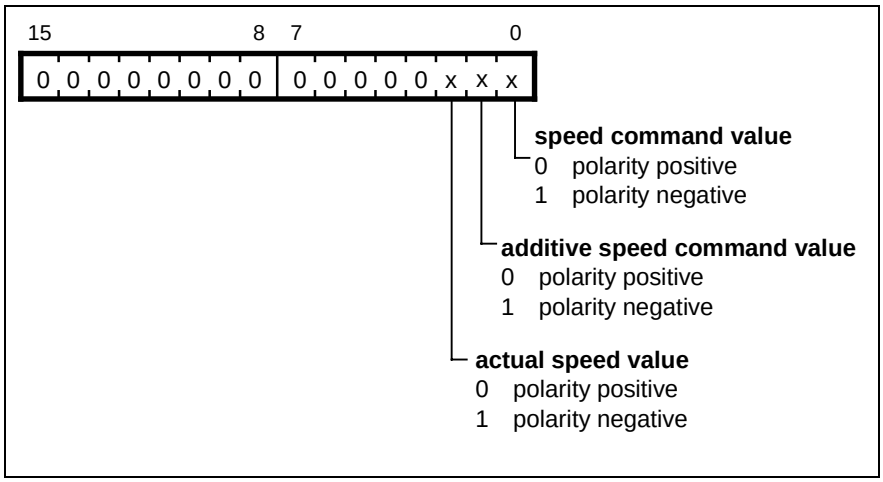


Fig. 6-4: The structure of the parameter S-0-0043

S-0-0043 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

S-0-0044 Velocity data scaling type (for diagnostics only)

The PPC automatically sets this parameter.

Various weighting modes can be set herewith.

The structure of the weighting mode for speed data:

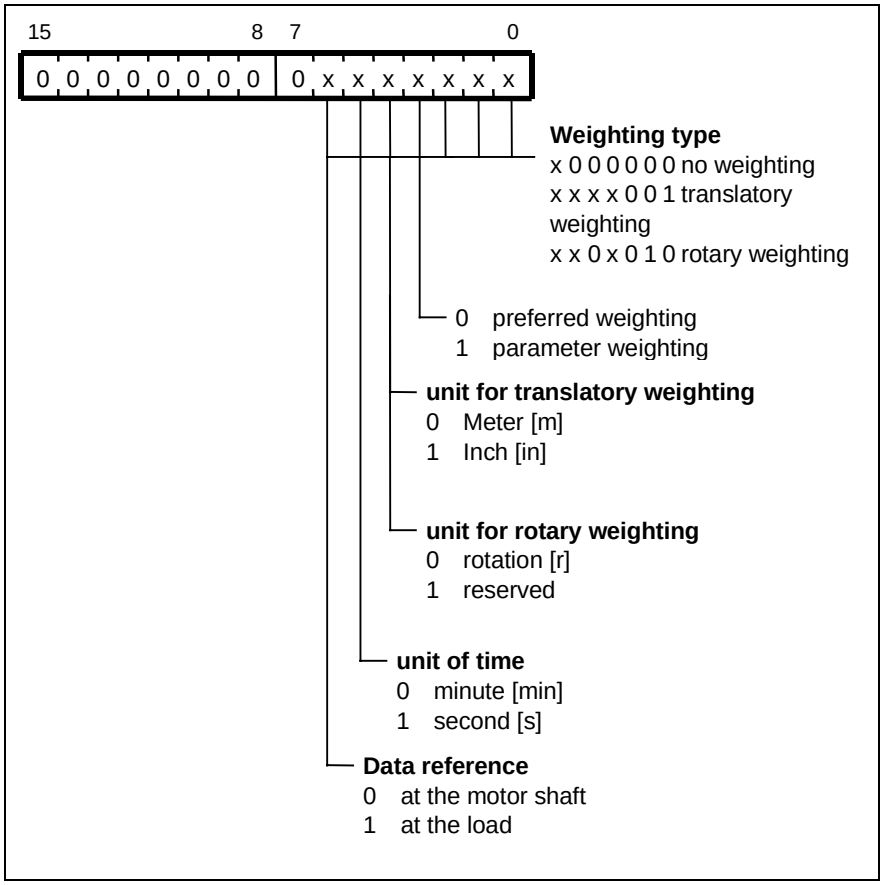


Fig. 6-5: The structure of the parameter S-0-0044

Note: In lieu of "x", 0 or 1 must be entered under the "x".

S-0-0044 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode; for diagnostics only, PPC sets parameter

S-0-0047 Position command value (for diagnostics only)

Is set by PPC in the SYNAX system.

S-0-0047 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection; for diagnostics only

S-0-0048 Position command value additional (for diagnostics only)

Is set by PPC in the SYNAX system.

S-0-0048 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection; for diagnostics only

S-0-0049 Positive position limit value

This describes the maximum traversing path in a positive direction. It is only active when referencing was performed or if the axis has an absolute encoder available to it. The position limit values can be switched off via the "position polarity parameter" (S-0-0055).

The drive will trigger an error message (see _A:F#.10) if the positive position value is exceeded.

S-0-0049 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0050 Negative position limit value

This describes the maximum traversing path in a negative direction. It is only active when referencing was performed or if the axis has an absolute encoder available to it. The position limit values can be switched off via the "position polarity parameter" (S-0-0055).

The drive will trigger an error message (see _A:F#.10) if the positive position value is exceeded.

S-0-0050 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0051 Position feedback value 1 (motor feedback)

Position feedback value 1 always refers to the motor encoder.

Also see "interface feedback 1" (P-0-0074).

S-0-0051 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	$\geq -2^{31}$
Maximum input value:	$\leq +2^{31}-1$
Access:	write protected

S-0-0052 Reference distance 1

The "reference dimension current position value 1" describes the distance machine - zero point to the reference point for the motor measuring system.

Current position value 1 is calculated after referencing, using

- the reference dimension of current position value 1 and
- the "reference offset 1" (S-0-0150)

S-0-0052 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0053 Position feedback value 2 (ext. feedback)

Position feedback value 2 always applies to the external encoder.

Also see "interface feedback 2" (P-0-0075).

S-0-0053 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	see S-0-0051
Minimum input value:	see S-0-0051
Maximum input value:	see S-0-0051
Access:	write protected

S-0-0054 Reference distance 2

This parameter describes the distance machine - zero point to the reference point for the motor measuring system.

Position value 2 is calculated after referencing using

- the reference dimension of position feedback value 2 and
- the "reference offset-2" (S-0-0151)

S-0-0054 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0055 Position polarity parameter

The polarity of the position data entered can, here, be switched to match the application.

The polarities are not switched within but rather without a control path (at the input and the output).

"Clockwise rotation" looking towards the motor shaft dominates with positive position command value difference and positive polarity.

The position limit values can also be activated.

Note: The polarity set here must also be set in the "velocity polarity parameter" (S-0-0043) and in the "torque/force polarity parameter" (S-0-0085).

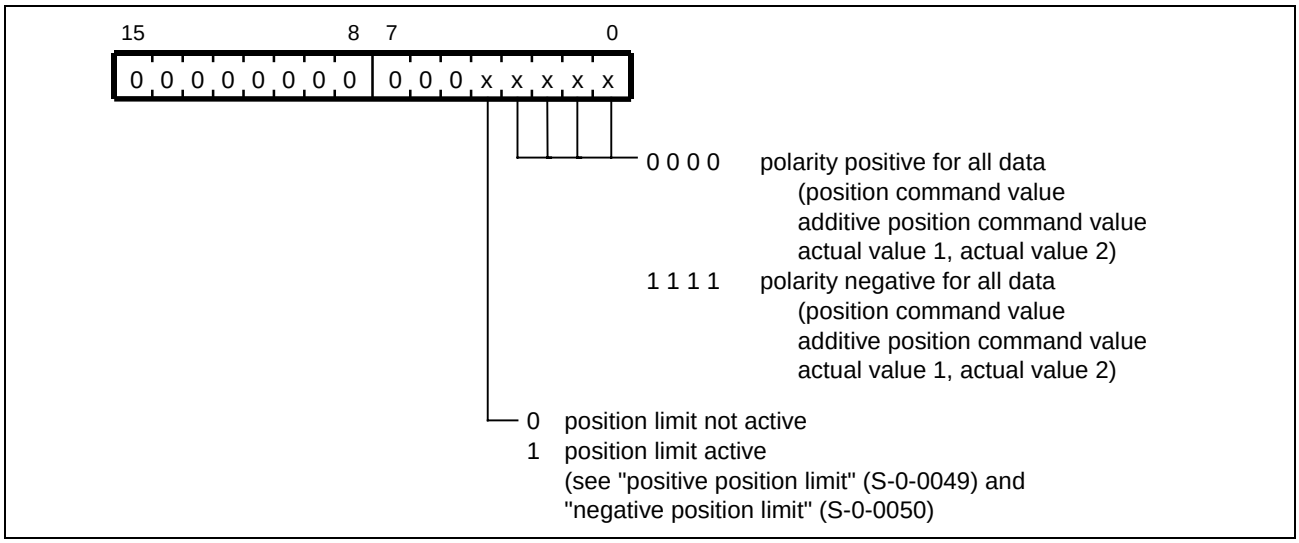


Fig. 6-6: Bit strip S-0-0055

S-0-0055 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

S-0-0057 Position window

If the difference of the final position value and the current position value is less than the value in the "position window", then the drive will set the bit "in position" into "class 3 diagnostics" (S-0-0013).

S-0-0057 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	0
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0076 Position data scaling type (for diagnostics only)

Is set by PPC in the SYNAX system.

The structure of the weighting for position data.

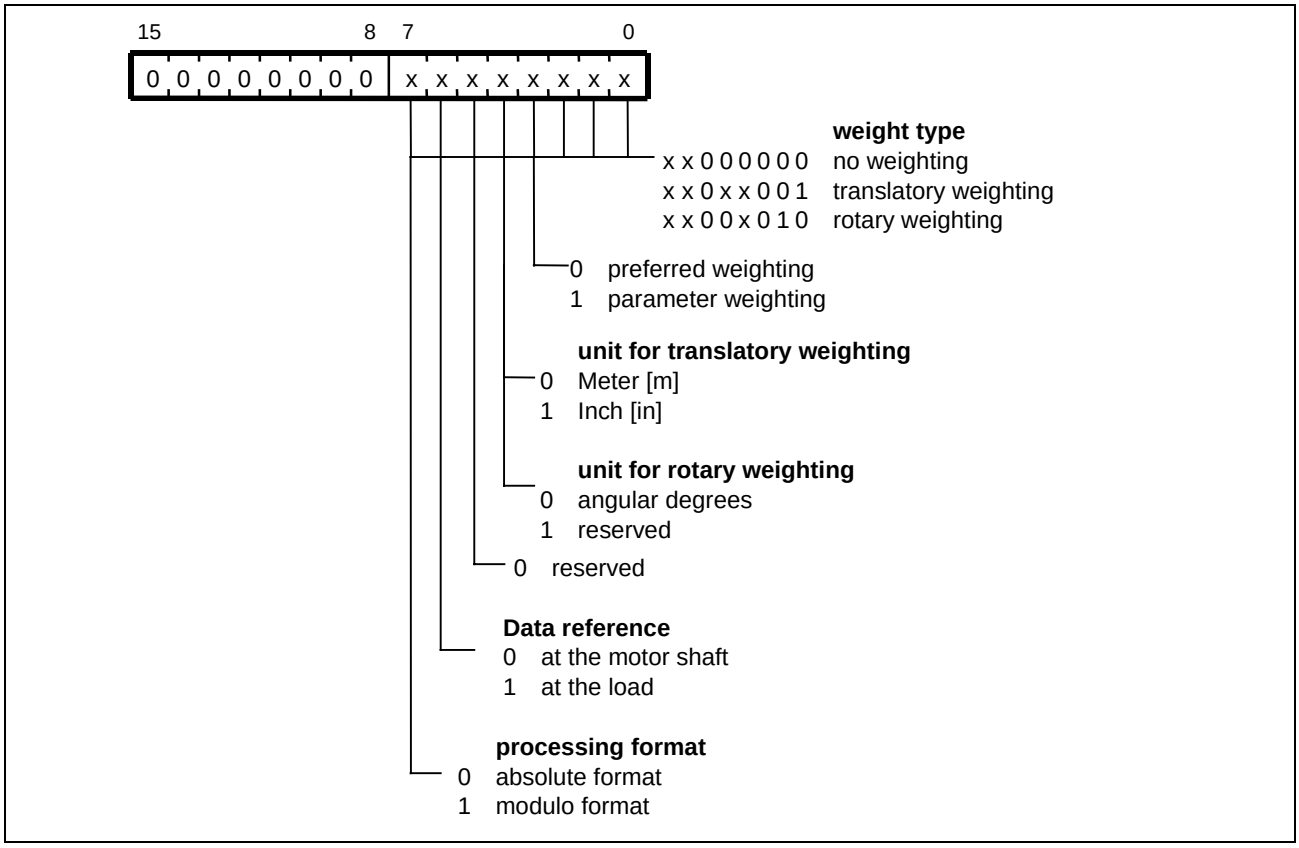


Fig. 6-7: Bit strip S-0-0076

Note: In lieu of the "x", a 0 or 1 must be entered under the "x".

S-0-0076 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode; for diagnostics only, PPC sets parameter

S-0-0079 Rotational position resolution

The rotary position resolution for all position data in this drive is entered in this parameter.

S-0-0079 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	≥ 1
Maximum input value:	≤ $+2^{32}$ -1
Access:	write protected in operating mode

S-0-0080 Torque/force command

S-0-0080 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	0.1 % of the zero velocity window of the motor or 0.01 Nm
Minimum input value:	≥ -2^{15}
Maximum input value:	≤ $+2^{15}$ -1
Access:	no write protection

S-0-0084 Torque/force feedback value

S-0-0084 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	0.1 % of the zero velocity window of the motor or 0.01 Nm
Minimum input value:	≥ -2^{15}
Maximum input value:	≤ $+2^{15}$ -1
Access:	no write protection

S-0-0085 Torque/force polarity parameter

The identical polarities must be entered for all torques (command, additive command and current values).

Possible values:

0000000000000000 polarity positive

0000000000000111 polarity negative

Note: The polarity set here must also be set in the "position polarity parameter" (S-0-0055) and in "velocity polarity parameter" (S-0-0043).

The structure of the torque-polarity parameter:

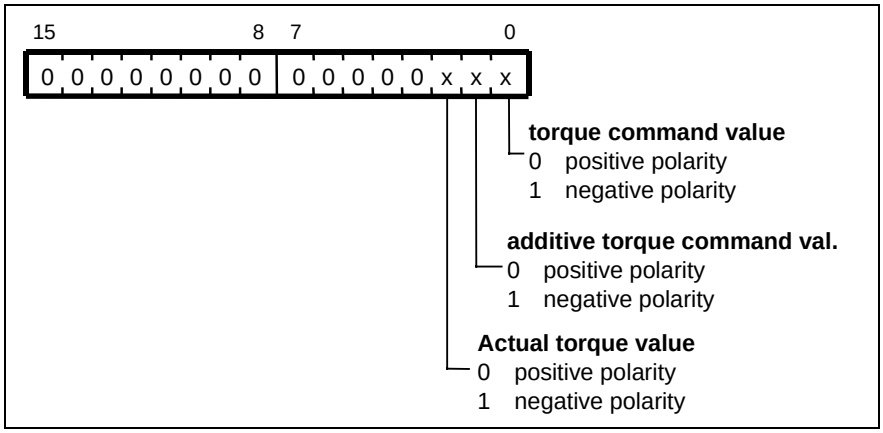


Fig. 6-8: The structure of the parameter S-0-0085

S-0-0085 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

S-0-0091 Bipolar velocity limit value

This parameter describes the maximum legal speed in either direction.

S-0-0091 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-4}$ rpm or $1x10^{-3}$ mm/min
Minimum input value:	0.0000 rpm or 0.000 mm/min
Maximum input value:	see contents of S-0-0113
Access:	no write protection

S-0-0092 Bipolar torque/force limit value

This parameter limits the maximum torque, symmetrically in both directions.

This parameter is specified by an edge of input "torque reduced" (_E:F#.24)

In the case of 0 ⇒ 1 edge, the contents of the parameter "bipolar torque limit - reduced" (A-0-0037) are transmitted.

With 1 ⇒ 0 edge, the contents of parameter "bipolar torque limit" (A-0-0038) are transmitted.

S-0-0092 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.1 % of the zero velocity window of the motor or 0.01 Nm
Minimum input value:	0
Maximum input value:	$+2^{15}-1$
Access:	no write protection, for diagnostics only, PPC sets parameter

S-0-0093 Torque/force data scaling factor

S-0-0093 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0095 Diagnostic message

This specifies relevant, momentary operating states of the drive.

The diagnosis is generated in the drive in simple language.

S-0-0095 Attributes

Data length:	1 bytes variable length
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0100 Velocity loop proportional gain

S-0-0100 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	Asec/rad
Minimum input value:	--
Maximum input value:	65535
Access:	no write protection

S-0-0101 Velocity loop integral action time

This is switched off upon reaching the maximum value of 6553.5 msec.

S-0-0101 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.1 msec
Minimum input value:	0.0 msec
Maximum input value:	6553.5 msec
Access:	no write protection

S-0-0103 Modulo value

SYNAX defines all rotary tables as modulo axes (see A-0-0003).

"Modulo value" S-0-0103 defines the modulo range.

In operating mode "electronic gearbox - angle synchronization" (see A-0-0003) the drive amplifier automatically calculates the parameter "modulo value" (S-0-0103) when switching from parametrization mode into operating mode like the following equation.

$$\text{S-0-0103 (modulo value)} = \frac{\text{S-0-0237 following axis rotations I)}}{\text{S-0-0236 (master axis 1 rotations)}} \times 360°$$

Fig. 6-9:Modulo value formula

In operating mode "cam", "modulo value" (S-0-0103) is specified by the user.

Note: The modulo value may not exceed one half of the displayable travel range (see DIAX03 Function Description: "Maximum displayable travel range" for more details on this).

Caution

Risk of accidents from sudden axis movements!
Exceeding input limits means that the position command value will be incorrectly evaluated.

S-0-0103 Attributes

Data length	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	≥ 1
Maximum input value:	≤ 2^{31} -1
Access:	--

S-0-0104 Position loop KV factor (closed-loop control)

This factor sets the amplification of the position control loop over the entire speed range.

S-0-0104 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.01 1000/min
Minimum input value:	depends on drive controller
Maximum input value:	depends on drive controller
Access:	no write protection

S-0-0106 Proportional gain 1 current regulator

This affects the torque creating current.

S-0-0106 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.01 V/A
Minimum input value:	depends on drive controller
Maximum input value:	depends on drive controller
Access:	no write protection

S-0-0108 Feedrate override

The speed profile in setup mode can be affected by this parameter.

100 % ⇒ speed in parameter "positioning velocity" (S-0-0259).

S-0-0108 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-2} %
Minimum input value:	0.00 %
Maximum input value:	655.35 %
Access:	write protected

S-0-0109 Motor peak current

If the peak current of the motor is less than the peak current of the amplifier, then the amplilfier current is limited to the peak current of the motor.

S-0-0109 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.001 A
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0110 Amplifier peak current

The peak current of the amplifier is limited by the hardware features of the unit. This simultaneously fixes the current of the maximum achievable torque limit value.

S-0-0110 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.001 A
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0111 Motor current at standstill

The "current at standstill" is that current with which the motor continuously creates the standstill torque (as per motor data sheet).

S-0-0111 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.001 A
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0112 Amplifier nominal current

The nominal current of the amplifier is the legal continuous current of the drive controller.

S-0-0112 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.001 A
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0113 Maximum motor velocity (n_{max})

S-0-0113 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} rpm
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0115 Position feedback 2 type parameter

(Bit assignment see S-0-0277)

S-0-0115 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

S-0-0117 Resolution of external feedback

This parameter specifies the resolution of the external encoder in terms of the "grid constant/revolution" (see P-0-0075).

Example

P-0-0075	Encoder	S-0-0117
3	DZF	256
7	DAG	4096

Fig. 6-10: Rotary encoder 2 - resolution

S-0-0117 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 TP/revolution
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

S-0-0121 Input revolutions of load gear

The input revolutions must be entered as integers.

S-0-0121 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 [input revolutions]
Minimum input value:	0
Maximum input value:	2147483647
Access:	write protected in operating mode

S-0-0122 Output revolutions of load gear

The output revolutions must be entered as integers.

S-0-0122 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 [output revolutions]
Minimum input value:	0
Maximum input value:	2147483647
Access:	write protected in operating mode

S-0-0123 Feed constant

The feed constant describes that machine element which converts rotary motion into translator motion and which specifies the traversed translatory displacement with one revolution.

Example: Ball screw with 10 mm spindle ramp

$\Rightarrow$ feed constant = 10 mm

S-0-0123 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
Minimum input value:	0.0000 mm
Maximum input value:	214748.3647 mm
Access:	write protected in operating mode

S-0-0124 Standstill window

If the current speed value is less than the value in the zero velocity window, then the drive will set the bit "nist = 0" in "class 3 diagnostics" (S-0-0013).

S-0-0124 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-4}$ rpm or $1x10^{-6}$ m/min
Minimum input value:	0
Maximum input value:	$+2^{31}-1$
Access:	no write protection

S-0-0138 Bipolar acceleration limit value

With this acceleration, the drive in the "drive halt" mode will be braked to a standstill.

S-0-0138 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-3}$ rad/s² or $1x10^{-6}$ m/s²
Minimum input value:	0
Maximum input value:	$+2^{31}$ -1
Access:	no write protection

S-0-0140 Controller type

This parameter specifies the types of drive controllers.

S-0-0140 Attributes

Data length:	1 byte variable length (max: 40 bytes)
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0141 Motor type (for diagnostics only)

This parameter specifies motor type. The drive controller automatically identifies the type of motor mounted during the initialization phase.

S-0-0141 Attributes

Data length:	1 byte variable length (max: 40 bytes)
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0142 Application type

User defined.

S-0-0142 Attributes

Data length:	1 byte variable length (max: 40 bytes)
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

S-0-0147 Homing parameter

This parameter sets referencing sequences related to plant and drive.

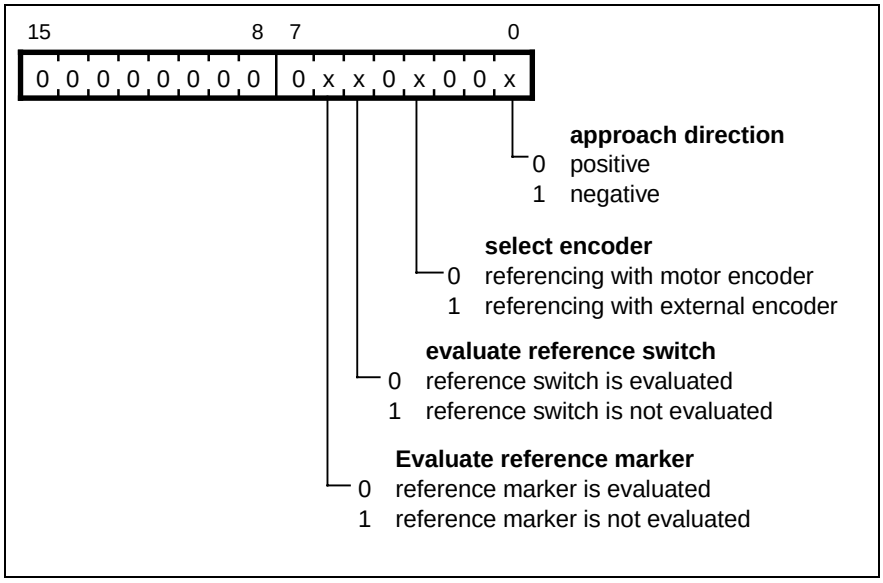


Fig. 6-11: The structure of the parameter S-0-0147

S-0-0147 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

S-0-0148 C600 drive controlled homing procedure command

Is set by PPC in the SYNAX system.

S-0-0148 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection, for diagnostics only. PPC sets parameter

S-0-0150 Reference offset 1

This parameter specifies the distance between "position encoder reference marker 1" and "reference distance 1" (S-0-0052).

S-0-0150 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-7}$ m
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}$ -1
Access:	no write protection

S-0-0151 Reference offset 2

This parameter specifies the distance between "position encoder reference marker 2" and "reference distance 2" (S-0-0054).

S-0-0151 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-7}$ m
Minimum input value:	-2^{31}
Maximum input value:	$+2^{31}$ -1
Access:	no write protection

S-0-0159 Monitoring window

Maximum deviation of position from the current position value can be set with the help of the monitoring window.

See P-0-0098 for the standard.

If the deviation value should exceed the value of the monitoring window, then the drive will set "excessive drive deviation" in "class 1 diagnostics" (S-0-0011).

S-0-0159 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	0
Maximum input value:	2^{31} -1
Access:	no write protection

S-0-0160 Acceleration data scaling type (for diagnostics only)

Is set by PPC in the SYNAX system.

The structure of the weighting type of accel data:

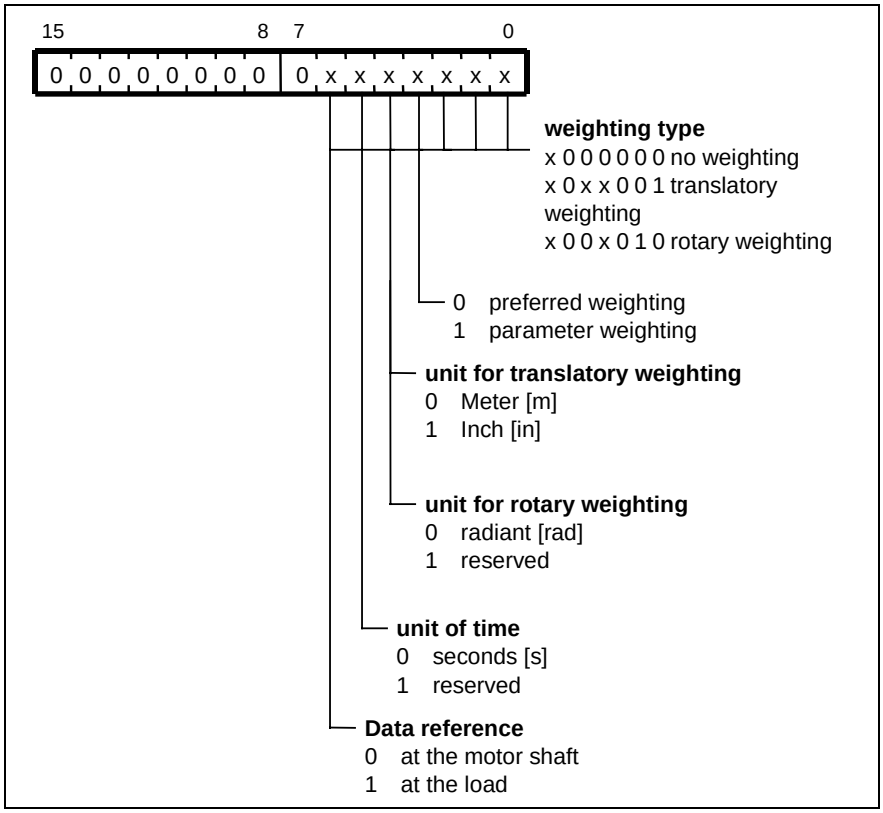


Fig. 6-12: The structure of the parameter S-0-0160

S-0-0160 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode; for diagnostics only. PPC sets parameter.

Note: In lieu of an "x", either a 0 or a 1 must be entered under the "x".

S-0-0182 Manufacturer class 3 diagnostics

This parameter specifies additional operating states which have been defined by Indramat.

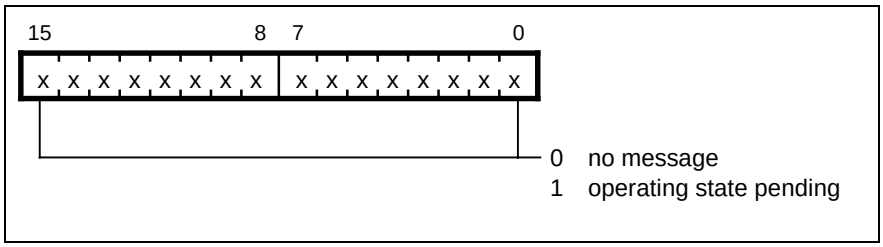


Fig. 6-13: The structure of the parameter S-0-0182

Bit 4 = 1: target position exceeds position limit value

Bit 5 = 1: excessive bipolar speed limit

Bit 6 = 1: target position reached

Bit 11 = 1: drive has halted

S-0-0182 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected, for diagnostics only

S-0-0183 Velocity synchronization window

If the difference between the synchronous speed and the current speed is less than the window here, then the message "synchronization window" (_A:F#.31) appears here.

S-0-0183 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	rpm or mm/min
Minimum input value:	0
Maximum input value:	600 000 000
Access:	no write protection

S-0-0189 Following error

This operating data displays the current difference of position command value and the corresponding current position for controlling the drive.

Generating the lag distance:

$$\text{lag distance} = \text{pos. command val.} - \text{act. pos.-1 or -2}$$

Fig. 6-14: Formula S-0-0189

S-0-0189 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-7}$ m
Minimum input value:	1
Maximum input value:	2^{31} -1
Access:	write protected

S-0-0193 Positioning jerk

The position command value of the drive is corrected (see S-0-0259 and S-0-0260) in setup mode making allowance for jerk in setup position (A-0-0056 to A-0-0059).

S-0-0193 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-3} m/sec³ or 10^{-3} rad/sec³
Minimum input value:	0.000 m/sec³ or rad/sec³
Maximum input value:	4294967.295 m/sec³ or rad/sec³
Access:	no write protection

S-0-0201 Motor warning temperature

This parameter specifies the temperature at which the drive triggers an error warning (output _A:F#.09).

Should the motor temperature not reach this temperature, then the warning will cancel itself.

MDD/MKD - Motors	Asynchronous motors
warning temperature = 155 °C	requires inputting a warning temperature

Fig. 6-15: Table S-0-0201

S-0-0201 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.1 °C
Minimum input value:	45.0 °C
Maximum input value:	155.0 °C
Access:	write protected in operating mode

S-0-0204 Motor switch off temperature

This parameter specifies the temperature at which the drive switches OFF and signals an error (output _A:F#.10).

To reset:

MDD/MKD - motors	Asynchronous motors
OFF temperature = 155 °C	requires inputting a switch OFF temperature

Fig. 6-16: Table S-0-0204

S-0-0204 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.1 °C
Minimum input value:	45.0 °C
Maximum input value:	155.0 °C
Access:	write protected in operating mode

S-0-0228 Position synchronization window

The message "in synchronization window" (_A:F#.31) is signalled, if the difference between the synchronous position command value and the position feedback value is smaller than the "position synchronization window" (S-0-0228).

S-0-0228 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or mm
Minimum input value:	0.0000 degree or mm
Maximum input value:	214748.3647 degree or mm
Access:	no write protection

S-0-0236 Lead drive 1 rotation

The transmission ratio between master axis 1 and the following axis is calculated using the relationship of master axis 1 rotations to the following axis 1 rotations.

$$\text{transmission ratio 1} = \frac{\text{master axis 1 rotations}}{\text{Following drives rotations} - \text{I}}$$

Fig. 6-17: Formula S-0-0236

Master axis 1 rotations must be entered as whole numbers.

Also see parameter S-0-0121!

S-0-0236 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 [master axis rotations]
Minimum input value:	0
Maximum input value:	4294967295
Access:	write protected in operating mode

S-0-0237 Slave drive rotation I

The transmission ratio between master axis 1 and the following axis is calculated using the relationship of master axis 1 rotations to following axis I rotations.

$$\text{transmission ratio 1} = \frac{\text{master axis 1 rotations}}{\text{following axis rotations I}}$$

Fig. 6-18: Formula S-0-0237

Following axis I rotations must be entered as integers.

Also see parameter S-0-0121!

S-0-0237 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 [following axis rotations]
Minimum input value:	0
Maximum input value:	4294967295
Access:	write protected in operating mode

S-0-0258 Target position (for diagnostics only)

S-0-0258 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} mm or 10^{-4} degree
Minimum input value:	-214748.3648 mm or degree
Maximum input value:	214748.3647 mm or degree
Access:	no write protection; for diagnostics only. PPC writes into parameter.

S-0-0259 Positioning velocity

The position command value of the drive is adjusted (see S-0-0193 and S-0-0260) in setup mode making allowance for the positioning speed of the setup position (A-0-0056 to A-0-0059).

S-0-0259 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-3} mm/min
Minimum input value:	0.000 mm/min
Maximum input value:	see contents of S-0-0091
Access:	no write protection, for diagnostics only. PPC writes into parameter.

S-0-0260 Positioning acceleration

The position command value of the drive is adjusted (see S-0-0193 and S-0-0259) in setup mode making allowance for the positioning accel of the setup position (A-0-0056 to A-0-0059).

S-0-0260 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-3} m/sec² or 10^{-3} rad/sec²
Minimum input value:	0.000 m/sec² or rad/sec²
Maximum input value:	29088.820 m/sec² or rad/sec²
Access:	no write protection

S-0-0262 C700 command basic load

The basic parameters in the motor are activated by setting and enabling the command "load default".

The basic parameters are not optimized for the application at hand. They only make a trouble-free interaction between amplifier and motor possible.

WARNING

Optimized parameters are overwritten by this command!

The command is activated by overwriting this parameter with the value 0000000000000011.

The overwriting of this parameter with a value less than 0000000000000000 means that the command **must** be cancelled.

This command is only available in motors with digital feedbacks, e.g., MDD motors.

The following parameters are overwritten in the drives belonging to the DIAX03 drive family.

- velocity loop proportional gain (S-0-0100)
- velocity loop integral action time (S-0-0101)
- position loop KV factor (S-0-0104)
- proportional gain 1 current regulator (S-0-0106)
- current regulator 1 integral action time (S-0-0107)
- motor type (S-0-0141)
- smoothing time constant (P-0-0004)

S-0-0262 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

S-0-0265 Language selection

The language of the drive can be changed with this parameter.

0: German

1: English

S-0-0265 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	1
Access:	no write protection

S-0-0267 Password

This parameter cancels write protection for certain parameters.

Note: This function may only be used for properly instructed personnel.

S-0-0267 Attributes

Data length:	1 byte variable length
Display format:	ASCII - Text
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

S-0-0277 Position feedback 1 type parameter

The polarity of the current position value 1 is fixed with this parameter.

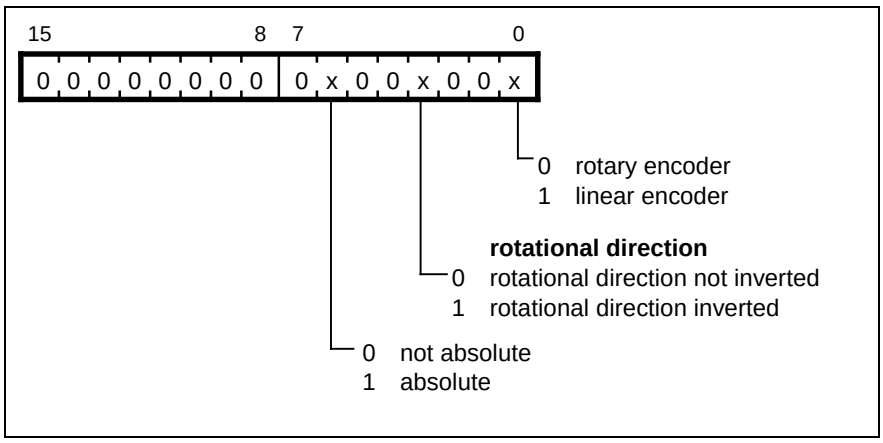


Fig. 6-19: The structure of the parameter S-0-0277

Note: If parameter "motor type" (P-0-4014) is equal to ≠ 1, then this parameter is only "write protected in operating mode".

S-0-0277 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0298 Reference cam shifting

If the drive is equipped with an integral absolute encoder funtion, then this parameter will have no effect since a drive of this kind always has the precise absolute position information at its disposal.

The reference switch is evaluated by the drive during referencing. There is an optimum position for the relative position of the referencing swith signal to the zero marker of the motor enoder. To simplify setup work for the setting during the initial start up, this parameter indicates the distance of the reference cam to the ideal position. The display is dependent on the type of weighting set for position data (see S-0-0076) and is displayed in [mm] or [°].

S-0-0298 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	degree
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0348 Proportional gain acceleration feed forward

The acceleration feed forward can be activated with this parameter.

S-0-0348 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.1 mAsec²/rad
Minimum input value:	0.0 mAsec²/rad
Maximum input value:	6553.5 mAsec²/rad
Access:	no write protection

S-0-0349 Jerk bipolar

Upon activation of this function "halt drive" (_E:F#.22) the jerk is limited to this value.

S-0-0349 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	rad/sec³
Minimum input value:	0
Maximum input value:	4 000 000 000
Access:	no write protection

S-0-0383 Motor temperature

This parameter contains the measured motor temperature.

This is only available with asynchronous motors.

MDD/MKD - motors	Asynchronous motors
no temperature measurement poss.	temperature measurement possible

Fig. 6-20: S-0-0383 Table 1

S-0-0383 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	0.1 °C
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0390 Diagnostic message number

This parameter contains the current diagnosis.

Example: S-0-0390 = 0xF233 means

F2-33 "external power supply error"

S-0-0390 Attributes

Data length:	2 bytes
Display format:	Hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

S-0-0391 External encoder monitoring window

If the difference between "position feedback value 1" (S-0-0051) and "position feedback value 2" (S-0-0053) exceeds the value in P-0-0120, then the drive signals an error (output _A:F#.10).

S-0-0391 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	see S-0-0051
Minimum input value:	0.0000 degree or mm
Maximum input value:	214748.3647 degree or mm
Access:	write protected in operating mode

S-0-0392 Velocity feedback value filtertimebase

The time constant of the tachometer filter is set with this parameter.

S-0-0392 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 µsec
Minimum input value:	250 µsec
Maximum input value:	65500 µsec
Access:	write protected in operating mode

S-0-0393 Command value mode for modulo format

The direction in which the axis moves in setup mode can be adjusted for with modulo axes (A-0-0001):

0 = shortest path

1 = positive direction

2 = negative direction

S-0-0393 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	2
Access:	no write protection

S-0-0400 Home switch (for diagnostics only)

This parameter displays the switching state of the reference point switch.

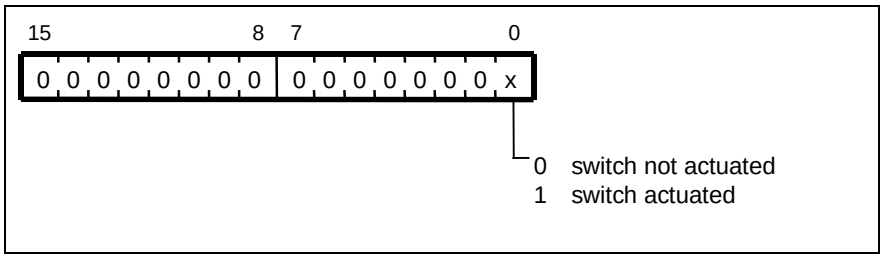


Fig. 6-21: The structure of the parameter S-0-0400

S-0-0400 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected, for diagnostics only

S-0-0403 Position feedback value status (for diagnostics only)

This parameter displays whether the current position values reference the zero point of the machine upon successful completion of a referencing procedure or with an absolute measuring system.

The structure of the current position value structure:

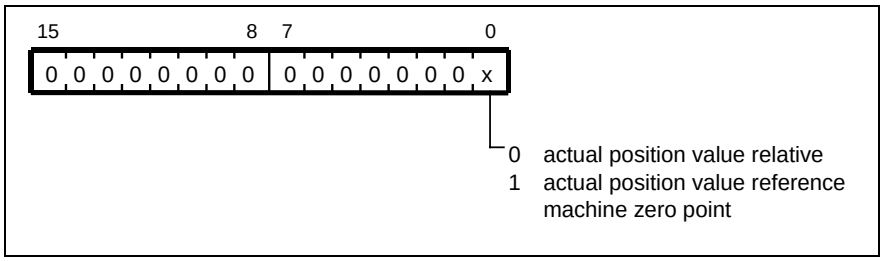


Fig. 6-22: The structure of the parameter S-0-0403

S-0-0403 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected, for diagnostics only

7 P parameter descriptions

General information

The P parameters determine the behavior of the individual SYNAX axes.

The P parameters are Indramat defined manufacturer or product specific parameters in the sense of SERCOS interface standards.

There is a complete description of all P parameters in the documentation "DIAX04 drive with electric gear functions", DOK-DIAX04-ELS-05VRS**-FKB1-EN-P.

P-0-0004 Smoothing time constant

In a proportional share of the speed controller, a time constant can be activated. This is suited for suppressing quantizing effects and for limiting the bandwidth of the speed control loop.

If the smallest possible value of 250 µs is set here, then the filter is switched off.

P-0-0004 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 µsec
Minimum input value:	250 µsec
Maximum input value:	65500 µsec
Access:	no write protection

P-0-0008 Activating E-stop function

This parameter activates the E-stop function.

0: E-stop input is not evaluated

1: E-stop input is evaluated

The following assignment applies to connector X12 of a DSS plug-in module:

X12.6 E-Stop

X12.7 +UL

X12.8 0VL

E-Stop intput is 0 active, i.e., 0V at input b means E-stop.

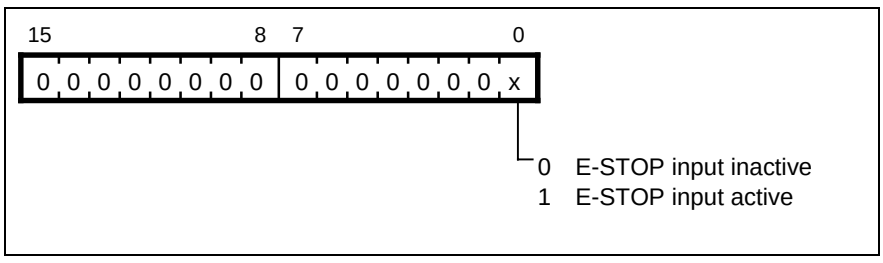


Fig. 7-1: The structure of parameter P-0-0008

P-0-0008 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	1
Access:	write protected in operating mode

P-0-0009 Error message number

If an error occurs during cyclical operation, then the drive will diagnose and display this in the seven segment display.

Parameter "error message number" makes it possible for a controller to read the error code on the display in the form of a decimal number, i.e., 1 through 99.

If there is no error, then the value of this parameter is 0.

With the number, the controller can show his own diagnosis.

P-0-0009 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

P-0-0010 Excessive position command

All cyclical position command value that reach the drive via the SERCOS interface are checked against the previous value to see whether they are legal or not. A position command value is legal if the difference to the previous command value is smaller or equal to the converted speedy limit value (also see "bipolar velocity limit value" (S-0-0091)).

If the drive recognizes an excessive position command value, then it is stored in parameter "excessive position command".

The final legal position command value is stored in parameter "last valid position command value" (P-0-0011). This means it is possible to completely reconstruct conditions in the event of a position command error.

P-0-0010 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{-31}
Maximum input value:	$+2^{-31}-1$
Access:	write protected

P-0-0011 Last valid position command value

If an excessive position command value occurs, then the previous valid position command value is stored in this parameter (see "excessive position command" (P-0-0010)).

P-0-0011 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{-31}
Maximum input value:	$+2^{-31}-1$
Access:	write protected

P-0-0012 C300 command ’set absolute measurement’

The motor feedback with muliturn encoder option cyclically records the absolute rotor position of the servo motor and processes it with high resolution in the drive controller.

The muliturn encoder option makes it possible to record the absolute actual position over 4096 motor revolutions.

P-0-0012 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

P-0-0019 Position start value

When switching on a control unit connected via a SERCOS interface, it is possible for the control unit to write the previous valid position feedback value into this parameter. The drive then assumes this "position start value" in the "position feedback value".

P-0-0019 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	degree
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode; for diagnostics only

P-0-0021 List of scope-data 1

P-0-0022 List of scope-data 2

P-0-0023 Signal select channel 1

P-0-0024 Signal select channel 2

P-0-0025 Trigger source

P-0-0026 Trigger signal select

P-0-0027 Trigger level for position data

P-0-0028 Trigger level for velocity data

P-0-0029 Trigger level for torque/force data

P-0-0030 Trigger edge

P-0-0031 Timebase

P-0-0032 Size of memory

P-0-0033 Number of samples after trigger

For a description of above parameters on the oscilloscope function, see doc. "DIAX04: drive with electronic gear functions" (doc. no. DIAX04-ELS-05VRS**-FKB1-EN-P)

P-0-0034 Position command additional actual value

This parameter is used for synchronization in synchronization mode.

P-0-0034 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	$\geq -2^{-31}$
Maximum input value:	$\leq +2^{-31}-1$
Access:	write protected

P-0-0035 Delay from trigger to start

P-0-0036 Trigger control word

-

P-0-0037 Trigger status word

For a description of above parameters on the oscilloscope function, see doc. "DIAX04: drive with electric gear functions" (doc. no. DIAX04-ELS-05VRS**-FKB1-EN-P)

P-0-0038 Signal select analog output channel 1

This parameter makes it possible to select a signal for analogue output from a series of signals via the diagnostics output AK1 on connectors X3.1 and 3.2 of this drive controller.

The following signals can be output with the use of their id number.

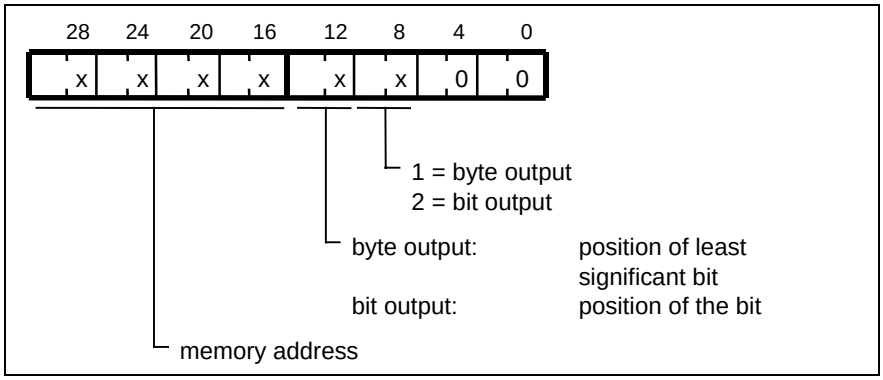
Number:	Signal select:	Standard:
0x0	no analogue output	
0x1	command torque-generating current	10V = S-0-0110 "amplifier peak current"
0x2	actual speed value (mixed and filtered)	P-0-0040
0x3	speed command value	P-0-0040
0x4	position command value difference	P-0-0040
0x5	actual position value 1	P-0-0042
0x6	actual position value 2	P-0-0042
0x7	lag distance	P-0-0042
0x8	sine signal motor encoder	1:1
0x9	cosine signal motor encoder	1:1
0xd	speed command value input speed controller	P-0-0040
0xe	DC bus output	P-0-0044
0xf	amount of DC bus output	P-0-0044

0x10	sine signal external encoder	1:1
0x11	cosine signal external encoder	1:1
0x12	torque generating actual current	10V = S-0-0110 "amplifier peak current"
0x13	magnetization actual current	10V = S-0-0110 "amplifier peak current"
0x14	actual speed value of the motor encoder	P-0-0040
0x15	thermal load (SHS only)	10V = 100%

Fig. 7-2: Table P-0-0038

In units of the DIAX03 generation, any storage location on analogue channel 1 can be output.

Hexadecimal representation:



When outputting a byte, the eight addressed bits are declared on the analogue channel in the form of variables with qualifying signs:

+ 10V ⇒ 127
0V ⇒ 0
- 10V ⇒ -128 (= 0x80)

If only one bit is output, then it applies:

+ 10V ⇒ Bit = 1
- 10V ⇒ Bit = 0

Example: Output of bit 12 to bit 12 + 7 of the 32 bit - value in address 2CD:

P-0-0038 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

P-0-0039 Signal select analog output channel 2

This parameter make it possible to select a signal for analogue output from a series of signals via the diagnostic output AK1 on connetors X3.2 and 3.3 of this drive controller.

The following signals can be output with the use of their ID number.

Number:	Signal select:	Standard:
0x0	no analogue output	
0x1	command torque-generating current	10V = S-0-0110 "amplifier peak current"
0x2	actual speed value (mixed and filtered)	P-0-0041
0x3	speed command value	P-0-0041
0x4	position command value difference	P-0-0041
0x5	actual position value 1	P-0-0043
0x6	actual position value 2	P-0-0043
0x7	lag distance	P-0-0043
0x8	sine signal motor encoder	1:1
0x9	cosine signal motor encoder	1:1
0xd	speed command value input speed controller	P-0-0041
0xe	DC bus output	P-0-0044
0xf	amount of DC bus output	P-0-0044
0x10	sine signal external encoder	1:1
0x11	cosine signal external encoder	1:1
0x12	torque generating actual current	10V = S-0-0110 "amplifier peak current"
0x13	magnetization actual current	10V = S-0-0110 "amplifier peak current"
0x14	actual speed value of the motor encoder	P-0-0041
0x15	thermal load (SHS only)	10V = 100%

Fig. 7-3: Table P-0-0039

In units of the DIAX03 generation, any storage location on analogue channel 2 can be output. See "Signal select analog output channel 1 (P-0-0038) for details.

P-0-0039 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

P-0-0040 Scaling factor for velocity data channel 1

This parameter specifies the weighting of the analogue output when a variable which represents a speed is output on channel 1 (see "signal select for analog output channel 1" (P-0-0038)).

The input value relates to the motor shaft.

P-0-0040 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 rpm/10V
Minimum input value:	0 rpm/10V
Maximum input value:	65535 rpm/10V
Access:	no write protection

P-0-0041 Scaling factor for velocity data channel 2

This parameter specifies the weighting of the analogue output when a variable which represents a speed is output on channel 1 (see "signal select for analog output channel 2" (P-0-0039)).

The input value relates to the motor shaft.

P-0-0041 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 rpm/10V
Minimum input value:	0 rpm/10V
Maximum input value:	65535 rpm/10V
Access:	no write protection

P-0-0042 Scaling factor for position data channel 1

This parameter specifies the weighting of the analogue output when a variable is output on channel 1, which represents a position (see "signal select for analog output channel 1" (P-0-0038)).

The input value relates to the motor shaft.

P-0-0042 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 degree/10V
Minimum input value:	0 degree/10V
Maximum input value:	21474836.47 degree/10V
Access:	no write protection

P-0-0043 Scaling factor for position data channel 2

This parameter specifies the weighting of the analogue output when a variable is output on channel 2, which represents a position (see "signal select for analog output channel 1" (P-0-0039)).

The input value relates to the motor shaft.

P-0-0043 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 degree/10V
Minimum input value:	0 degree/10V
Maximum input value:	21474836.47 degree/10V
Access:	no write protection

P-0-0049 Target position pattern control profile (for diagnostics only)

The PPC writes this parameter into mode "pattern control".

P-0-0049 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	-2^{-31}
Maximum input value:	$+2^{-31}-1$
Access:	no write protection; for diagnostics only, PPC sets parameter

P-0-0051 Torque/force-constant

The torque constant of the connected motor is stored in the feedback and is displayed in this parameter.

P-0-0051 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	Nm/A
Minimum input value:	--
Maximum input value:	--
Access:	write protected

P-0-0052 Position feedback value 3 (for diagnostics only)

If a real master axis is used, then this parameter transmits the position of the encoder for the real master axis, e.g., GDS, to the PPC.

P-0-0052 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	increments
Minimum input value:	0
Maximum input value:	2^{-20} -1
Access:	write protected; for diagnostics only

P-0-0053 Lead drive position

Specified by PPC in the SYNAX system.

Only for diagnostic purposes.

P-0-0053 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	increments
Minimum input value:	0
Maximum input value:	2^{20} -1
Access:	write protected; for diagnostics only

P-0-0059 SSI-emulator resolution

The resolution of the SSI emulator on the plug-in card DSA1.1 will be adjusted with this parameter.

If a DSA1.1 plug-in card is in place, then the active master axis position will be shown in this encoder emulation.

P-0-0059 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	TP/rev.
Minimum input value:	360
Maximum input value:	4096
Access:	write protected in operating mode

P-0-0060 Filter time constant additional pos. command

If the PPC of the drives does not run smoothly enough during asynchronous function, then the tracking of the drives can be smoothed to "position command offset" (A-0-0004).

This filter is only effective if "synchronization mode" (P-0-0155) = 1 and the drive have synchronized.

P-0-0060 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.00 ms
Minimum input value:	0.00 ms
Maximum input value:	655.35 ms
Access:	no write protection

P-0-0061 Phase offset begin of profile

The profile is shifted around this angle opposite the master axis position.

This shift is used in "electronic cam" and "pattern electronic gearboxes".

P-0-0061 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree
Minimum input value:	-180.0000 degree
Maximum input value:	+179.9999 degree
Access:	no write protection

P-0-0062 Pattern control profile 2A

There are 512 support point for the function electronic gearbox. These are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0062 Attributes

Data length:	2 bytes variable length (max. 1024 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0063 Pattern control profile 2A - switch angle 1

The relevant threshold angle for switching increments in the function pattern control are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0063 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree
Minimum input value:	0.0000 degree
Maximum input value:	180.000 degree
Access:	write protected

P-0-0064 Pattern control profile 2B

There are 512 support point for the function electronic gearbox. These are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0064 Attributes

Data length:	2 bytes variable length (max. 1024 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0065 Pattern control profile 2B - switch angle 1

The relevant threshold angle for switching increments in the function pattern control are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0065 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree
Minimum input value:	0.0000 degree
Maximum input value:	180.000 degree
Access:	write protected

P-0-0066 Pattern control profile 3A

There are 512 support points for the function electronic gearbox. These are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0066 Attributes

Data length:	2 bytes variable length (max. 1024 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0067 Pattern control profile 3A - switch angle 1

The relevant threshold angle for switching increments in the function pattern control are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0067 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree
Minimum input value:	0.0000 degree
Maximum input value:	180.000 degree
Access:	write protected in operating mode

P-0-0068 Pattern control profile 3A - switch angle 2

The relevant threshold angle for switching increments in the function pattern control are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0068 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree
Minimum input value:	0.0000 degree
Maximum input value:	180.000 degree
Access:	write protected in operating mode

P-0-0069 Pattern control profile 3B

There are 512 support points for the function electronic gearbox. These are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0069 Attributes

Data length:	2 bytes variable length (max. 1024 bytes)
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0070 Pattern control profile 3B - switch angle 1

The relevant threshold angle for switching increments in the function pattern control are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0070 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree
Minimum input value:	0.0000 degree
Maximum input value:	180.000 degree
Access:	write protected in operating mode

P-0-0071 Pattern control profile 3B - switch angle 2

The relevant threshold angle for switching increments in the function pattern control are stored in this parameter. (See section 3.6, "electronic pattern controls".)

P-0-0071 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	$1x10^{-4}$ degree
Minimum input value:	0.0000 degree
Maximum input value:	180.000 degree
Access:	write protected in operating mode

P-0-0072 Cam shaft profile 1

Includes a table with support point tabs (φ) for the section of the cam with 1024 elements.

The distance Δφ of the support point to each other is the result of the number of elements:

$$\Delta\varphi = \frac{360^\circ}{1024} \approx 0{,}35^\circ$$

Fig. 7-4: Formula P-0-0072

The first element in the table is the support point for Δφ = 0°. The final element of the table is the support point for φ = 360° -Δφ.

P-0-0072 Attributes

Data length:	4 bytes variable length (max. 4096 bytes)
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-6}$ %
Minimum input value:	-200.000000 %
Maximum input value:	+200.000000 %
Access:	no write protection

P-0-0074 Interface feedback 1

0 = not legal

1 = standard interface X4

2 = DLF 1

3 = DZF 1

Note: If parameter "motor type" (P-0-4014) contains a value of ≠ 0, then this parameter is only "write protected in operating mode"!

P-0-0074 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	3
Access:	write protected

P-0-0075 Interface feedback 2

0 = there is no external encoder interface

1 = standard interface X4

2 = DLF 1

3 = DZF 1

4 = DFF 1

5 = DEF 1

6 = DEF 2

7 = DAG 1

P-0-0075 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	7
Access:	write protected in operating mode

P-0-0076 Interface position feedback value 3

This parameter sets an encoder interface for using a real master axis.

0 = no encoder interface for actual position value 3 (real master axis)

1 = standard interface X4

4 = DFF 1

7 = DAG 1

P-0-0076 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0077 Position feedback 3 type parameter

This parameter sets the polarity of the actual position value 3 (real master axis).

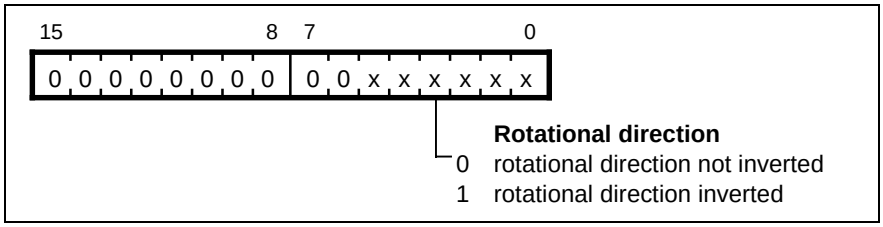


Fig. 7-5: The structure of parameter P-0-0077

P-0-0077 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0079 Info destination position (for diagnostics/display only)

P-0-0079 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection; for diagnostics only, set by PPC

P-0-0081 Parallel I/O output 1

If a parallel DEA 4.1 I/O card has been inserted into the DDS, then the state of the output channel is displayed and can be set in this parameter.

It includes all bits of the parameter output (not the case with the RAC!).

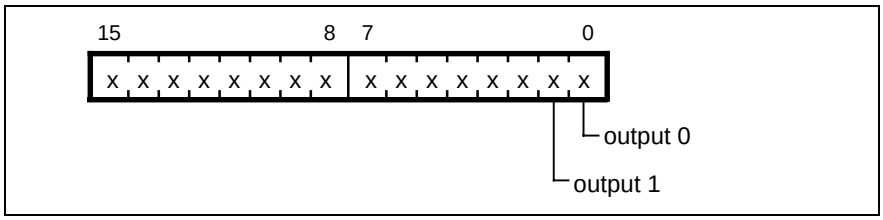


Fig. 7-6: The struture of parameter P-0-0081

P-0-0081 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection; for diagnostics only

P-0-0082 Parallel I/O input 1

If a parallel DEA 4.1 I/O card has been inserted into the DDS, then the state of the input channel is displayed and can be set in this parameter.

It includes all bits of the parameter input (not the case with the RAC!).

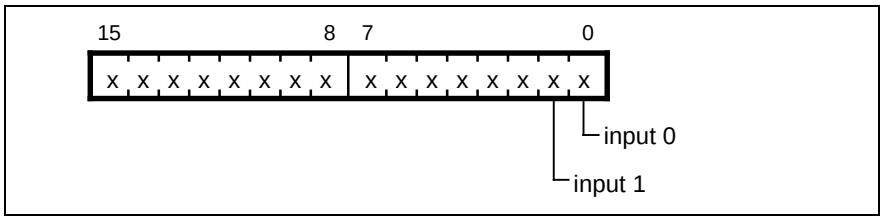


Fig. 7-7: The structure of parameter P-0-0082

P-0-0082 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected; for diagnostics only, PPC sets parameter

P-0-0083 Gain adjust

This parameter supports display or diagnoses. The PPC specifies it (e.g., with "fine adjustment" (A-0-0060)).

The ratio of the electronic gearbox is adjusted by this factor. It outputs a per cent change of this ratio as per the following equation. It is only active during speed synchronization. It is possible to dynamically alter this factor.

$$n_F = n_L \frac{\text{Following drive revolutions}}{\text{master drive revolutions}} (1+ \text{fine adjustment}) + n_V$$

Fig. 7-8: Formula P-0-0083

P-0-0083 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-2} %
Minimum input value:	-327.68 %
Maximum input value:	327.67 %
Access:	no write protection; for diagnostics only, PPC sets parameter

P-0-0085 Dynamical phase offset

With this parameter, the effective master axis position can be moved like the following demonstrates.

$$\varphi_{\substack{master\ axis \\ active}} = \varphi_{master\ axis}\ x \frac{n_{master\ axis})}{\frac{Position\ loop\ KV}{factor\ (S-0-0104)}}\ x\ dyn.phase offset\ (P-0-0085)$$

Fig. 7-9: Formula P-0-0085

This function is available in operating modes "electronic cam" and "pattern electronic gearboxes".

The following shows the offset position command actual position values in P-0-0085 = 100%:

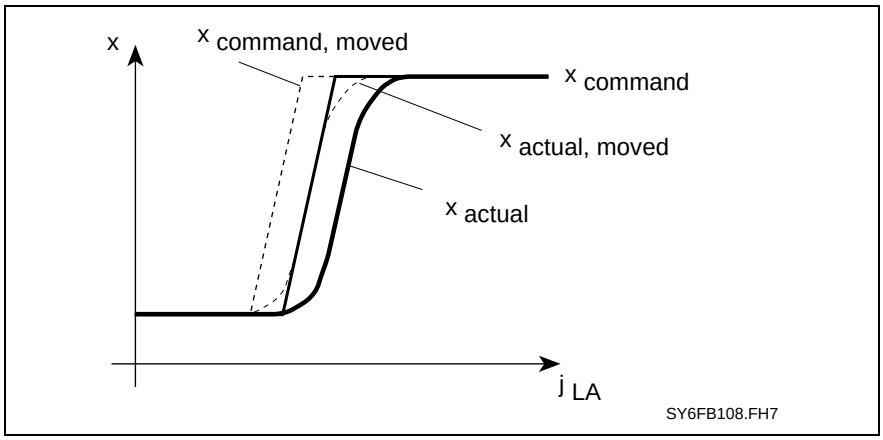


Fig. 7-10: Offset position command and actual values in P-0-0085 = 100%

P-0-0085 Attributes

Data length:	2 bytes
Display format:	signed decimal number
Weighting / unit:	1 %
Minimum input value:	0 %
Maximum input value:	600 %
Access:	no write protection

P-0-0087 Offset position feedback value 3

An offset can be applied to actual position value 3 (real master axis) with this parameter.

This parameter is scaled in increments.

It applies:

$$2^{20} = 1048575 \rightarrow 360° (real\ master\ axis)$$

Fig. 7-11: Formula P-0-0087

P-0-0087 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	--
Minimum input value:	- 1048575
Maximum input value:	+ 1048575
Access:	no write protection

P-0-0088 Cam shaft control

The PPC selects the active cam of a following drive with this parameter.

Bit 0 = 0: preselect cam 1 (see P-0-0072)

Bit 0 = 1: preselect cam 2 (see P-0-0092)

The drive preselects if the master axis exceeds the "cam shaft switch angle" (P-0-0094).

Note: When using the cam, this parameter is transmitted cyclically by the PPC.

P-0-0088 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

P-0-0089 Cam shaft status

The drive uses this parameter to signal back to the active cam.

Bit 0 = 0: preselect cam 1 (see P-0-0072)

Bit 0 = 1: preselect cam 2 (see P-0-0092)

P-0-0089 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0090 Travel limit parameter

This parameter activates a travel range limit switch connected to a drive.

P-0-0090 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0092 Cam shaft profile 2

Includes a table with support point tabs (φ) for the section of the cam with 1024 elements.

The distance dφ of the support points to each other is the result of the number of elements.

$$d_{\varphi} = \frac{360^{\circ}}{1024} \approx 0{,}35^{\circ}$$

Fig. 7-12: Formula P-0-0092

The first element in the table is the support point for φ = 0°. The final element of the table is support point for φ = 360°- dφ. (Only DIAX03)

P-0-0092 Attributes

Data length:	4 bytes variable length (max. 4096 bytes)
Display format:	signed decimal number
Weighting / unit:	$1x10^{-6}$ %
Minimum input value:	-199.999999%
Maximum input value:	+199.999999%
Access:	no write protection

P-0-0093 Cam shaft distance

This parameter fixes the hub with which the section of the cam is multiplied. (Only DIAX03)

P-0-0093 Attributes

Data length:	4 bytes
Display format:	--
Weighting / unit:	$1x10^{-4}$ mm
Minimum input value:	-214748.3648mm or -214748.3648°
Maximum input value:	+214748.3647mm or +214748.3647°
Access:	--

P-0-0094 Cam shaft switch angle

If the master axis position exceeds this angle in either a positive or negative direction, then that cam table which has been activated by input (_E:F#.30) is switched into.

Parameter "cam shaft status" (P-0-0089) is then set to the activated cam table.

When commissioning the drive, that cam is activated that has been set in "cam shaft control" (P-0-0088). This also sets parameter "cam shaft status" (P-0-0089) (only for DIAX03).

P-0-0094 Attributes

Data length:	4 bytes
Display format:	--
Weighting / unit:	$1x10^{-4}$ degree
Minimum input value:	-0.0000 degree
Maximum input value:	+ 359.9999 degree
Access:	--

P-0-0097 Absolute encoder control window

Drives with integral absolute encoder functions are referentially correct at the time when the machine is switched on. No referencing cycle is required. Axis with absolute encoder functions requires one reference run when commissioning.

The rotor position of the servo motor is cyclically and absolutely determined with a motor feedback with muliturn encoder option and is then processed with high resolution in the drive controller.

The actual position an be determined via 4096 revolutions of the motor with a muliturn encoder option.

The current actual poition is stored when a DDS with absolute encoder motor (multiturn) is switched off. When the unit is turned back on, the position recorded by the absolute encoder is compared with the one stored. Should the deviation exceed the value in the parametrized "absolute encoder control window" (P-0-0097), then error "76" absolute encoder error, is generated and transmitted to the control unit.

Note: The value in parameter "absolute encoder control window" (P-0-0097) is application-dependent and must be individually determined and entered.

P-0-0097 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	10^{-4} degree or 10^{-4} mm
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

P-0-0098 Maximum model deviation

A drive model is calculated in the drive to assist in monitoring the drive internal position control loop. If actual position, and model position values deviate, then error "28" is generated. The threshold, which, if exceeded for more than 50 msec, evokes an error reaction, is specified in parameter "monitoring window" (S-0-0159). It must be entered as a per cent value.

The following appllies: 100 % = 360° at the motor shaft.

The parameter "maximum model deviation" (P-0-0098) supports the parametrization of parameter "monitoring window" (S-0-0159).

Determining the input value for the monitoring window parameter:

1. "monitoring window" (S-0-0159) must be set at 50%
2. traverse axis with set speed and accel (preset processing cycle)
3. read parameter "maximum model deviation" (P-0-0098)
4. multiply the value read by 2 and enter parameter "monitoring window" (S-0-0159).

P-0-0098 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-4}$ degree or $1x10^{-4}$ mm
Minimum input value:	0
Maximum input value:	2^{31} -1
Access:	no write protection

P-0-0099 Position command smoothing time constant

P-0-0099 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-2}$ msec
Minimum input value:	0.00 msec
Maximum input value:	655.35 msec
Access:	no write protection

P-0-0108 Lead drive polarity

The polarity of the master axis position can be changed in this parameter.

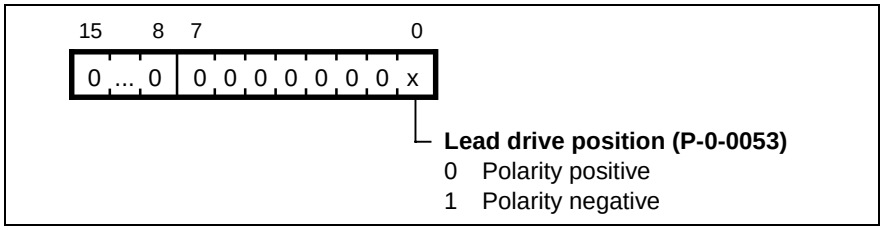


Fig. 7-13: The structure of parameter P-0-0108

P-0-0108 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0117 NC reaction in error situation

0: drive responds to error with "deceleration as best as possible" (P-0-0119).

1: drive conducts no independent reaction for 30 seconds, then responds with "deceleration as best as possible" (P-0-0119).

P-0-0117 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	1
Access:	write protected in operating mode

P-0-0118 Power switch OFF in error situation

0: drive does not signal error to supply module, drives mounted to this supply module can be run

1: drive signals error at supply unit which responds with power shut down

P-0-0118 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	1
Access:	write protected in operating mode

P-0-0119 Deceleration as best as possible

0: best possible standstill is "speed command value to zero"

1: best possible standtill is "torque disconnect"

P-0-0119 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	1
Access:	write protected in operating mode

P-0-0121 Velocity mixfactor feedback1 & feedback2

If a second (external) encoder is used, then the actual speed which is fed back can be percentually mixed.

0.0 % only encoder 1

100.0 % only encoder 2

P-0-0121 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	$1x10^{-1}$ %
Minimum input value:	0.0 %
Maximum input value:	100.0 %
Access:	no write protection

P-0-0124 Assignment IDN -> DEA output

A DEA can be assigned an identification number in the form of an output with this parameter.

If the data width of the assigned identification number is greater than that of the DEA ports, then the higher value bits are cut off.

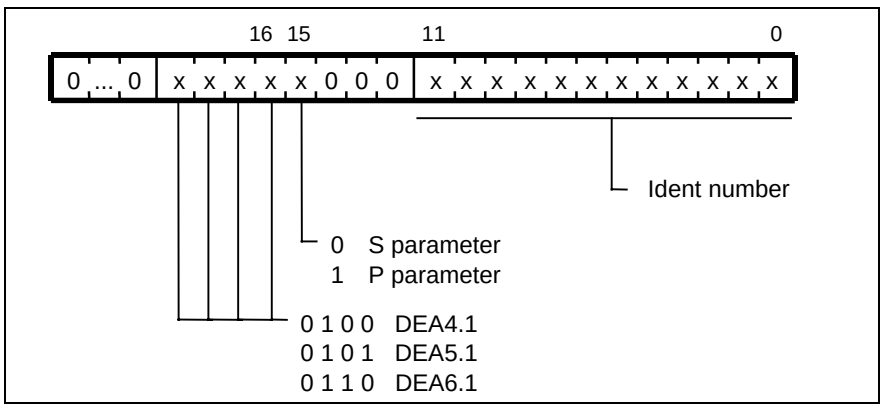


Fig. 7-14: The structure of parameter P-0-0124

The contents of the parameter are written to the output of the DEA.

P-0-0124 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

P-0-0125 Assignment DEA input -> IDN

A DEA input is assigned an identification number with this parameter.

The input status of the DEA is then written into the relevant parameter.

See "assignment IDN --> DEA output" (P-0-0124).

P-0-0125 Attributes

Data length:	4 bytes
Display format:	hexadecimal number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	no write protection

P-0-0142 Synchronization acceleration

The axis synchronizes itself to a synchronous speed and position with this acceleration.

The resulting acceleration is derived from:

$$\begin{array}{r} \text{acceleration synchronization} \\ +\,\text{acceleration in the cycle} \\ \hline \text{resulting acceleration} \end{array}$$

Fig. 7-15: Formula P-0-0142

P-0-0142 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	rad/sec² or mm/sec²
Minimum input value:	0
Maximum input value:	variable
Access:	no write protection

P-0-0143 Synchronization velocity

The axis assumes its synchronous position with the speed set here.

$$\text{synchronization velocity} + \text{acceleration in the cycle} = \text{resulting axis speeds}$$

Fig. 7-16: Formula P-0-0143

P-0-0143 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	rpm or mm/min
Minimum input value:	0
Maximum input value:	600 000 000
Access:	no write protection

P-0-0144 Cam shaft distance switch angle

A new value for parameter "cam shaft distance" (P-0-0093) does not become active until the master axis position has passed this switch angle.

P-0-0144 Attribute

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	0.0001 degree
Minimum input value:	0.0000°
Maximum input value:	359.9999°
Access:	no write protection

P-0-0145 Expanded trigger edge

P-0-0146 Expanded trigger addess

P-0-0147 Expanded signal K1 addess

P-0-0148 Expanded signal K2 adresse

P-0-0149 List of signals for oscilloscope function

P-0-0150 Number of valid samples for oscilloscope function

For a description of the above parameter of the oscilloscope functions, see "DIAX04: drives with electronic gear function" (doc. no. DIAX04-ELS-05VRS**-FKB1-EN)

P-0-0151 Synchronization init window for moduloformat

If either a positive or negative synchronization direction (see P-0-0154) has been selected, and the path covered during synchronization is less than that set in the window here, then synchronization will ensue along the shortest possible path.

P-0-0151 Attributes

Data length:	4 bytes
Display format:	signed decimal number
Weighting / unit:	degree or mm
Minimum input value:	0
Maximum input value:	2^{31}
Access:	no write protection

P-0-0154 Synchronization direction

With modulo axes (see A-0-0001) it is possible to set the direction with which the axis is to be synchronized.

0 = shortest path

1 = positive direction

2 = negative direction

If positive or negative direction has been selected, and the path covered during synchronization is less than "synchronization init window for modulo format" (P-0-0151), then synchronization will ensue along the shortest possible path.

P-0-0154 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	0
Maximum input value:	2
Access:	no write protection

P-0-0155 Synchronization mode

This parameter decides whether a followup of the "position command value additional" (S-0-0048) is conducted by either the drive or the control, once drive-guided synchronization has been completed.

P-0-0155 = 0 synchronization mode 0 (drive guided)

P-0-0155 = 1 synchronization mode 1 (control guided)

P-0-0155 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected in operating mode

P-0-0510 Moments of inertia of the rotor

This parameter specifies the rotor moment of inertia.

P-0-0510 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.00001 kgm²
Minimum input value:	0.00001 kgm²
Maximum input value:	100.00000 kgm²
Access:	write protected in operating mode

P-0-0511 Brake current

This parameter activates the monitor of the holding brake current.

If the actual holding brake current deviates more than 30% from the set value, then the drive error (68 brake error) is generated.

Note: Parameter with "motor type" (P-0-4014) ≠ 1 is only "write protected in operating mode".

P-0-0511 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	0.001 A
Minimum input value:	0.000 A
Maximum input value:	500.000 A
Access:	write protected

P-0-0525 Type of brake

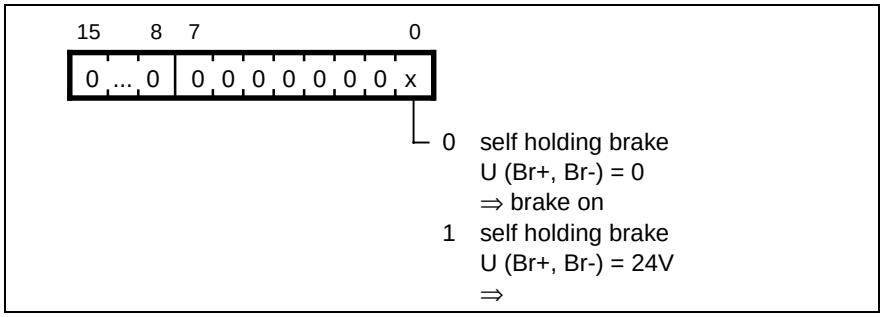


Fig. 7-18: Parameter structure P-0-0525

P-0-0525 Attributes

Data length:	2 bytes
Display format:	binary number
Weighting / unit:	--
Minimum input value:	--
Maximum input value:	--
Access:	write protected

P-0-0526 Brake control delay

This parameter contains the period of time from that point where the holding brake is actuated to the point where it actually takes effect.

With Indramat motors this time is a standard value of 100 ms.

P-0-0526 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	msec
Minimum input value:	0
Maximum input value:	--
Defaultwert:	100 000
Access:	write protected

P-0-4004 Magnetization current

P-0-4004 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-3} A
Minimum input value:	0.000 A
Maximum input value:	unit dependent, e.g. 7.500 A
Access:	write protected in operating mode

P-0-4011 Switchfrequenz

- in preparation -

P-0-4011 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 kHz
Minimum input value:	4 kHz
Maximum input value:	8 kHz
Access:	write protected in operating mode

P-0-4014 Motor type

This parameter is used to select the type of motor.

1 = MDD (motor data are read out of feedback storage).

2 = 2AD/1MB

3 = LSF

4 = LAR/LAF

5 = MKD (motor data read out of feedback storage).

If motor type ≠ 1 or 5, then the motor data must be parametrized by the user.

Motordata

"motor peak current"	(S-0-0109)
"motor current at standstill "	(S-0-0111)
"maximum motor velocity"	(S-0-0113)
"resolution of rotational feedback 1"	(S-0-0116)
"motor type"	(S-0-0141)
"number of pair of poles "	(P-0-0018)
"torque/force constant"	(P-0-0051)
"moments of inertia of the rotor"	(P-0-0510)

Note: With motor type ≠ 1 or 5 the motor data and parameter "position feedback 1 type parameter" (S-0-0277) and "interface feedback 1" (P-0-0074) are no longer write protected.

P-0-4014 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	--
Minimum input value:	1
Maximum input value:	3
Access:	write protected

P-0-4015 Circle voltage

See documentation "DIAX04: drive with electric gear functions", DIAX04-ELS-05VRS**-FKB1-EN-P

P-0-4015 Attributes

Data length:	2 bytes
Display format:	unsigned decimal number
Weighting / unit:	1 V
Minimum input value:	0 V
Maximum input value:	1000 V
Access:	write protected in operating mode

P-0-4045 Active duration current

See documentation "DIAX04: drive with electric gear functions", DIAX04-ELS-05VRS**-FKB1-EN-P

P-0-4045 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-3} A
Minimum input value:	--
Maximum input value:	--
Access:	write protected

P-0-4046 Active peak current

See document "DIAX04: drive with electric gear functions", DIAX04-ELS-05VRS**-FKB1-EN-P

P-0-4046 Attributes

Data length:	4 bytes
Display format:	unsigned decimal number
Weighting / unit:	10^{-3} A
Minimum input value:	--
Maximum input value:	--
Access:	write protected

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