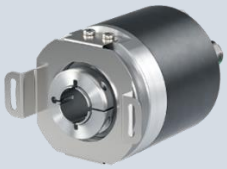


IO-Link Parameter Datasheet

Encoder

Absolute rotary encoder

ENA58IL-R*7-15* series

Support: fa-info@pepperl-fuchs.com
Internet: www.pepperl-fuchs.com
DOCT-9061 - Version 1.00.000 / 2023-11-27

General Information

Device Identification	
Vendor ID	1 (0x0001)
Device ID	5244421 (0x500605)

Features	
Data storage	Yes
Block parameterization	Yes

Communication Characteristics	
IO-Link revision	V1.1 (specification V1.1.2)
IO-Link backward compatibility	n/a
Data transmission rate	COM3 (230.4 kbit/s)
Min. cycle time	1.5 ms
Process data input	12 byte
Process data output	n/a
SIO mode support	no
Compatible master port type	Class A, Class B (see NOTE)

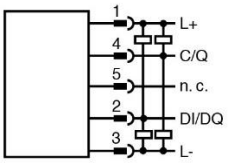
NOTE: For use at IO-Link master port Class B, use 3-pole adapter or 3-wire cable.

Device Profile	
Identification & Diagnosis – I&D	16384 (0x4000)

Supported Product Variants

Product ID	*Product Name*	*Description*	*Connector*
70119037-100153	ENA58IL-R06DA7-1516-IO-ABD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 6 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, axial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100154	ENA58IL-R10DA7-1516-IO-ABD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 10 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, axial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100155	ENA58IL-R12DA7-1516-IO-ABD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 12 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, axial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100156	ENA58IL-R14DA7-1516-IO-ABD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 14 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, axial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100157	ENA58IL-R15DA7-1516-IO-ABD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 15 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, axial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100163	ENA58IL-R06DA7-1516-IO-RBD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 6 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, radial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100164	ENA58IL-R10DA7-1516-IO-RBD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 10 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, radial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100165	ENA58IL-R12DA7-1516-IO-RBD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 12 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, radial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100166	ENA58IL-R14DA7-1516-IO-RBD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 14 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, radial connection, M12 5-pole	Plug, M12, 5-pole
70119037-100167	ENA58IL-R15DA7-1516-IO-RBD01	Absolute rotary encoder with shaft velocity measurement, housing size 58, recessed diameter 15 mm, flange double torque rest, IP67, multi-turn resolution 32.768, single-turn resolution 65.536, radial connection, M12 5-pole	Plug, M12, 5-pole

Connection

Connection Diagram	*Description*
	**Plug, M12, 5-pole** 1: Brown - +24V 2: White – DI/DO 3: Blue - 0V 4: Black - C/Q 5: Grey - n.c.

Process Data

Process Data Input

Sub	*Name*	*Data type*	*Length*	*Bitoffs.*	*Value*	*Unit*	*Description*
.1	SSC1.1 - Switching Signal Position	String	1 bit	0	 *0* *1*		Indicates the current status of the switching signal 1.1. *Low* *High*
.2	SSC1.2 - Switching Signal Position	Bool	1 bit	1	 *0* *1*		Indicates the current status of the switching signal 1.2. *Low* *High*
.3	Status - Count Direction	Bool	1 bit	2	 *0* *1*		Indicates the current status of the direction of position count. *Increase* *Decrease*
.4	SSC.2 - Switching Signal Velocity (Shaft)	Bool	1 bit	3	 *0* *1*		Indicates the current status of the switching signal 2. *Low* *High*
.5	Status - Auxiliary Measurement MDC2	UInteger	4 bit	4	 *0* *1* *2* *3*		Indicates the currently selected source for the auxiliary measurement channel MDC2. *Deactivated* *Temperature* *Velocity (Shaft) RPM* *Velocity (Shaft) CPS*
.9	DSC1.1 - Temperature Warning	Bool	1 bit	8	 *0* *1*		Indicates that the configured temperature threshold has been exceeded. *Low* *High*
.10	DSC1.2 - Temperature Warning	Bool	1 bit	9	 *0* *1*		Indicates that the configured temperature threshold has been undershot. *Low* *High*
.17	MDC1 – ST Resolution	UInteger	16 bit	16	STR value		Indicates the current resolution of the position value.
.18	MDC1 - Position	Integer	32 bit	32	POS value		Indicates the current position value.
.19	MDC2 - Auxiliary Measurement	Integer	32 bit	64	AUX value		Indicates the measurement value of the selected auxiliary measurement channel MDC2.

NOTE: The process data input content can be accessed in addition over parameter ‘Process Data Input’ at index 40 (0x28)

Parameter Data

Identification

Index	*Parameter*	*Access*	*Data type*	*Length*	*Default*	*Description*	*DS*	*R*
16 (0x10)	Vendor Name	ro	String	13 byte	Pepperl+Fuchs	The vendor name that is assigned to a Vendor ID.		
17 (0x11)	Vendor Text	ro	String	29 byte	www.pepperl-fuchs.com/io-link	Additional information about the vendor.		
18 (0x12)	Product Name	ro	String	max. 30 byte	ENA36IL-R*5-15* series *See table Supported Product Variants*	Complete product name.		
19 (0x13)	Product ID	ro	String	13 byte	70119037-* *See table Supported Product Variants*	Vendor-specific product or type identification (e.g., item number or model number).		
20 (0x14)	Product Text	ro	String	max. 30 byte	Absolute rotary encoder	Additional product information for the device.		
21 (0x15)	Serial Number	ro	String	14 byte		Unique, vendor-specific identifier of the individual device.		
22 (0x16)	Hardware Revision	ro	String	7 byte	HW**.**	Unique, vendor-specific identifier of the hardware revision of the individual device.		
23 (0x17)	Firmware Revision	ro	String	7 byte	FW**.**	Unique, vendor-specific identifier of the firmware revision of the individual device.		
24 (0x18)	Application Specific Tag	rw	String	max. 32 byte	Your automation, our passion.	Possibility to mark a device with user- or application-specific information.	Y	F
25 (0x19)	Function Tag	rw	String	max. 32 byte	***	Possibility to mark a device with function-specific information.	Y	F
26 (0x1A)	Location Tag	rw	String	max. 32 byte	***	Possibility to mark a device with location-specific information.	Y	F

Diagnosis

Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
36 (0x24)	Device Status	ro	UInteger	8 bit		0	0 1 2 3 4		Indicator for the current device condition and diagnosis state. *Device is OK* *Maintenance required* *Out of Specification* *Functional check* *Failure*		FA
37 (0x25)	Detailed Device Status	ro	Array [S0]	15 byte					List of all currently pending events in the device.		FA
.1	Element 1		Octetstr	3 byte	48	0					
.2	Element 2		Octetstr	3 byte	36	0					
.3	Element 3		Octetstr	3 byte	24	0					
.4	Element 4		Octetstr	3 byte	12	0					
.5	Element 5		Octetstr	3 byte	0	0					
127 (0x7F)	Indication Control	rw	Record [S0]	8 bit					Provides control functions for diagnosis purposes for indicators or display.		FA
.1	Locator Indication	rw	Boolean	1 bit	0	0	0 1		Enables a defined flashing pattern of the indicator LEDs for better spotting of a device in field applications. *Disabled* *Enabled*		FA
224 (0xE0)	Operating Hours	ro	UInteger	32 bit			0 .. 2^{32}-1		Shows the overall hours of operation since initial commissioning.		
225 (0xE1)	Temperature Indicator	ro	UInteger	8 bit			0 1 2 3 4		Indicates the operation at critical ambient temperatures or excess of specification limits. *Operating condition OK* *Close to upper limit* *Upper limit exceeded* *Close to lower limit* *Lower limit exceeded*		
226 (0xE2)	Temperature Monitor	ro	Record [S0]	9 byte					Contains parameters showing current and past conditions of temperature exposure since initial commissioning.		
.1	Overtemperature Operating Hours	ro	UInteger	32 bit	40		0 .. 2^{32}-1	h	Shows the overall hours of powered operation above the specified temperature limit since initial commissioning.		
.2	Overtemperature Exceeded Counter	ro	UInteger	16 bit	24		0 .. 2^{16}-1		Shows the number of transitions to operating temperatures above the specified limit in powered operation since initial commissioning.		
.3	Maximum Operating Temperature	ro	Integer	8 bit	16		-50 .. 125	°C	Shows the maximum observed temperature in powered operation since initial commissioning.		
.4	Minimum Operating Temperature	ro	Integer	8 bit	8		-50 .. 125	°C	Shows the minimum observed temperature in powered operation since initial commissioning.		
.5	Device Operating Temperature	ro	Integer	8 bit	0		-50 .. 125	°C	Shows the currently observed operating temperature of the device.		
227 (0xE3)	Power Monitor	ro	Record [S0]	16 byte					Contains parameters showing current and past conditions of powered operation since initial commissioning.		
.1	Power Cycles	ro	UInteger	32 bit	96		0 .. 2^{32}-1		Shows the number of power cycles since initial commissioning.		
.2	Maximum Uptime	ro	UInteger	32 bit	64		0 .. 2^{32}-1	s	Shows the maximum observed powered operating time between power cycles in seconds since initial commissioning.		
.3	Average Uptime	ro	UInteger	32 bit	32		0 .. 2^{32}-1	s	Shows the average observed powered operating time between power cycles in seconds since initial commissioning.		

Diagnosis											
Index .sub	***Parameter***	***Access***	***Data type***	***Length***	***Bitoffs.***	***Default***	***Value***	***Unit***	***Description***	***DS***	***R***
.4	Uptime	ro	UInteger	32 bit	0		0 .. 2^{32}-1	s	Shows the current operating time since the last power cycle in seconds.		
232 (0xE8)	Device Characteristic	ro	Record S0	6 byte					Shows relevant key characteristics of the device for use in applications.		
.1	ST Resolution (bit)	ro	UInteger	16 bit	32				Shows the maximum configurable resolution for a single turn in counts: 2^{STR}-1.		
.2	MT Resolution (bit)	ro	UInteger	16 bit	16				Shows the maximum number of detectable revolutions: 2^{MTR}-1.		
.3	Supply Current Requirement	ro	UInteger	16 bit	0			mA	Shows the maximum specified supply current excluding load.		

Parameterization & Configuration

Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
64 (0x40)	SSC1.1 Param - Position	rw	Record	8 byte					Defines the setpoint values for switching signal channel 1.1.	Y	FA
.1	SP1	rw	Integer	32 bit	32	0	0 .. 2^{31}-1		Defines the setpoint 1 value for the switching signal channel.	Y	FA
.2	SP2	rw	Integer	32 bit	0	0	0 .. 2^{31}-1		Defines the setpoint 2 value for the switching signal channel.	Y	FA
65 (0x41)	SSC1.1 Config - Position	rw	Record	4 byte					Defines the configuration parameter for switching signal channel 1.1.	Y	FA
.1	Logic	rw	UInteger	8 bit	24	0	*0* *1*		Defines the logical behavior of the switching signal. *High active* *Low active*	Y	FA
.2	Mode	rw	UInteger	8 bit	16	0	*0* *1* *2* *3*		Defines the evaluation mode for the switching signal. *Deactivated* *Single point* *Window* *Two point*	Y	FA
.3	Hyst	rw	Integer	16 bit	0	0	0 .. 2^{15}-1		Defines the hysteresis at the switchpoint. A higher hysteresis may help to improve the stability in critical applications.	Y	FA
66 (0x42)	SSC1.2 Param - Position	rw	Record	8 byte					Defines the setpoint values for switching signal channel 1.2.	Y	FA
.1	SP1	rw	Integer	32 bit	32	0	0 .. 2^{31}-1		Defines the setpoint 1 value for the switching signal channel.	Y	FA
.2	SP2	rw	Integer	32 bit	0	0	0 .. 2^{31}-1		Defines the setpoint 2 value for the switching signal channel.	Y	FA
67 (0x43)	SSC1.2 Config - Position	rw	Record	4 byte					Defines the configuration parameter for switching signal channel 1.2.	Y	FA
.1	Logic	rw	UInteger	8 bit	24	0	*0* *1*		Defines the logical behavior of the switching signal. *High active* *Low active*	Y	FA
.2	Mode	rw	UInteger	8 bit	16	0	*0* *1* *2* *3*		Defines the evaluation mode for the switching signal. *Deactivated* *Single point* *Window* *Two point*	Y	FA
.3	Hyst	rw	Integer	16 bit	0	0	0 .. 2^{15}-1		Defines the hysteresis at the switchpoint. A higher hysteresis may help to improve the stability in critical applications.	Y	FA
68 (0x44)	SSC.2 Param – Velocity (Shaft) RPM	rw	Record	8 byte					Defines the setpoint values for switching signal channel 2. The evaluation is based on rotational speed RPM.	Y	FA
.1	SP1	rw	Integer	32 bit	32	0	0 .. 2^{31}-1	0.1 rpm	Defines the setpoint 1 value for the switching signal channel.	Y	FA
.2	SP2	rw	Integer	32 bit	0	0	0 .. 2^{31}-1	0.1 rpm	Defines the setpoint 2 value for the switching signal channel.	Y	FA
69 (0x45)	SSC.2 Param – Velocity (Shaft) CPS	rw	Record	8 byte					Defines the setpoint values for switching signal channel 2. The evaluation is based on rotational speed CPS.	Y	FA
.1	SP1	rw	Integer	32 bit	32	0	0 .. 2^{31}-1	1/s	Defines the setpoint 1 value for the switching signal channel.	Y	FA
.2	SP2	rw	Integer	32 bit	0	0	0 .. 2^{31}-1	1/s	Defines the setpoint 2 value for the switching signal channel.	Y	FA

Parameterization & Configuration

Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
70 (0x46)	SSC.2 Config – Velocity (Shaft)	rw	Record	4 byte					Defines the configuration parameter for switching signal channel 2.	Y	FA
.1	Logic	rw	UInteger	8 bit	8	0	*0* *1*		Defines the logical behavior of the switching signal. *High active* *Low active*	Y	FA
.2	Mode	rw	UInteger	8 bit	0	0	*0* *1* *2* *3*		Defines the evaluation mode for the switching signal. *Deactivated* *Single point* *Window* *Two point*	Y	FA
80 (0x50)	DSC1 Param - Temperature	rw	Record	4 byte					Defines the thresholds for temperature warnings in the diagnosis signal channel 1.	Y	FA
.1	High Limit	rw	Integer	16 bit	16	70	-45 .. 90	°C	Defines the upper temperature threshold. At ambient temperatures above this limit, the diagnosis flag 'DSC1.1 - Temperature Warning' in the process data is activated. An event is triggered, if enabled.	Y	FA
.2	Low Limit	rw	Integer	16 bit	0	-30	-45 .. 90	°C	Defines the lower temperature threshold. At ambient temperatures below this limit, the diagnosis flag 'DSC1.2 - Temperature Warning' in the process data is activated. An event is triggered, if enabled.	Y	FA
81 (0x51)	DSC1 Config - Temperature	rw	Record	4 byte					Defines the configuration parameter for diagnosis signal channel 1.	Y	FA
.1	Logic	rw	UInteger	8 bit	24	0	*0* *1*		Defines the logical behavior of the switching signal. *High active* *Low active*	Y	FA
.2	Mode	rw	UInteger	8 bit	16	0	*0* *1* *2*		Defines the evaluation behavior of the diagnosis signal channel 1. *Deactivated* *High limit active* *High and low limit active*	Y	FA
.3	Hyst	rw	Integer	16 bit	0	0	0 .. 20	°C	Defines the hysteresis at the temperature thresholds.	Y	FA
96 (0x60)	Config - ST Resolution	rw	UInteger	16 bit		2^{16}-1	0 .. 2^{16}-1		Defines the single-turn resolution in counts per revolution.	Y	FA
97 (0x61)	Config - Rotation Direction	rw	UInteger	8 bit		0	*0* *1*		Defines the counting direction for the position - clockwise: position increases on clockwise rotation / counter clockwise: position decreases on clockwise rotation. *Clockwise* *Counter clockwise*	Y	FA
99 (0x63)	Config - Position Preset	rw	Integer	32 bit		0	0 .. 2^{31}-1		Defines the preset value, which is set for the current position on trigger of the command 'Position Preset'. Resolution is in counts.	Y	FA
100 (0x64)	Config - Position Overflow	rw	Integer	32 bit		0	0 .. 2^{31}-1		Defines the position where an overflow will occur. The maximum range for position values in the process data is from 0 to 'Position Overflow'-1.	Y	FA
101 (0x65)	Config MDC2 - Auxiliary Measurement	rw	UInteger	8 bit		0	*0* *1* *2*		Defines the source for the auxiliary measurement channel MDC2. *Deactivated* *Temperature* *Velocity (Shaft)*	Y	FA

Parameterization & Configuration

Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
102 (0x66)	Config - Velocity (Shaft) Evaluation Unit	rw	UInteger	8 bit		0			Defines the base unit for velocity evaluation. Based on this setting, the parameter sets for setpoints used for evaluation of the switching signal SSC2 and the evaluation unit for the auxiliary measurement channel MDC2 ('Velocity (Shaft)') are selected.	Y	FA
							0		*RPM*		
							1		*CPS*		
104 (0x68)	Config - Velocity (Shaft) Filter	rw	UInteger	8 bit		0			Defines the number of measurement cycles for averaging velocity measurement values.	Y	FA
							0		*10 cycles*		
							1		*100 cycles*		
							2		*1000 cycles*		
112 (0x70)	PD Output Config	rw	Record [S0]	1 byte					Allows enabling or disabling specific functions controlled over PD Output.	Y	FA
.1	Position Preset	rw	Boolean	1 bit	0	0			Enabled: Trigger of the position preset function over process data output is possible. On a 0->1 transition the position preset value is applied to the current position value.	Y	FA
							0		*Disabled*		
							1		*Enabled*		
113 (0x71)	I/O Config - I/Q Type	rw	UInteger	8 bit		0			Defines the output or input type at I/Q, pin 2. If the type input is selected, a position preset can be triggered with a 50 ms pulse.	Y	FA
							0		*Binary output / push-pull*		
							1		*Input high-active (function Preset)*		
117 (0x75)	I/O Config - Output Function	rw	UInteger	8 bit		0			Defines the output function at I/Q, pin 2.	Y	FA
							0		*Inactive (constant)*		
							1		*SSC1.1 - Switch. Signal Position*		
							2		*SSC1.2 - Switch. Signal Position*		
							3		*SSC.2 - Sw. Sig. Velocity (Shaft)*		
							4		*reserved*		
							5		*DSC1.1 or DSC1.2 - Temp. Warn.*		
							6		*DSC1.1 - Temperature Warning*		
							7		*DSC1.2 - Temperature Warning*		
120 (0x78)	Event Config	rw	Record [S0]	2 byte					Defines which event sources can trigger events.	Y	FA
.1	Position Channel 1 Diagnosis	rw	Boolean	1 bit	0	0			Enabled: an event is generated, if the position value is outside the configured application specific position limits for channel 1.	Y	FA
							0		*Disabled*		
							1		*Enabled*		
.2	Position Channel 2 Diagnosis	rw	Boolean	1 bit	1	0			Enabled: an event is generated, if the position value is outside the configured application specific position limits for channel 2.	Y	FA
							0		*Disabled*		
							1		*Enabled*		
.3	Temperature Diagnosis	rw	Boolean	1 bit	2	0			Enabled: an event is generated, if the detected temperature is outside the configured application specific temperature limits.	Y	FA
							0		*Disabled*		
							1		*Enabled*		
.4	Velocity (Shaft) diagnosis	rw	Boolean	1 bit	3	0			Enabled: an event is generated, if the detected velocity (shaft) is outside the configured application specific velocity (shaft) limits.	Y	FA
							0		*Disabled*		
							1		*Enabled*		

Observation

Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
36 (0x24)	Device Status	ro	UInteger	8 bit		0	*0* *1* *2* *3* *4*		Indicator for the current device condition and diagnosis state. *Device is OK* *Maintenance required* *Out of Specification* *Functional check* *Failure*		FA
236 (0xEC)	Observation Data	ro	Record [S0]	21 byte					Provides a set of relevant data suitable for observation purposes.		
.1	MDC1 – Position	ro	Integer	32 bit	136	0	POS value		Indicates the current position value.		
.2	MDC1 – ST Resolution	ro	Integer	16 bit	120	0	STR value		Indicates the current resolution of the position value.		
.3	MDC2 – Temperature	ro	Integer	32 bit	88	0	TEMP value	°C	Indicates the current approximated ambient temperature value.		
.4	MDC2 – Velocity (Shaft)	ro	Integer	32 bit	56	0	VEL value	0.1 rpm or 1/s	Indicates the current velocity (shaft) value.		
.17	reserved				48						
.16	SSC.2 – Switching Signal Velocity (Shaft)	ro	UInteger	8 bit	40	0	*0* *1*		Indicates the current status of the switching signal 2. *Low* *High*		
.15	DSC1.2 – Temperature Warning	ro	UInteger	8 bit	32	0	*0* *1*		Indicates that the configured temperature threshold has been undershot. *Low* *High*		
.14	DSC1.1 – Temperature Warning	ro	UInteger	8 bit	24	0	*0* *1*		Indicates that the configured temperature threshold has been exceeded. *Low* *High*		
.13	Status – Count Direction	ro	UInteger	8 bit	16	0	*0* *1*		Indicates the current status of the direction of position count. *Increase* *Decrease*		
.12	SSC1.2 – Switching Signal Position	ro	UInteger	8 bit	8	0	*0* *1*		Indicates the current status of the switching signal 1.2. *Low* *High*		
.11	SSC1.1 – Switching Signal Position	ro	UInteger	8 bit	0	0	*0* *1*		Indicates the current status of the switching signal 1.1. *Low* *High*		

NOTE 1: The parameter data provide the attributes DS (Data Storage) and R (Reset behavior). The following rules apply:
DS: Parameter marked with 'Y' (yes) are exchanged with the master via the data storage mechanism.
R: Parameter marked with 'F' are reset to the default value upon reception of the command 'Restore Factory Settings'.
R: Parameter marked with 'A' are reset to the default value upon reception of the command 'Application Reset'.

NOTE 2: Parameter with datatype Record or Array, which are marked with 'S0' can only be accessed over subindex 0 (whole parameter object). Subindex access to single items is not possible.

Command Interface

Index/.sub	*Parameter*	*Access*	*Data type*	*Length*	*Value*	*Description*
2 (0x02)	System Command	wo	UInteger	8 bit	See command value	Command interface for applications. A positive acknowledge indicates the complete and correct finalization of the requested function.

Command Value	*Command*	*Description*
129 (0x81)	Application Reset	The parameters of the technology-specific application are set to default values. Identification parameter remain unchanged. An upload to the data storage of the master will be executed, if activated in the port configuration of the master.
130 (0x82)	Restore Factory Settings	The parameters of the device are reset to factory settings. Note: A download of the data storage may be executed on the next power cycle and overwrite the factory default settings!
170 (0xA0)	Position Preset	The position value at the current position is set to the position preset value.

Error Codes

Code	*Additional code*	*Name*	*Description*
128 (0x80)	17 (0x11)	Index not available	Read or write access attempt to a non-existing index.
128 (0x80)	18 (0x12)	Subindex not available	Read or write access attempt to a non-existing subindex of an existing index.
128 (0x80)	32 (0x20)	Service temporarily not available	Parameter not accessible due to the current state of the technology-specific application.
128 (0x80)	33 (0x21)	Service temporarily not available - local control	Parameter not accessible. The device is currently in an ongoing, locally controlled operation.
128 (0x80)	34 (0x22)	Service temporarily not available - device control	Parameter not accessible. The technology-specific application is currently in a remotely triggered operation.
128 (0x80)	35 (0x23)	Access denied	Write access to a read-only parameter or read access to write-only parameter.
128 (0x80)	48 (0x30)	Parameter value out of range	Written parameter value is outside of the permitted value range.
128 (0x80)	49 (0x31)	Parameter value above limit	Written parameter value is above its specified value range.
128 (0x80)	50 (0x32)	Parameter value below limit	Written parameter value is below its specified value range.
128 (0x80)	51 (0x33)	Parameter length overrun	Written parameter is longer than specified.
128 (0x80)	52 (0x34)	Parameter length underrun	Written parameter is shorter than specified.
128 (0x80)	53 (0x35)	Function not available	Written command is not supported by the technology-specific application.
128 (0x80)	54 (0x36)	Function temporarily unavailable	Written command is unavailable due to the current state of the technology-specific application.
128 (0x80)	64 (0x40)	Invalid parameter set	Written single parameter value collides with other existing parameter settings.
128 (0x80)	65 (0x41)	Inconsistent parameter set	Parameter set inconsistencies at the end of block parameter transfer. Device plausibility check failed.
129 (0x81)	129 (0x81)	Invalid value Position Preset	Interfering parameter values: Position Preset value is greater or equal to the value of Position Overflow.
129 (0x81)	130 (0x82)	Invalid value Position Overflow	Interfering parameter values: Position Overflow value is less than the value of ST Resolution.

Event Codes

Code	*Type*	*Name*	*Description*
36163 (0x8d43)	Warning	Ambient temperature outside specified temperature range	Check device environment.
36176 (0x8d50)	Warning	Position channel 1 diagnosis	Position value outside configured application specific position limits for channel 1. Check adjustment or application.
36177 (0x8d51)	Warning	Position channel 2 diagnosis	Position value outside configured application specific position limits for channel 2. Check adjustment or application.
36178 (0x8d52)	Warning	Temperature diagnosis	Temperature exceeds configured application specific temperature limits. Check environment or application.
36179 (0x8d53)	Warning	Velocity (shaft) diagnosis	Velocity exceeds configured application specific velocity limit. Check adjustment or application.