

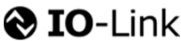
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IO-Link Implementation		
	IO-Link Version 1.1	IO-Link Version 1.0 (legacy mode)
Vendor ID	234 (0x00EA)	234 (0x00EA)
Device ID	100131 (0x018723)	100130 (0x018722)
SIO-Mode	No	No
Baudrate	38.4 kBd (COM2)	38.4 kBd (COM2)
Minimum cycle time	3.3 ms	16.0 ms (Interleave)
Processdata input	4 byte	4 byte
Processdata output	2 byte	2 byte

Process Data						
Process Data In	Name	Bit		Access		Remark
PD In Byte 0	Needles in Position	0		ro		Needles are in selected position
	Needles in home position	1		ro		Needles in Base (home position)
	Neddles moving	2		ro		This bit will be high during the movement of needles
	Calibration	3		ro		This bit will be high during the calibration
	EPC-ACK	4		ro		Acknowledge that EPC values 1 and 2 have been switched according to EPC-Select: 0 - EPC-Select = 00 1 - otherwise
	Device status - green	5		ro		Device is working optimally
	Device status - yellow	6		ro		Device is working but there are warnings
	Device status - red	7		ro		Device is not working properly, there are errors
PD In Byte 1	EPC value 1	7...0		ro		EPC value 1 (byte) Holds 8bit value as selected by EPC-Select 0/1 00 [Online] Speed of Needles in % 01 [CM] Warnings (copy of ISDU parameter 146) 10 [PM] 11 [EM] Supply voltage (ISDU 66)
PD In Byte 2	EPC value 2 high-byte	7...0		ro		EPC value 2 (byte) Holds 16bit value as selected by EPC-Select 0/1 00 [Online] Current position of Needles in 0,1mm (ISDU 64)
PD In Byte 3	EPC value 2 low-byte	7...0		ro		01 [CM] Temperature °C 10 [PM] Total movement time 11 [EM] Energy consumption per cycle (ISDU 157)
Process Data Out	Name	Bit		Access		Remark
PD Out Byte 0	Go to Position	0		wo		Needles move to Position PD OUT Byte 1
	Home position	1		wo		Needles move to Base (home position) (rising edge)
	Move enable	2		wo		Signal has to be true to move the needles (rising edge)
	Calibration	3		wo		perform refrencing then go to home position See feedback in PD In Byte 0 Bit 3
	EPC-SEL0	4		wo		Select Value of PD In Byte 2 and 3
	EPC-SEL1	5		wo		
	Pset0	6		wo		Select Production Profile (2-bit binary coded) (see ISDU parameters from 202)
	Pset1	7		wo		
PD Out Byte 1	Position in 0,1mm	7...0		wo		1 = 0,1mm bis 200 = 20mm

ISDU Parameters								
ISDU Index		Parameter	Data width	Value range	Access	Default value	Remark	
dec	hex							
Commands								
2	0x02		System command	1 byte		wo	0x82	0x05 (dec 5): Force upload of parameter data into the master 0x82 (dec 130): Restore device parameters to factory defaults 0xA4 (dec 164): Clear diagnostic buffer 0xA5 (dec 165): Perform calibration 0xA7 (dec 167): Reset erasable counters
Identification								
16	0x0010		Vendor name	15 bytes		ro	J. Schmalz GmbH	Manufacturer designation
17	0x0011		Vendor text	15 bytes		ro	www.schmalz.com	Internet address
18	0x0012		Product name	32 bytes		ro	SNG-AE	General product name
20	0x0014		Product text	30 bytes		ro	SNG-AE 10 0,0 V 00 IOL	Order-Code
250	0x00FA		Article number	14 bytes		ro	10.02.02.*	Order-Nr.
251	0x00FB		Article revision	2 bytes		ro	00	Article revision
21	0x0015		Serial number	9 bytes		ro	000000001	Serial number
22	0x0016		Hardware revision	3 bytes		ro	0.7	Hardware revision
23	0x0017		Firmware revision	3 bytes		ro	1.0	Firmware revision
24	0x0018		Application specific tag	32 bytes		rw	***	User string to store location or tooling information
Initial Setup								
12	0x000C		Device access locks	2 bytes	0 - 3	rw	0	Bit 0: lock IO-Link write accesses Bit 1: lock data storage feature
76	0x0046		ECO-Mode	1 byte	0-1	rw	0	20% reduction of system current
80	0x0050		Offset value for Needles between perform refrencing and home position	1 byte	0 - 7	rw	0	1 = 0,1mm
Calibration								
120	0x0078		Calibration	1 byte	1	wo	-	perform refrencing then go to home position (Parameter 80)



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122	0x007A		Reset erasable counters	1 byte	1	wo	-	
123	0x007B		Restore factory defaults	1 byte	1	wo	-	1 = Restore to factory defaults
Observation								
40	0x0028		Process Data In Copy	4 bytes		ro	-	Copy of currently active process data input
41	0x0029		Process Data Out Copy	2 bytes		ro	-	Copy of currently active process data output
64	0x0040		Current position	2 bytes	0 - 200	ro	-	Current position of needles
65	0x0041		System current	2 byte	0 - 2000	ro	0	Current in mA
66	0x0042		Supply voltage US	2 bytes	0 - 285	ro	-	Supply voltage as measured by the device (unit: 0.1 Volt)
67	0x0043		Supply voltage UA	2 byte	0 - 285	ro	0	Actor voltage as measured by the device (unit: 0.1 Volt)
68	0x0044		Current temperature	2 byte	0 - 285	ro	0	Current system temperature in °C
Diagnosis								
Error								
130	0x0082		Error code	1 byte	0-255	ro	0	Currently active highest priority error code
Counter								
140	0x008C		Cycle counter	4 bytes	0 - 999 mio	ro	0	Total number of cycles (Not erasble)
142	0x008E		Condition monitoring counter	4 bytes	0 - 999 mio	ro	0	Total number of warnings and errors (Not erasble)
143	0x008F		Erasable cycle counter	4 bytes	0 - 999 mio	rw	0	Total number of cycles (erasble)
145	0x0091		Erasable condition monitoring counter	4 bytes	0 - 999 mio	rw	0	Total number of warnings and errors (erasble)
Condition Monitoring [CM]								
146.0	0x0092		Condition monitoring	1 Bit	0 - 1	ro	0	1= Boost mode active
146.1	0x0092		Condition monitoring	1 Bit	0 - 1	ro	0	
146.2	0x0092		Condition monitoring	1 Bit	0 - 1	ro	0	
146.3	0x0092		Condition monitoring	1 Bit	0 - 1	ro	0	
146.4	0x0092		Condition monitoring	1 Bit	0 - 1	ro	0	
146.5	0x0092		Condition monitoring	1 Bit	0 - 1	ro	0	1 = Sensor voltage outside of operating range
146.6	0x0092		Condition monitoring	1 Bit	0 - 1	ro	0	1 = Actor voltage outside of operating range
146.7	0x0092		Condition monitoring	1 Bit	0 - 1	ro	0	1 = Over temperature
Energy Monitoring [EM]								
157	0x009D		Energy consumption per cycle	1 byte	0 - 255	ro	0	Energy consumption of last cycle (unit: 1 Ws)
Production Setup Profiles								
200	0x00C8		ECO-Mode	1 byte		rw	0	Profile P-0 (selected in PD Out 0: Pset0 = 0, Pset1 = 0)
202	0x00CA		Speed of needles movement	2 bytes		rw	100	
204	0x00CC		Position of needles in 0,1mm	2 bytes		rw	0	
210	0x00D2		ECO-Mode	1 byte		rw	0	Profile P-1 (selected in PD Out 0: Pset0 = 1, Pset1 = 0)
212	0x00D4		Speed of needles movement	2 bytes		rw	100	
214	0x00D6		Position of needles in 0,1mm	2 bytes		rw	30	
220	0x00DC		ECO-Mode	1 byte		rw	0	Profile P-2 (selected in PD Out 0: Pset0 = 0, Pset1 = 1)
222	0x00DE		Speed of needles movement	2 bytes		rw	100	
224	0x00E0		Position of needles in 0,1mm	2 bytes		rw	50	
230	0x00E6		ECO-Mode	1 byte		rw	0	Profile P-3 (selected in PD Out 0: Pset0 = 1, Pset1 = 1)
232	0x00E8		Speed of needles movement	2 bytes		rw	100	
234	0x00EA		Position of needles in 0,1mm	2 bytes		rw	100	