IO-Link data table

GENERAL INFORMATION	
Communication mode IO-Link	COM 2
Min. cycle time	2.3 ms
SIO mode	Supported
Length process data	8 Bit
Vendor ID	297 (0x0129)
Device ID	116 (0x000074)
Data storage	Supported
Specification IO-Link	1.1

PROCESS DATA

SMART - SENSOR PROFILE

Byte 0								Byte 1							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Switching Q1
Switching Q1															

IDENTIFICATION DATA

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
16 / 0x10	R	StringT	64 Bytes	0	Schneider Electric	-	Vendor Name	The vendor name that is assigned to a Vendor ID
17 / 0x11	R	StringT	64 Bytes	0	Life Is On	-	Vendor Text	Additional information about the vendor.
18 / 0x12	R	StringT	64 Bytes	0	XUM9ALAY	-	Product Name	Complete product name.
19 / 0x13	R	StringT	64 Bytes	0	XUM9ALAYM8, XUM9ALAYL2, XUM9ALAYP015	-	Product ID	Vendor-specific product or type identification (e.g., item number or model number).
20 / 0x14	R	StringT	64 Bytes	0	PHOTO MINIAT REFLEX IOL M8, PHOTO MINIAT REFLEX IOL 2M CABLE, PHOTO MINIAT REFLEX IOL 150MM PIGTAIL	-	Product Text	The parameter Product Text contains additional product information for the device.
21 / 0x15	R	StringT	16 Bytes	0	-	-	Serial Number	Unique, vendor-specific identifier of the individual device.
22 / 0x16	R	StringT	64 Bytes	0	-	-	Hardware Revision	Unique, vendor-specific identifier of the hardware revision of the individual device (For example: HW-V1.0).
23 / 0x17	R	StringT	64 Bytes	0	-	-	Firmware Revision	Unique, vendor-specific identifier of the firmware revision of the individual device (For example: FW-V1.0).

DIRECT PARAMETERS

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
0 / 0x00	R/W	UIntegerT	128 Bit	0	-	-	Direct Parameters - Page 1	Contain the required parameters defining the communication characteristics and identifiers for device validation.
	R	UIntegerT	8 Bit	1	-	-	Reserved	-
			8 Bit	2	-	-	Master Cycle Time	Communication: Current communication cycle duration used by the master. This value defines the process data cycle.
			8 Bit	3	-	-	Min Cycle Time	Communication: Minimum communication cycle duration supported by the device. This value defines the lowest possible process data cycle.
			8 Bit	4	-	-	M-Sequence Capability	Communication: Information on the structure and the supported features of the communication messages.
			8 Bit	5	17	-	IO-Link Revision ID	Communication: Revision Identification for the currently used communication protocol revision.
			8 Bit	6	-	-	Process Data Input Length	Communication: Information on Length and characteristics of the process input data (Process Data from Device to Master).
			8 Bit	7	-	-	Process Data Output Length	Communication: Information on Length of the process output data (Process Data from Master to Device).
			8 Bit	8	-	-	Vendor ID 1	Identification: Highest byte of the Vendor ID. Combined with the parameter Vendor ID 2, this parameter defines the 16-bit value of the unique Vendor ID as assigned by the IO-Link Community.
			8 Bit	9	-	-	Vendor ID 2	Identification: Lowest byte of the Vendor ID. Combined with the parameter Vendor ID 1, this parameter defines the 16-bit value of the unique Vendor ID as assigned by the IO-Link Community.
			8 Bit	10	-	-	Device ID 1	Identification: Highest byte of the Device ID. Combined with the parameters Device ID 2 and 3, this parameter defines the 24-bit value of the vendorspecific Device ID.
			8 Bit	11	-	-	Device ID 2	Identification: Middle byte of the Device ID. Combined with the parameters Device ID 1 and 3, this parameter defines the 24-bit value of the vendorspecific Device ID.
			8 Bit	12	-	-	Device ID 3	Identification: Lowest byte of the Device ID. Combined with the parameters Device ID 1 and 2, this parameter defines the 24-bit value of the vendorspecific Device ID.
			8 Bit	13	-	-	Reserved	-
			8 Bit	14	-	-	Reserved	-
			8 Bit	15	-	-	Reserved	-
	W	UIntegerT	8 Bit	16	-	-	System Command	Application: Command interface for devices without ISDU support. Validity and execution of commands are not confirmed.

(1) R = Read / W = Write

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SYSTEM COMMAND

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
2 / 0x02	W	UIntegerT	8 Bit	0	-	160 = Emitter OFF 161 = Emitter ON 162 = Reset swit-ching-channel 175 = Detect sensor 128 = Device Reset 130 = Restore Factory Settings	System command	160: Led emission OFF to test if the sensor output switches ON (or OFF if set in NC) 161: Led emission ON which is the normal sensor usage 162: Reset of current switching channel 175: Select the way to identify the sensor using their LEDs 1x activated - sensor flashes 60 s 2x activated - permanent flashing 3x activated - stop permanent flashing 128: Shutdown sensor with 200ms delay / Restart the sensor 130: Restore factory settings

DETECTION PARAMETERS

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
System Command								
2 / 0x02	W	UIntegerT	8 Bit	0	-	64 = Teach Apply 65 = Single value teach - switchpoint 1 67 = Two value teach - teachpoint 1 for switchpoint 1 68 = Two value teach - teachpoint 2 for switchpoint 1 71 = Dynamic teach - switchpoint 1 - start 72 = Dynamic teach - switchpoint 1 - stop 79 = Teach cancel	System command	64: Adopt teach values on sensor 65: Fix the switching point on the detected target In static mode: 67: Teach the target 1 68: Teach the target 2 The switching point will be fixed between the Targets 1 and 2 In dynamic mode: 71: Start the teach process 72: Stop the teach process The switching point is fixed between the target and the background 79: Before applying the teach (using the value 64) it's possible to cancel it
Parameter								
58 / 0x3A	R/W	UIntegerT	8 Bit	1	0	0 = Q1, 2 = Q2	Teach channel	Select the teach channel
59 / 0x3B	R	UIntegerT	8 Bit	0	-	-	Teach-in-status	The parameter "Teach-in Status" provides feedback on the status and the results of the teach-in process
		UIntegerT	4 Bit	1	0	0 = Idle 1 = Teach successful 2 = Teach successful 3 = Teach successful 4 = Wait for command 5 = Busy 7 = Error	Teach status	Indicates the status of the teach-in process
		Boolean	1 Bit	2	0	false = -, true = Teach successful	Teach flag SP1 -> TP1	Teach flag for SP1 TP1
		Boolean	1 Bit	3	0	false = -, true = Teach successful	Teach flag SP1 -> TP2	Teach flag for SP1 TP2
		Boolean	1 Bit	4	0	false = -, true = Teach successful	Teach flag SP2 -> TP1	Teach flag for SP2 TP1
		Boolean	1 Bit	5	0	false = -, true = Teach successful	Teach flag SP2 -> TP2	Teach flag for SP2 TP2

OUTPUT PARAMETERS

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
60 / 0x3C	R/W	UIntegerT	32 Bit	0	-	-	Define switching output Q1	Defines the switching point of switching output Q1
			16 Bit	1	10	10...990	Switchpoint 1	Defines the contrast tolerance of switchpoint 1
			16 Bit	2	10	10...990	Switchpoint 2	Defines the contrast tolerance of switchpoint 2
61 / 0x3D	R/W	UIntegerT	16 Bit	0	-	-	Set-Up switching output Q1	Configure switching output Q1
			8 Bit	1	1	0 = NO, 1 = NC	NO / NC	The parameter "NO / NC" defines whether the switching information is transmitted in inverted or not inverted manner. Select the output function between NO (Normally Open) and NC (Normally Closed).
			8 Bit	2	1	0 = Off 1 = Single Point Mode	Switching mode	This parameter allows to select the detection mode of switching output
213 / 0xD5	R/W	UIntegerT	8 Bit	0	-	-	Function control input	-
			8 Bit	1	2	0 = NPN ,1 = PNP, 2 = Autodetect	PNP / NPN	Define the output function type of the sensor (NPN / Autodetect / PNP).
221 / 0xDD	R/W	UIntegerT	8 Bit	0	-	-	Function control input	-
			8 Bit	1	1	0 = Control input disable 1 = Control input enable	Control input	Enable the Input white wire or disable it

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Telemecanique Sensors

DATA PARAMETERS

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
36 / 0x24	R	UIntegerT	8 Bit	0	-	0 = Device is OK, 1 = Maintenance required, 2 = Out of specification, 3 = Functional check, 4 = Failure	Device Status	Indicator for the current device condition and diagnosis state.
37 / 0x25	R	StringT	3 Bytes	0		-	Detailed Device Status	List of all currently pending events in the device.
82 / 0x52	R	UIntegerT	40 Bit	0	-	-	Temperature	The following parameters indicate different operating temperatures
			8 Bit	1	-	-	Operating temperature	Read the current operating temperature
			8 Bit	2	-	-	Max. operating temperature since restart	Read the maximum operating temperature recorded since last restart
			8 Bit	3	-	-	Min. operating temperature since restart	Read the minimum operating temperature recorded since last restart
			8 Bit	4	-	-	Max. lifetime temperature	Read the maximum operating temperature recorded since the first usage
			8 Bit	5	-	-	Min. lifetime temperature	Read the minimum operating temperature recorded since the first usage
88 / 0x58	R	UIntegerT	64 Bit	0	-	-	Operating data	The 2 following parameters indicate the operating hours counter and the switch cycle counter.
			32 Bit	1	-	-	Counter operating hours	Number of operating hours. The data can be only read; no reset possible
			32 Bit	2	-	-	Counter switch cycle	Number of output change status (On & Off)
95 / 0x5F	R	StringT	560 Bit	0	-	-	Typelabel	Sensor datasheet
			10 Bytes	1	0.1...13 m	-	Measurement range	Read the sensor nominal sensing distance
			1 Byte	2	-	-	Resolution	Not applicable
			1 Byte	3	-	-	Linearity	Not applicable
			1 Byte	4	-	-	Hysteresis	Not applicable
			25 Bytes	5	Laser red 650 nm, class 1	-	Type of light and laser class	Type of emited light
			8 Bytes	6	<= 30 mA	-	No-load current	Read the sensor nominal no-load current
			10 Bytes	7	<= 4000 Hz	-	Switching frequency	Read the sensor nominal switching frequency
			1 Byte	8	-	-	Warm-up time	Not applicable
			11 Bytes	9	-20...+60 °C	-	Ambient temperature	Read the sensor nominal operating temperature
			1 Byte	10	-	-	Output signal	Not applicable
			1 Byte	11	-	-	Repeatability	Not applicable
206 / 0xCE	R	UIntegerT	16 Bit	1	-	-	Process value	Indicates the currently measured energy level

FUNCTION PARAMETERS

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
12 / 0x0C	R/W	Boolean	16 Bit	0	-	-	Device Access Locks	The access to the device parameters can be restricted by setting appropriate flags within this parameter.
				1	0	false = Unlocked, true = Locked	Parameter Write Access	This lock prevents the write access to all read/write parameters of the device except for the parameter 'Device Access Locks'.
				2	0	false = Unlocked, true = Locked	Data Storage	This lock prevents the write access to the device parameters via the data storage mechanism.
				3	-	-	Local Parameterization	This lock prevents the device settings from being changed via local operating elements on the device. (subindex access not supported)
				4	0	false = Unlocked, true = Locked	Local User Interface	This lock prevents the access to the device settings and display via a local user interface. The user interface is disabled.
24 / 0x18	R/W	StringT	32 Bytes	0	"***...***"	-	Application-specific Tag	Possibility to mark a device with user- or application-specific information.
25 / 0x19	R/W	StringT	32 Bytes	0	"***...***"	-	Function Tag	The parameter Function Tag is dedicated for the user application. It can be used to set role of the device.
26 / 0x1A	R/W	StringT	32 Bytes	0	"***...***"	-	Location Tag	The parameter Location Tag is dedicated for the user application. It can be used to set the location of the device.
208 / 0xD0	R/W	UIntegerT	80 Bit	0	-	-	Smartfunctions switching Q1	Define smartfunctions switching values Q1
			16 Bit	1	0	0...65535	Counter	Switching only every nth defined cycle
			16 Bit	2	0	0...65535	On-delay	In ms, adjustable in 1 ms
			16 Bit	3	0	0...65535	Off-delay	In ms, adjustable in 1 ms
			16 Bit	4	0	0...65535	Impulse	In ms, adjustable in 1 ms
			16 Bit	5	0	0...500	Monitoring frequency	In 1/10 Hz, adjustable in 0.1 Hz steps

EVENTS

Code (dec/hex)	Warning	Name	Description
20480 / 0x5000	Error	Device hardware fault	Exchange device
20497 / 0x5011	Error	Non-volatile memory loss	Check batteries
16384 / 0x4000	Error	Temperature fault	Overload
16912 / 0x4210	Warning	Device temperature overrun	Clear source of heat
16928 / 0x4220	Warning	Device temperature underrun	Insulate device

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