

IO-Link Parameters																									
GENERAL INFORMATION																									
Communication mode IO-Link								COM 3																	
Min. cycle time								4 ms																	
SIO mode								Supported																	
Length process data								16 Bit																	
Vendor ID								1832 (0x0728)																	
Device ID								126 (0x00007e)																	
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										
Measurement value [0...1023]								Teach busy		QoR alarm		Qint. 2 (Default Web break)		Qint. 1		QL2 (Default Web break)		QL1							
								Teach busy [False, true]																	
								QoR alarm [False, true]																	
								Qint.2 (Default: Web break) [False, true]																	
Qint.1 [False, true]																									
QL2 (Default: Web break) [False, true]																									
QL1 [False, true]																									
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	TMSS France	-	Vendor Name	The vendor name that is assigned to a Vendor ID																	
17 / 0x11	R	StringT	64 Bytes	0	Simply easy!	-	Vendor Text	Additional information about the vendor.																	
18 / 0x12	R	StringT	64 Bytes	0	XUVU04M3BL02M12 XUVU04M3BL2 XUVU04M3BM8 XUVU04M3NL02M12 XUVU04M3NL2	-	Product Name	Complete product name.																	
19 / 0x13	R	StringT	64 Bytes	0	XUVU04M3NM8 XUVU04M3PL02M12 XUVU04M3PL2 XUVU04M3PM		Product ID	Vendor-specific product or type identification (e.g., item number or model number).																	
20 / 0x14	R	StringT	64 Bytes	0	XUVU Fork Ultrasound	-	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.																	

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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	-	126 = Locator Start 127 = Locator Stop 128 = Device Reset 129 = Application Reset 130 = Restore Factory Settings 131 = Back-to-box 200 = Reset diagnostics parameter	System command	126: Starts flashing the LED of the device to identify it among others 127: Stop flashing the LED of the device to identify it among others 128: A warm start is triggered and the device will be set to an initial state. The communication will be interrupted by the device and then reinitiated by the master. 129: The parameter 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: The parameter 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! 131: The parameter of the device are set to factory default values and communication will be inhibited until the next power cycle. Note: Directly detach the device from the master port! 200: Resets all the diagnostic data of the device (except data recorded since the first usage)
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.
40 / 0x28	R	RecordT	16 Bit	0	-	-	PD Input	Last valid process input data of the device.
150 / 0x96	R	UIntegerT	40 Bit	0	-	-	Temperature	The following parameters indicate different operating temperatures.
			8 Bit	1	-	-	Measurement range	Read the current operating temperature
			8 Bit	2	-	-	Max. temperature all time	Read the maximum operating temperature recorded since the first usage
			8 Bit	3	-	-	Min. temperature all time	Read the minimum operating temperature recorded since the first usage
			8 Bit	4	-	-	Max. temperature since last reset	Read the maximum operating temperature recorded since last reset
			8 Bit	5	-	-	Min. temperature since last reset	Read the minimum operating temperature recorded since last reset
155 / 0x9B	R	UIntegerT	64 Bit	0	-	-	Operating hours	Read different operating hours
			32 Bit	1	-	-	Total operating hours	Number of operating hours.
			32 Bit	2	-	-	Operating hours since last reset	Number of operating hours since last reset.
OUTPUT PARAMETERS								
Index (dec/hex)	Access ⁽¹⁾	Data type	Length	Sub- index	Default value	Value Range	Object Name	Description
60 / 0x3C	R/W	UIntegerT	16 Bit	0	-	-	Qint.1 SP1/SP2	Threshold Qint.1
			8 Bit	1	50	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95	Qint.1 SP1	Sets the threshold in % between teach-in point 1 and teach-in point 2
			8 Bit	2	-	-	Qint.1 SP2	Not used
61 / 0x3D	R/W	UIntegerT	32 Bit	0	-	-	Qint.1 Configuration	Configure the parameters for Qint.1
			8 Bit	1	0	0 = Direct value, 1 = Inverted value	Qint.1 Switchpoint logic	The parameter "Switchpoint logic" defines whether the switching information is transmitted in inverted or not inverted form.
			8 Bit	2	1	1 = Single point mode	Qint.1 Switchpoint mode	Selection of the detection mode: The "Single Point" Mode is selected when one point of detection is needed (This is the only mode available in this device)
			16 Bit	3	0	0 = Not used	Qint.1 Switchpoint hysteresis	Not used
62 / 0x3E	R/W	UIntegerT	16 Bit	0	-	-	Qint.2 SP1/SP2	Threshold Qint.2
			8 Bit	1	50	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95	Qint.2 SP1	Sets the threshold in % between teach-in point 1 and teach-in point 2
			8 Bit	2	-	-	Qint.2 SP2	Not used
63 / 0x3F	R/W	UIntegerT	32 Bit	0	-	-	Qint.2 Configuration	Configure the parameters for Qint.2
			8 Bit	1	0	0 = Direct value, 1 = Inverted value	Qint.2 Switchpoint logic	The parameter "Switchpoint logic" defines whether the switching information is transmitted in inverted or not inverted form.
			8 Bit	2	1	1 = Single point mode	Qint.2 Switchpoint mode	Selection of the detection mode: The "Single Point" Mode is selected when one point of detection is needed (This is the only mode available in this device)
			16 Bit	3	0	0 = Not used	Qint.2 Switchpoint hysteresis	Not used
100 / 0x64	R/W	UIntegerT	88 Bit	0	-	-	Store application parameters	The device saves its parameter data on this index. (It is recommended to not modify these values directly here, as they do not represent the real values, having been processed by the device).
			16 Bit	1	-	-	Object value Qint.1	
			16 Bit	2	-	-	No object value Qint.1	
			8 Bit	3	-	-	Setpoint Qint.1	
			16 Bit	4	-	-	Object value Qint.2	
			16 Bit	5	-	-	No object value Qint.2	
			8 Bit	6	-	-	Setpoint Qint.2	
			8 Bit	7	-	-	Light/dark switching	
300 / 0x12C	R/W	UIntegerT	8 Bit	0	0	0 = Qint.1, 1 = Qint.2, 64 = Ext. input1	Input selector 1	This parameter is used to select the input on channel 1 (see diagram below).
310 / 0x136	R/W	UIntegerT	8 Bit	0	1	0 = Qint.1, 1 = Qint.2, 64 = Ext. input1	Input selector 2	This parameter is used to select the input on channel 2 (see diagram below).

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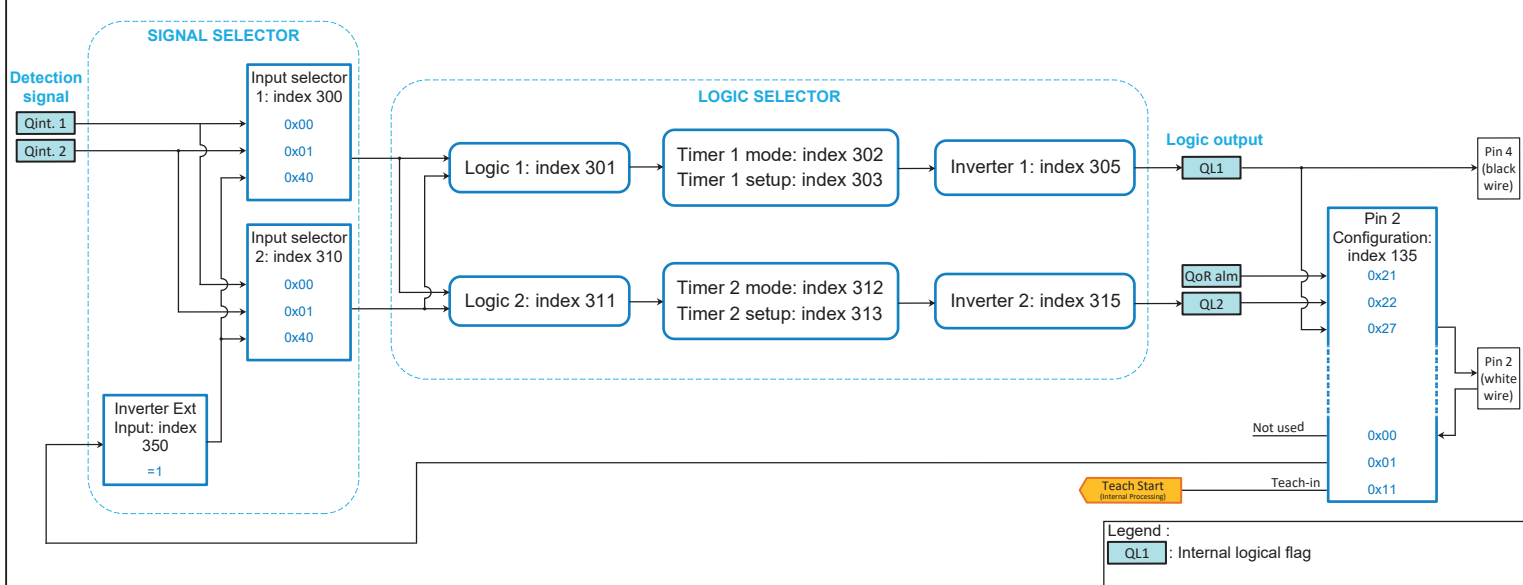
DETECTION PARAMETERS								
Index (dec/hex)	Access ⁽¹⁾	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
System Command								
2 / 0x02	W	UIntegerT	8 Bit	0	-	65 = 1-Point Teach-in 67 = 2-Point Teach-in: Point 1 68 = 2-Point Teach-in: Point 2 71 = Dynamic Teach-in: Start 72 = Dynamic Teach-in: Stop 79 = Abort teach-in sequence	System command	65: Fix the point 1 on the detected target In static mode: 67: Teach the target 1 of the point 1 68: Teach the target 2 of the point 1 In dynamic mode: 71: Start the teach process of the point 72: Stop the teach process of the point 79 : Before applying the teach it is possible to cancel it
Parameter								
58 / 0x3A	R/W	UIntegerT	8 Bit	1	0	0 = BDC1 (Q1), 2 = BDC2 (Q2)	Teach-in 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 = Success, 4 = Wait for command, 5 = Busy, 7 = Error	Teach state	Indicates the status of the teach-in process
		Boolean	1 Bit	2	0	false = Teachpoint not aquired or not successful, true = Teachpoint successfully aquired	ST_TP1	Teach flag for SP1 TP1
		Boolean	1 Bit	3	0	false = Teachpoint not aquired or not successful, true = Teachpoint successfully aquired	ST_TP2	Teach flag for SP1 TP2
FUNCTION PARAMETERS (1/2)								
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	-	-	Parameter Write Access	This lock prevents the write access to all read/write parameters of the device except for the parameter 'Device Access Locks'. (subindex access not supported)
				2	-	-	Data Storage	This lock prevents the write access to the device parameters via the data storage mechanism. (subindex access not supported)
				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.
110 / 0x6E	R	UIntegerT	16 Bit	0	-	-	Quality of teach	Indicates the quality of teach
			8 Bit	1	-	255 = QoT not available, 0..100 = Quality value in %	QoT Qint.1	Indicates the teach quality of output 1 as a percentage (255 means that the data is not available)
			8 Bit	2	-	255 = QoT not available, 0..100 = Quality value in %	QoT Qint.2	Indicates the teach quality of output 2 as a percentage (255 means that the data is not available)
120 / 0x78	R	UIntegerT	8 Bit	0	-	0..100 = Quality value in %	Quality of run	Indicates the current quality of detection as a percentage
125 / 0x7D	R/W	UIntegerT	8 Bit	0	50	0..100 = Threshold position in %	Quality of run alarm threshold	Defines the alarm threshold in relation to the quality of run (activates the "QoR Alarm" event, code 36096).
135 / 0x87	R/W	UIntegerT	8 Bit	0	17	0 = Deactivated, 1 = External input (Smart task), 17 = Teach-in, 33 = Quality of run alarm, 34 = Switching signal QL2 (Default: Web break), 39 = Switching signal QL1	Pin 2 Configuration	Allows you to select the configuration of the pin 2/the white wire.
140 / 0x8C	R/W	UIntegerT	8 Bit	0	0	0 = All enabled, 1 = All disabled, 2 = Events enabled, PD invalid flag disabled, 3 = Events disabled, PD invalid flag enabled	Notification enable	Via this index it is possible to activate or deactivate notifications for events and data invalidity, or choose to receive notifications for only one of them.
160 / 0xA0	R/W	UIntegerT	48 Bit	0	-	-	Alarm thresholds for diagnostic	Allow to define diagnostics alarm thresholds
			8 Bit	1	55	-127...127	Upper temperature threshold	Defines the high temperature alarm threshold in degrees Celsius (activates the "Alarm upper temperature threshold" event, code 36112).
			8 Bit	2	5	-127...127	Lower temperature threshold	Defines the low temperature alarm threshold in degrees Celsius (activates the "Alarm lower temperature threshold" event, code 36120)
			32 Bit	3	40000	0...1000000	Operating hours threshold	Defines the operating time alarm threshold (activates the "Alarm operating hours" event, code 36128).
301 / 0x12D	R/W	UIntegerT	8 Bit	0	0	0 = DIRECT, 1 = AND, 2 = OR	Logic 1	This index is used to select the logic value for block logic 1 (see diagram below).

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FUNCTION PARAMETERS (2/2)

Index (dec/hex)	Access ⁽¹⁾	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
302 / 0x12E	R/W	UIntegerT	8 Bit	0	0	0 = Deactivated, 1 = T-on delay, 2 = T-off delay, 3 = T-on/T-off delay, 4 = Impulse (one shot)	Timer 1 mode	This index is used to select the timer 1 operating mode (see diagram below).
303 / 12F	R/W	UIntegerT	16 Bit	0	1	1..30000	Timer 1 setup	This index is used to select the Timer 1 delay in milliseconds (see diagram below).
305 / 0x131	R/W	UIntegerT	8 Bit	0	0	0 = Not inverted, 1 = Inverted	Inverter 1	This index is used to activate or deactivate the Inverter 1 (see diagram below).
311 / 0x137	R/W	UIntegerT	8 Bit	0	0	0 = DIRECT, 1 = AND, 2 = OR	Logic 2	This index is used to select the logic value for block logic 2 (see diagram below).
312 / 0x138	R/W	UIntegerT	8 Bit	0	0	0 = Deactivated, 1 = T-on delay, 2 = T-off delay, 3 = T-on/T-off delay, 4 = Impulse (one shot)	Timer 2 mode	This index is used to select the timer 2 operating mode (see diagram below).
313 / 0x139	R/W	UIntegerT	16 Bit	0	1	1..30000	Timer 2 setup	This index is used to select the Timer 2 delay (see diagram below).
315 / 0x13B	R/W	UIntegerT	8 Bit	0	0	0 = Not inverted, 1 = Inverted	Inverter 2	This index is used to activate or deactivate the Inverter 2 (see diagram below).
350 0x15E	R/W	UIntegerT	8 Bit	0	0	0 = Not inverted, 1 = Inverted	Inverter Ext. Input	This index is used to activate or deactivate the Inverter of the external Input (see diagram below).

INPUT / OUTPUT DIAGRAM



EVENTS

Code (dec/hex)	Warning	Name	Description
4096 / 0x1000	Error	General malfunction	Unknown error
6144 / 0x1800	Notification	Teach error	Teach error
6145 / 0x1801	Notification	Teach successful	Teach successful
36001 / 0x8ca1	Notification	New Parameters	Parameters have been changed
36096 / 0x8d00	Warning	QoR Alarm	Quality of run alarm
36112 / 0x8d10	Warning	Alarm upper temperature threshold	Upper threshold for temperature is exceeded
36120 / 0x8d18	Warning	Alarm lower temperature threshold	Lower threshold for temperature is undershot
36128 / 0x8d20	Warning	Alarm operating hours	Threshold for operating hours violated

ERROR TYPES

Code (dec/hex)	Additional coding	Name	Description
128 / 0x80	0 / 0x00	Device application error - no details	Service was denied by the technology-specific application. No detailed root-cause information is available.
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	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	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 unavailable	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.

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