

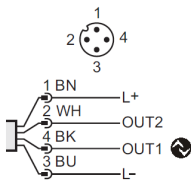



IO-Link Interface Description

60D Pressure Switch

EN

Device variant

<p>60D Pressure Switch</p> <p>Electronic pressure switch, -1.000...10.000 bar, G 1/4 A according to ISO 1179-2, internal thread M5</p>		
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Vendor ID	942 / Bytes 3-174 (hex: 03-AE)
Device ID	02062001 / Bytes 31-118-177 (hex: 1F-76-B1)
Bit rate	COM2
Minimum cycle time	4,5 ms
SIO mode supported	Yes
Block parameterization	Yes
Data storage	Yes
Supported profiles	16384 / hex: 0x4000 Identification and Diagnosis 32778 / hex: 0x800A Measurement Data Channel (standard resolution)
Support of IO-Link 1.0	Yes



NOTE:

- If the Vendor ID and Device ID is referenced in your PLC system, then it is ensured that
- the connected Device type is correct
 - the IO-Link datastorage is enabled
 - your application is still able to work, even your Device has been exchanged with a successor model



For process value update rate, as well as further information concerning sensor performance, see datasheet.

Unit conversion



This list provides conversion formulas to convert the transmitted IO-Link raw data into physical units.

Pressure

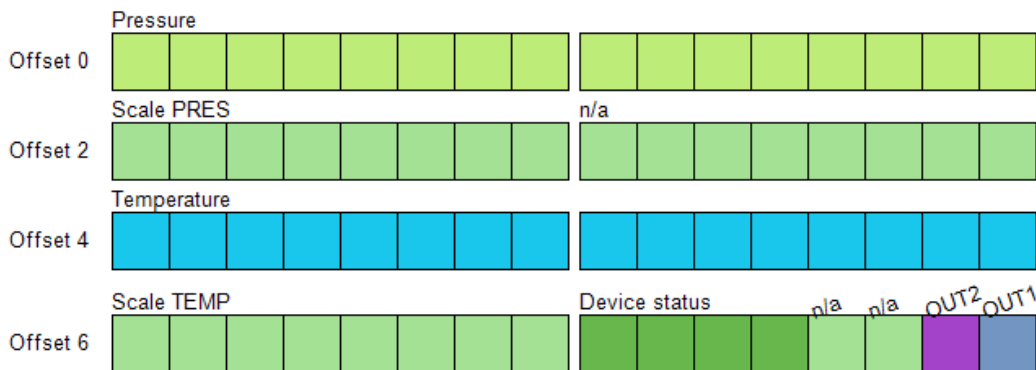
Value in [bar]	= MeasurementValue	* 0.001
Value in [psi]	= MeasurementValue	* 0.0145038
Value in [MPa]	= MeasurementValue	* 0.0001

Temperature

Value in [°C]	= MeasurementValue	* 0.01
Value in [°F]	= MeasurementValue	* 0.018 + 32

Process data

Process data input		RecordT (64 Bit)
Pressure		IntegerT (16 Bit)
Current pressure		
Value range [bar]	(-1000 to 10500) * 0.001 32760 32764	(OL - overload) 0x7FF8 (NoData) 0x7FFC
Temperature		IntegerT (16 Bit)
Current temperature		
Value range [°C]	(-4500 to 9500) * 0.01 -32760 32760 -32762 32762 32764	(UL - underload) 0x8008 (OL - overload) 0x7FF8 (cr.UL - critical underload) 0x8006 (cr.OL - critical overload) 0x7FFA (NoData) 0x7FFC
Device status		UIntegerT (4 Bit)
Current device status, a copy of the parameter [Device Status, Index 36] in the process data channel		
Value range	0 1 2 3 4	(Device is OK) (Maintenance required) (Out of specification) (Functional check) (Failure)
OUT2		BooleanT
Current status of the digital signal [OUT2]		
Value range	false true	(OFF) (On)
OUT1		BooleanT
Current status of the digital signal [OUT1]		
Value range	false true	(OFF) (On)



- Scale PRES: A PLC profile function block calculates the pressure part of the process data (from WORD 0) into the unit [Pa]
- Scale TEMP: A PLC profile function block calculates the temperature part of the process data (from WORD 4) into the unit [°C]
- n/a: Not available area. Used to cover structured process data mapping



Data is transmitted in BigEndian format.
The position of the process data bytes is shown according device transmit sequence.
The content in your PLCs input buffer may vary according your PLCs data format.
Please do not apply any byte swap feature.

Parameter overview

Parameter	Index	Subindex	Type	Factory setting	page
Vendor name	16		StringT (19 Byte)	Norgren	9
Vendor text	17		StringT (21 Byte)	www.imi-precision.com	9
Product Name	18		StringT (19 Byte)	60D Pressure Switch	9
Product ID	19		StringT (16 Byte)	60D-P110G-DD1-AA	9
Product Text	20		StringT (26 Byte)	Electronic pressure switch	9
Serial Number	21		StringT (12 Byte)		9
Hardware Revision	22		StringT (2 Byte)		9
Firmware Revision	23		StringT (5 Byte)		9
Application-specific Tag	24		StringT (32 Byte)	***	9
Function Tag	25		StringT (32 Byte)	***	9
Location Tag	26		StringT (32 Byte)	***	9
Device Status	36		UIntegerT (8 Bit)	0 (Device is OK)	14
Detailed Device Status	37		OctetStringT (3 Byte) [11]	0x00,0x00,0x00	14
Process data input	40		RecordT (64 Bit)		
OUT Counter	348		RecordT (64 Bit)		10
OUT1	348	1	IntegerT (32 Bit)	0	
OUT2	348	2	IntegerT (32 Bit)	0	
P-n	500		UIntegerT (8 Bit)	0 (PnP)	10
dAP	510		UIntegerT (16 Bit)	60	10
SEL2	521		UIntegerT (8 Bit)	1 (PRES)	10
Operating hours	542		IntegerT (32 Bit)		14
Internal temperature	543		IntegerT (16 Bit)		15
Active Events	545		RecordT (32 Bit)		14
Param configuration fault	546		UIntegerT (32 Bit) [10]	0 (OK)	15
uni.P	551		UIntegerT (8 Bit)	1 (bar)	10
Hi.P	560		IntegerT (16 Bit)		10
Lo.P	561		IntegerT (16 Bit)		10
Hi.T	562		IntegerT (16 Bit)		10
Lo.T	563		IntegerT (16 Bit)		11
ou1	580		UIntegerT (8 Bit)	3 (Hno / Hysteresis fct normally open)	11
dS1	581		UIntegerT (16 Bit)	0	11
dr1	582		UIntegerT (16 Bit)	0	11
SP1 (FH1) - PRES	583		IntegerT (16 Bit)	2500	11
rP1 (FL1) - PRES	584		IntegerT (16 Bit)	2300	11
ou2	590		UIntegerT (8 Bit)	3 (Hno / Hysteresis fct normally open)	11
dS2	591		UIntegerT (16 Bit)	0	11
dr2	592		UIntegerT (16 Bit)	0	11
SP2 (FH2) - PRES	593		IntegerT (16 Bit)	7500	12
rP2 (FL2) - PRES	594		IntegerT (16 Bit)	7300	12
SP2 (FH2) - TEMP	595		IntegerT (16 Bit)	6000	12
rP2 (FL2) - TEMP	596		IntegerT (16 Bit)	5500	12
uni.T	841		UIntegerT (8 Bit)	0 (°C)	12
coF	5001		IntegerT (16 Bit)	0	12
HIPS - PRES	5003		IntegerT (16 Bit)	10000	15
HIPC	5004		UIntegerT (32 Bit)	0	15

Parameter overview

Parameter	Index	Subindex	Type	Factory setting	page
HITS - TEMP	6009		IntegerT (16 Bit)	9000	15
HITC	6010		UIntegerT (32 Bit)	0	15
MDC Descr	16512		RecordT (88 Bit)		12
Lower limit	16512	1	IntegerT (32 Bit)	-1000 (-1000)	
Upper limit	16512	2	IntegerT (32 Bit)	10000 (10000)	
Unit code	16512	3	UIntegerT (16 Bit)	1130 (Pa)	
Scale	16512	4	IntegerT (8 Bit)	2 (2)	
MDC 2 Descr	16513		RecordT (88 Bit)		13
Lower limit	16513	1	IntegerT (32 Bit)	-4000 (-4000)	
Upper limit	16513	2	IntegerT (32 Bit)	9000 (9000)	
Unit code	16513	3	UIntegerT (16 Bit)	1001 (°C)	
Scale	16513	4	IntegerT (8 Bit)	-2 (-2)	

System Command



Command interface for applications. A positive acknowledge indicates the complete and correct finalization of the requested function. System Command information:

- Address: Index 2, Subindex 0
- Datatype: UInteger (8 Bit)
- AccessRight: Write Only

#	Text	Description
1	Upload Start	Start block parameter upload
2	Upload End	End block parameter upload
3	Download Start	Start block parameter download
4	Download End	Stop block parameter download
5	Store	Finalize block parameterization and start Data Storage
6	Break	Cancel block parameterization
130	Restore Factory Settings	
161	Reset [Hi.P] and [Lo.P] memory	
162	Reset [Lo.P] memory	
163	Reset [Hi.P] memory	
165	Reset [Hi.T] and [Lo.T] memory	
166	Reset [Lo.T] memory	
167	Reset [Hi.T] memory	
169	Reset overload counter [HIPC]	
172	Reset overload counter [HITC]	
228	Reset OUT counter to zero	
240	IO-Link 1.1 system test command 240, Event 8DFE appears	

System Command

- 241 IO-Link 1.1 system test command 241,
Event 8DFE disappears
- 242 IO-Link 1.1 system test command 242,
Event 8DFF appears
- 243 IO-Link 1.1 system test command 243,
Event 8DFF disappears

Identification

Vendor name	Index 16	Subindex 0	StringT (19 Byte)	ReadOnly
The vendor name that is assigned to a Vendor ID.				
Factory setting	Norgren			
Vendor text	Index 17	Subindex 0	StringT (21 Byte)	ReadOnly
Additional information about the vendor.				
Factory setting	www.imi-precision.com			
Product Name	Index 18	Subindex 0	StringT (19 Byte)	ReadOnly
Complete product name.				
Factory setting	60D Pressure Switch			
Product ID	Index 19	Subindex 0	StringT (16 Byte)	ReadOnly
Vendor-specific product or type identification (e.g., item number or model number).				
Factory setting	60D-P110G-DD1-AA			
Product Text	Index 20	Subindex 0	StringT (26 Byte)	ReadOnly
Additional product information for the device.				
Factory setting	Electronic pressure switch			
Serial Number	Index 21	Subindex 0	StringT (12 Byte)	ReadOnly
Unique, vendor-specific identifier of the individual device.				
Hardware Revision	Index 22	Subindex 0	StringT (2 Byte)	ReadOnly
Unique, vendor-specific identifier of the hardware revision of the individual device.				
Firmware Revision	Index 23	Subindex 0	StringT (5 Byte)	ReadOnly
Unique, vendor-specific identifier of the firmware revision of the individual device.				
Application-specific Tag	Index 24	Subindex 0	StringT (32 Byte)	ReadWrite
Possibility to mark a device with user- or application-specific information.				
Factory setting	***			
Function Tag	Index 25	Subindex 0	StringT (32 Byte)	ReadWrite
Possibility to mark a device with function-specific information.				
Factory setting	***			
Location Tag	Index 26	Subindex 0	StringT (32 Byte)	ReadWrite
Possibility to mark a device with location-specific information.				
Factory setting	***			

Parameters

OUT Counter	Index 348	Subindex 0	RecordT (64 Bit)	ReadOnly
Available OUT signal counters				
OUT1		Subindex 1	IntegerT (32 Bit)	
OUT1 counter				
Factory setting	0			
Value range	(0 to 2147482880)			
OUT2		Subindex 2	IntegerT (32 Bit)	
OUT2 counter				
Factory setting	0			
Value range	(0 to 2147482880)			
P-n	Index 500	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Output polarity for the switching outputs				
Factory setting	0	(PnP)		
Value range	0	(PnP)		
	1	(nPn)		
dAP	Index 510	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Damping of the measured signal				
Factory setting	60			
Value range [s]	(0 to 4000) * 0.001			
SEL2	Index 521	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of the measurand for the evaluation via [OUT 2]				
Factory setting	1	(PRES)		
Value range	1	(PRES)		
	2	(TEMP)		
uni.P	Index 551	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of pressure unit				
Factory setting	1	(bar)		
Value range	0	(MPa)		
	1	(bar)		
	2	(psi)		
Hi.P	Index 560	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value for pressure				
Value range [bar]	(-1000 to 10500) * 0.001			
	32760	(OL - overload) 0x7FF8		
	32764	(NoData) 0x7FFC		
Lo.P	Index 561	Subindex 0	IntegerT (16 Bit)	ReadOnly
Minimum memory value for pressure				
Value range [bar]	(-1000 to 10500) * 0.001			
	32760	(OL - overload) 0x7FF8		
	32764	(NoData) 0x7FFC		
Hi.T	Index 562	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value for temperature				
Value range [°C]	(-4500 to 9500) * 0.01			
	-32760	(UL - underload) 0x8008		
	32760	(OL - overload) 0x7FF8		
	-32762	(cr.UL - critical underload) 0x8006		
	32762	(cr.OL - critical overload) 0x7FFA		
	32764	(NoData) 0x7FFC		

Parameters

Lo.T	Index 563	Subindex 0	IntegerT (16 Bit)	ReadOnly
Minimum memory value for temperature Value range [°C]	(-4500 to 9500) * 0.01 -32760 32760 -32762 32762 32764		(UL - underload) 0x8008 (OL - overload) 0x7FF8 (cr.UL - critical underload) 0x8006 (cr.OL - critical overload) 0x7FFA (NoData) 0x7FFC	
ou1	Index 580	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Output configuration [OUT 1] Factory setting Value range	3 3 4 5 6 16		(Hno / Hysteresis fct normally open) (Hno / Hysteresis fct normally open) (Hnc / Hysteresis fct normally closed) (Fno / Window fct normally open) (Fnc / Window fct normally closed) (OFF / Output Off)	
dS1	Index 581	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Switching delay for [OUT 1] Factory setting Value range [s]	0 (0 to 500) * 0.1			
dr1	Index 582	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Reset delay for [OUT 1] Factory setting Value range [s]	0 (0 to 500) * 0.1			
SP1 (FH1) - PRES	Index 583	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 1 / Pressure. SP1 shall be above rP1. Min distance SP1...rP1 = 0.049 bar. For details, see operating manual. Factory setting Value range [bar]	2500 (-949 to 10000) * 0.001			
rP1 (FL1) - PRES	Index 584	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 1 / Pressure. Reset point 1 / Pressure. rP1 shall be below SP1. Min distance SP1...rP1 ==> see SP1. Factory setting Value range [bar]	2300 (-949 to 10000) * 0.001			
ou2	Index 590	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Output configuration [OUT 2] Factory setting Value range	3 3 4 5 6 16		(Hno / Hysteresis fct normally open) (Hno / Hysteresis fct normally open) (Hnc / Hysteresis fct normally closed) (Fno / Window fct normally open) (Fnc / Window fct normally closed) (OFF / Output Off)	
dS2	Index 591	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Switching delay for [OUT 2] Factory setting Value range [s]	0 (0 to 500) * 0.1			
dr2	Index 592	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Reset delay for [OUT 2] Factory setting Value range [s]	0 (0 to 500) * 0.1			

Parameters

SP2 (FH2) - PRES	Index 593	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 2 / Pressure. SP2 shall be above rP2. Min distance SP2...rP2 = 0.049 bar. For details, see operating manual.				
Factory setting	7500			
Value range [bar]	(-949 to 10000) * 0.001			
rP2 (FL2) - PRES	Index 594	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 2 / Pressure. Reset point 2 / Pressure. rP2 shall be below SP2. Min distance SP2...rP2 ==> see SP2.				
Factory setting	7300			
Value range [bar]	(-949 to 10000) * 0.001			
SP2 (FH2) - TEMP	Index 595	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 2 / Temperature. SP2 shall be above rP2. Min distance SP2...rP2 = 2.00 °C. For details, see operating manual.				
Factory setting	6000			
Value range [°C]	(-4000 to 9000) * 0.01			
rP2 (FL2) - TEMP	Index 596	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 2 / Temperature. Reset point 2 / Temperature. rP2 shall be below SP2. Min distance SP2...rP2 ==> see SP2.				
Factory setting	5500			
Value range [°C]	(-4000 to 9000) * 0.01			
uni.T	Index 841	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of temperature unit				
Factory setting	0	(°C)		
Value range	0	(°C)		
	1	(°F)		
coF	Index 5001	Subindex 0	IntegerT (16 Bit)	ReadWrite
Zero-point calibration (Calibration offset)				
Factory setting	0			
Value range [%]	(-500 to 500) * 0.01			
MDC Descr	Index 16512	Subindex 0	RecordT (88 Bit)	ReadOnly
Description of the measurement data channel				
Lower limit		Subindex 1	IntegerT (32 Bit)	
Lower value measurement range				
Factory setting	-1000	(-1000)		
Value range	-1000	(-1000)		
Upper limit		Subindex 2	IntegerT (32 Bit)	
Upper value measurement range				
Factory setting	10000	(10000)		
Value range	10000	(10000)		
Unit code		Subindex 3	UIntegerT (16 Bit)	
Unit code of the measurement data				
Factory setting	1130	(Pa)		
Value range	1130	(Pa)		
Scale		Subindex 4	IntegerT (8 Bit)	
Range shifting (10 scale)				
Factory setting	2	(2)		
Value range	2	(2)		

Parameters

MDC 2 Descr	Index 16513	Subindex 0	RecordT (88 Bit)	ReadOnly
Description of the 2nd measurement data channel				
Lower limit		Subindex 1	IntegerT (32 Bit)	
Lower value measurement range				
Factory setting	-4000	(-4000)		
Value range	-4000	(-4000)		
Upper limit		Subindex 2	IntegerT (32 Bit)	
Upper value measurement range				
Factory setting	9000	(9000)		
Value range	9000	(9000)		
Unit code		Subindex 3	UIntegerT (16 Bit)	
Unit code of the measurement data				
Factory setting	1001	(°C)		
Value range	1001	(°C)		
Scale		Subindex 4	IntegerT (8 Bit)	
Range shifting (10 scale)				
Factory setting	-2	(-2)		
Value range	-2	(-2)		

Diagnosis

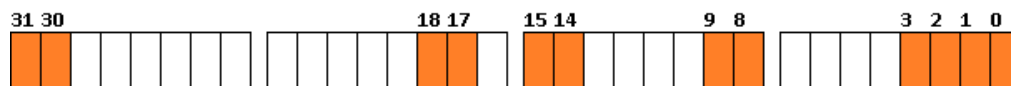
Device Status	Index 36	Subindex 0	UIntegerT (8 Bit)	ReadOnly
Indicator for the current device condition and diagnosis state.				
Factory setting	0		(Device is OK)	
Value range	0		(Device is OK)	
	1		(Maintenance required)	
	2		(Out of specification)	
	3		(Functional check)	
	4		(Failure)	

Detailed Device Status	Index 37	Subindex 0	OctetStringT (3 Byte) [11]	ReadOnly
List of all currently pending events in the device.				
Factory setting	0x00,0x00,0x00			

Operating hours	Index 542	Subindex 0	IntegerT (32 Bit)	ReadOnly
Counter of the operating hours since delivery				
Value range [h]	(0 to 2147482880) * 1 2147483644	(NoData)	0x7FFFFFFC	

Active Events	Index 545	Subindex 0	RecordT (32 Bit)	ReadOnly
Bit mask for current pending events				
bitOffset 31	(0x8DFF)	Test Event 2. Device Status = 1 (Maintenance required)		
bitOffset 30	(0x8DFE)	Test Event 1. Device Status = 1 (Maintenance required)		
bitOffset 18	(0x8C20)	Measurement range over-run		
bitOffset 17	(0x5010)	Component malfunction		
bitOffset 15	(0x4210)	Device temperature over-run		
bitOffset 14	(0x4220)	Device temperature under-run		
bitOffset 9	(0x8C30)	Process variable range under-run		
bitOffset 8	(0x8C10)	Process variable range over-run		
bitOffset 3	(0x7710)	Short circuit		
bitOffset 2	(0x6320)	Parameter error		
bitOffset 1	(0x5010)	Component malfunction		
bitOffset 0	(0x5000)	Device hardware fault		

Value range true Event active
 false Event inactive



Diagnosis

Param configuration fault	Index 546	Subindex 0	UIntegerT (32 Bit) [10]	ReadOnly
Displays the incorrectly set parameters				
Factory setting	0	(OK)		
Value range	0	(OK)		
	786432	(Device Access Locks, Index = 12)		
	327876608	(HIPS - PRES, Index = 5003)		
	393805824	(HITS - TEMP, Index = 6009)		
	32768000	(P-n, Index = 500)		
	34144256	(SEL2, Index = 521)		
	38207488	(SP1 (FH1) - PRES, Index = 583)		
	38862848	(SP2 (FH2) - PRES, Index = 593)		
	38993920	(SP2 (FH2) - TEMP, Index = 595)		
	327745536	(coF, Index = 5001)		
	33423360	(dAP, Index = 510)		
	38076416	(dS1, Index = 581)		
	38731776	(dS2, Index = 591)		
	38141952	(dr1, Index = 582)		
	38797312	(dr2, Index = 592)		
	38010880	(ou1, Index = 580)		
	38666240	(ou2, Index = 590)		
	38273024	(rP1 (FL1) - PRES, Index = 584)		
	38928384	(rP2 (FL2) - PRES, Index = 594)		
	39059456	(rP2 (FL2) - TEMP, Index = 596)		
	36110336	(uni.P, Index = 551)		
	55115776	(uni.T, Index = 841)		

HIPC	Index 5004	Subindex 0	UIntegerT (32 Bit)	ReadOnly
Pressure overload counter				
Factory setting	0			
Value range	(0 to 4294967295)			

HIPS - PRES	Index 5003	Subindex 0	IntegerT (16 Bit)	ReadWrite
Configuration of pressure overload counter switch point				
Factory setting	10000			
Value range [bar]	(-1000 to 10000) * 0.001			

HITC	Index 6010	Subindex 0	UIntegerT (32 Bit)	ReadOnly
Temperature overload counter				
Factory setting	0			
Value range	(0 to 4294967295)			

HITS - TEMP	Index 6009	Subindex 0	IntegerT (16 Bit)	ReadWrite
Configuration of temperature overload counter switch point				
Factory setting	9000			
Value range [°C]	(-4000 to 9000) * 0.01			

Internal temperature	Index 543	Subindex 0	IntegerT (16 Bit)	ReadOnly
Current internal temperature of the device				
Value range [°C]	(-40 to 95) * 1			
	-32760	(UL - underload) 0x8008		
	32760	(OL - overload) 0x7FF8		
	32764	(NoData) 0x7FFC		

Events

Code	Device status	PQ*	Class	Name	Description
0x4210 16912d	2 (Out of specification)	valid	Warning	Device temperature overrun	Clear source of heat
0x4220 16928d	2 (Out of specification)	valid	Warning	Device temperature underrun	Insulate device
0x5000 20480d	4 (Failure)	invalid	Error	Device hardware fault	Exchange device
0x5010 20496d	3 (Functional check)	valid	Error	Component malfunction	Repair or exchange
0x6320 25376d	3 (Functional check)	invalid	Error	Parameter error	Check datasheet and values
0x7710 30480d	3 (Functional check)	valid	Error	Short circuit	Check installation
0x8C10 35856d	2 (Out of specification)	valid	Warning	Process variable range overrun	Process data uncertain
0x8C20 35872d	3 (Functional check)	valid	Error	Measurement range exceeded	Check application
0x8C30 35888d	2 (Out of specification)	valid	Warning	Process variable range underrun	Process data uncertain
0x8DFE 36350d	1 (Maintenance required)	valid	Warning	Test Event 1. Device Status = 1 (Maintenance required)	Event appears by setting index 2 to value 240, Event disappears by setting index 2 to value 241
0x8DFF 36351d	1 (Maintenance required)	valid	Warning	Test Event 2. Device Status = 1 (Maintenance required)	Event appears by setting index 2 to value 242, Event disappears by setting index 2 to value 243



Events are raised by the device itself to notify irregular device states.
PQ* = Process data quality.

Error types

Code	Name	Description
0x8000 32768d	Device application error - no details	Service was denied by the technology-specific application. No detailed root-cause information is available.
0x8011 32785d	Index not available	Read or write access attempt to a non-existing index.
0x8012 32786d	Subindex not available	Read or write access attempt to a non-existing subindex of an existing index.
0x8020 32800d	Service temporarily not available	Parameter not accessible due to the current state of the technology-specific application.
0x8021 32801d	Service temporarily unavailable - local control	Parameter not accessible. The device is currently in an ongoing, locally controlled operation.
0x8022 32802d	Service temporarily unavailable - device control	Parameter not accessible. The technology-specific application is currently in a remotely triggered operation.
0x8023 32803d	Access denied	Write access to a read-only parameter or read access to write-only parameter.
0x8030 32816d	Parameter value out of range	Written parameter value is outside of the permitted value range.
0x8031 32817d	Parameter value above limit	Written parameter value is above its specified value range.
0x8032 32818d	Parameter value below limit	Written parameter value is below its specified value range.
0x8033 32819d	Parameter length overrun	Written parameter is longer than specified.
0x8034 32820d	Parameter length underrun	Written parameter is shorter than specified.
0x8035 32821d	Function unavailable	Written command is not supported by the technology-specific application.
0x8036 32822d	Function temporarily unavailable	Written command is unavailable due to the current state of the technology-specific application.
0x8040 32832d	Invalid parameter set	Written single parameter value collides with other existing parameter settings.
0x8041 32833d	Inconsistent parameter set	Parameter set inconsistencies at the end of block parameter transfer. Device plausibility check failed.
0x8082 32898d	Application not ready	Read or write access denied. The technology-specific application is temporarily unavailable.



Error types are used for the ISDU response. Values unequal '0' indicate the cause of a failed ISDU read or write service.