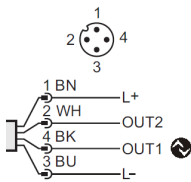



## IO-Link Interface Description

### 60D Pressure Switch

EN

## Device variant

<p><b>60D Pressure Switch</b></p> <p>Electronic pressure switch, -1.00...25.00 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	02062002 / Bytes 31-118-178 (hex: 1F-76-B2)
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

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

### Pressure

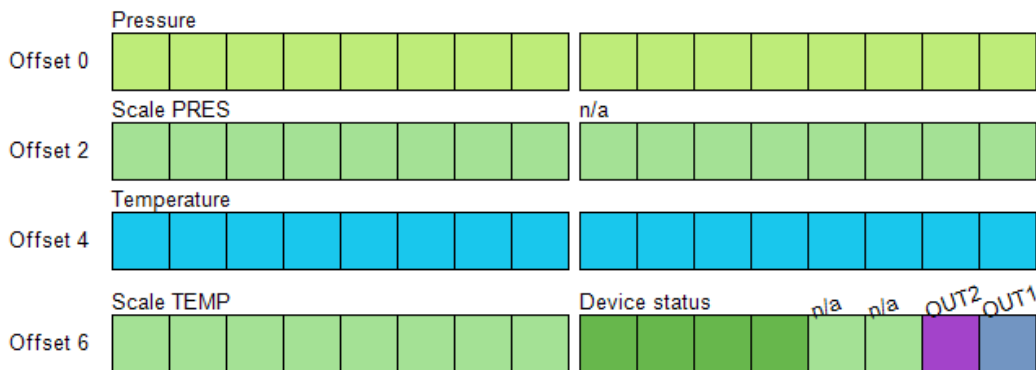
Value in [bar]	= MeasurementValue	* 0.001
Value in [psi]	= MeasurementValue	* 0.0145038
Value in [MPa]	= MeasurementValue	* 0.0001

### Temperature

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

## Process data

Process data input		RecordT (64 Bit)
<b>Pressure</b>		<b>IntegerT (16 Bit)</b>
Current pressure		
Value range [bar]	(-1000 to 26250) * 0.001 32760 32764	(OL - overload) 0x7FF8 (NoData) 0x7FFC
<b>Temperature</b>		<b>IntegerT (16 Bit)</b>
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
<b>Device status</b>		<b>UIntegerT (4 Bit)</b>
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)
<b>OUT2</b>		<b>BooleanT</b>
Current status of the digital signal [OUT2]		
Value range	false true	(OFF) (On)
<b>OUT1</b>		<b>BooleanT</b>
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 (7 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-P125G-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)	6250	11
rP1 (FL1) - PRES	584		IntegerT (16 Bit)	5750	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)	18750	12
rP2 (FL2) - PRES	594		IntegerT (16 Bit)	18250	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)	25000	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)	25000 (25000)	
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

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- 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

<b>Vendor name</b>	<b>Index 16</b>	<b>Subindex 0</b>	<b>StringT (7 Byte)</b>	<b>ReadOnly</b>
The vendor name that is assigned to a Vendor ID.				
<b>Factory setting</b>	<b>Norgren</b>			
<b>Vendor text</b>	<b>Index 17</b>	<b>Subindex 0</b>	<b>StringT (21 Byte)</b>	<b>ReadOnly</b>
Additional information about the vendor.				
<b>Factory setting</b>	<b>www.imi-precision.com</b>			
<b>Product Name</b>	<b>Index 18</b>	<b>Subindex 0</b>	<b>StringT (19 Byte)</b>	<b>ReadOnly</b>
Complete product name.				
<b>Factory setting</b>	<b>60D Pressure Switch</b>			
<b>Product ID</b>	<b>Index 19</b>	<b>Subindex 0</b>	<b>StringT (16 Byte)</b>	<b>ReadOnly</b>
Vendor-specific product or type identification (e.g., item number or model number).				
<b>Factory setting</b>	<b>60D-P125G-DD1-AA</b>			
<b>Product Text</b>	<b>Index 20</b>	<b>Subindex 0</b>	<b>StringT (26 Byte)</b>	<b>ReadOnly</b>
Additional product information for the device.				
<b>Factory setting</b>	<b>Electronic pressure switch</b>			
<b>Serial Number</b>	<b>Index 21</b>	<b>Subindex 0</b>	<b>StringT (12 Byte)</b>	<b>ReadOnly</b>
Unique, vendor-specific identifier of the individual device.				
<b>Hardware Revision</b>	<b>Index 22</b>	<b>Subindex 0</b>	<b>StringT (2 Byte)</b>	<b>ReadOnly</b>
Unique, vendor-specific identifier of the hardware revision of the individual device.				
<b>Firmware Revision</b>	<b>Index 23</b>	<b>Subindex 0</b>	<b>StringT (5 Byte)</b>	<b>ReadOnly</b>
Unique, vendor-specific identifier of the firmware revision of the individual device.				
<b>Application-specific Tag</b>	<b>Index 24</b>	<b>Subindex 0</b>	<b>StringT (32 Byte)</b>	<b>ReadWrite</b>
Possibility to mark a device with user- or application-specific information.				
<b>Factory setting</b>	<b>***</b>			
<b>Function Tag</b>	<b>Index 25</b>	<b>Subindex 0</b>	<b>StringT (32 Byte)</b>	<b>ReadWrite</b>
Possibility to mark a device with function-specific information.				
<b>Factory setting</b>	<b>***</b>			
<b>Location Tag</b>	<b>Index 26</b>	<b>Subindex 0</b>	<b>StringT (32 Byte)</b>	<b>ReadWrite</b>
Possibility to mark a device with location-specific information.				
<b>Factory setting</b>	<b>***</b>			

## Parameters

<b>OUT Counter</b>	<b>Index 348</b>	<b>Subindex 0</b>	<b>RecordT (64 Bit)</b>	<b>ReadOnly</b>
Available OUT signal counters				
<b>OUT1</b>		<b>Subindex 1</b>	<b>IntegerT (32 Bit)</b>	
OUT1 counter				
<b>Factory setting</b>	<b>0</b>			
Value range	(0 to 2147482880)			
<b>OUT2</b>		<b>Subindex 2</b>	<b>IntegerT (32 Bit)</b>	
OUT2 counter				
<b>Factory setting</b>	<b>0</b>			
Value range	(0 to 2147482880)			
<b>P-n</b>	<b>Index 500</b>	<b>Subindex 0</b>	<b>UIntegerT (8 Bit)</b>	<b>ReadWrite</b>
Output polarity for the switching outputs				
<b>Factory setting</b>	<b>0</b>	<b>(PnP)</b>		
Value range	0	(PnP)		
	1	(nPn)		
<b>dAP</b>	<b>Index 510</b>	<b>Subindex 0</b>	<b>UIntegerT (16 Bit)</b>	<b>ReadWrite</b>
Damping of the measured signal				
<b>Factory setting</b>	<b>60</b>			
Value range [s]	(0 to 4000) * 0.001			
<b>SEL2</b>	<b>Index 521</b>	<b>Subindex 0</b>	<b>UIntegerT (8 Bit)</b>	<b>ReadWrite</b>
Selection of the measurand for the evaluation via [OUT 2]				
<b>Factory setting</b>	<b>1</b>	<b>(PRES)</b>		
Value range	1	(PRES)		
	2	(TEMP)		
<b>uni.P</b>	<b>Index 551</b>	<b>Subindex 0</b>	<b>UIntegerT (8 Bit)</b>	<b>ReadWrite</b>
Selection of pressure unit				
<b>Factory setting</b>	<b>1</b>	<b>(bar)</b>		
Value range	0	(MPa)		
	1	(bar)		
	2	(psi)		
<b>Hi.P</b>	<b>Index 560</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadOnly</b>
Maximum memory value for pressure				
Value range [bar]	(-1000 to 26250) * 0.001			
	32760	(OL - overload) 0x7FF8		
	32764	(NoData) 0x7FFC		
<b>Lo.P</b>	<b>Index 561</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadOnly</b>
Minimum memory value for pressure				
Value range [bar]	(-1000 to 26250) * 0.001			
	32760	(OL - overload) 0x7FF8		
	32764	(NoData) 0x7FFC		
<b>Hi.T</b>	<b>Index 562</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadOnly</b>
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] <b>Factory setting</b> Value range	<b>3</b> 3 4 5 6 16		<b>(Hno / Hysteresis fct normally open)</b> (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] <b>Factory setting</b> Value range [s]	<b>0</b> (0 to 500) * 0.1			
dr1	Index 582	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Reset delay for [OUT 1] <b>Factory setting</b> Value range [s]	<b>0</b> (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 = 0.130 bar. For details, see operating manual. <b>Factory setting</b> Value range [bar]	<b>6250</b> (-873 to 25000) * 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. <b>Factory setting</b> Value range [bar]	<b>5750</b> (-873 to 25000) * 0.001			
ou2	Index 590	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Output configuration [OUT 2] <b>Factory setting</b> Value range	<b>3</b> 3 4 5 6 16		<b>(Hno / Hysteresis fct normally open)</b> (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] <b>Factory setting</b> Value range [s]	<b>0</b> (0 to 500) * 0.1			
dr2	Index 592	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Reset delay for [OUT 2] <b>Factory setting</b> Value range [s]	<b>0</b> (0 to 500) * 0.1			

## Parameters

<b>SP2 (FH2) - PRES</b>	<b>Index 593</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadWrite</b>
Switch point 2 / Pressure. SP2 shall be above rP2. Min distance SP2...rP2 = 0.130 bar. For details, see operating manual.				
<b>Factory setting</b>	<b>18750</b>			
Value range [bar]	(-873 to 25000) * 0.001			
<b>rP2 (FL2) - PRES</b>	<b>Index 594</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadWrite</b>
Reset point 2 / Pressure. Reset point 2 / Pressure. rP2 shall be below SP2. Min distance SP2...rP2 ==> see SP2.				
<b>Factory setting</b>	<b>18250</b>			
Value range [bar]	(-873 to 25000) * 0.001			
<b>SP2 (FH2) - TEMP</b>	<b>Index 595</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadWrite</b>
Switch point 2 / Temperature. SP2 shall be above rP2. Min distance SP2...rP2 = 2.00 °C. For details, see operating manual.				
<b>Factory setting</b>	<b>6000</b>			
Value range [°C]	(-4000 to 9000) * 0.01			
<b>rP2 (FL2) - TEMP</b>	<b>Index 596</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadWrite</b>
Reset point 2 / Temperature. Reset point 2 / Temperature. rP2 shall be below SP2. Min distance SP2...rP2 ==> see SP2.				
<b>Factory setting</b>	<b>5500</b>			
Value range [°C]	(-4000 to 9000) * 0.01			
<b>uni.T</b>	<b>Index 841</b>	<b>Subindex 0</b>	<b>UIntegerT (8 Bit)</b>	<b>ReadWrite</b>
Selection of temperature unit				
<b>Factory setting</b>	<b>0</b>	<b>(°C)</b>		
Value range	0	(°C)		
	1	(°F)		
<b>coF</b>	<b>Index 5001</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadWrite</b>
Zero-point calibration (Calibration offset)				
<b>Factory setting</b>	<b>0</b>			
Value range [%]	(-500 to 500) * 0.01			
<b>MDC Descr</b>	<b>Index 16512</b>	<b>Subindex 0</b>	<b>RecordT (88 Bit)</b>	<b>ReadOnly</b>
Description of the measurement data channel				
<b>Lower limit</b>		<b>Subindex 1</b>	<b>IntegerT (32 Bit)</b>	
Lower value measurement range				
<b>Factory setting</b>	<b>-1000</b>	<b>(-1000)</b>		
Value range	-1000	(-1000)		
<b>Upper limit</b>		<b>Subindex 2</b>	<b>IntegerT (32 Bit)</b>	
Upper value measurement range				
<b>Factory setting</b>	<b>25000</b>	<b>(25000)</b>		
Value range	25000	(25000)		
<b>Unit code</b>		<b>Subindex 3</b>	<b>UIntegerT (16 Bit)</b>	
Unit code of the measurement data				
<b>Factory setting</b>	<b>1130</b>	<b>(Pa)</b>		
Value range	1130	(Pa)		
<b>Scale</b>		<b>Subindex 4</b>	<b>IntegerT (8 Bit)</b>	
Range shifting (10 scale)				
<b>Factory setting</b>	<b>2</b>	<b>(2)</b>		
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				
<b>Factory setting</b>	<b>-4000</b>	<b>(-4000)</b>		
Value range	-4000	(-4000)		
Upper limit		Subindex 2	IntegerT (32 Bit)	
Upper value measurement range				
<b>Factory setting</b>	<b>9000</b>	<b>(9000)</b>		
Value range	9000	(9000)		
Unit code		Subindex 3	UIntegerT (16 Bit)	
Unit code of the measurement data				
<b>Factory setting</b>	<b>1001</b>	<b>(°C)</b>		
Value range	1001	(°C)		
Scale		Subindex 4	IntegerT (8 Bit)	
Range shifting (10 scale)				
<b>Factory setting</b>	<b>-2</b>	<b>(-2)</b>		
Value range	-2	(-2)		

## Diagnosis

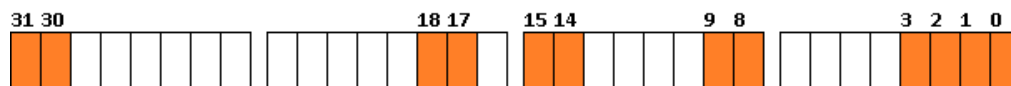
Device Status	Index 36	Subindex 0	UIntegerT (8 Bit)	ReadOnly
Indicator for the current device condition and diagnosis state.				
<b>Factory setting</b>	<b>0</b>		<b>(Device is OK)</b>	
Value range	0		(Device is OK)	
	1		(Maintenance required)	
	2		(Out of specification)	
	3		(Functional check)	
	4		(Failure)	

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

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				
<b>Factory setting</b>	<b>0</b>	<b>(OK)</b>		
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)		
<b>HIPC</b>	<b>Index 5004</b>	<b>Subindex 0</b>	<b>UIntegerT (32 Bit)</b>	<b>ReadOnly</b>
Pressure overload counter				
<b>Factory setting</b>	<b>0</b>			
Value range	(0 to 4294967295)			
<b>HIPS - PRES</b>	<b>Index 5003</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadWrite</b>
Configuration of pressure overload counter switch point				
<b>Factory setting</b>	<b>25000</b>			
Value range [bar]	(-1000 to 25000) * 0.001			
<b>HITC</b>	<b>Index 6010</b>	<b>Subindex 0</b>	<b>UIntegerT (32 Bit)</b>	<b>ReadOnly</b>
Temperature overload counter				
<b>Factory setting</b>	<b>0</b>			
Value range	(0 to 4294967295)			
<b>HITS - TEMP</b>	<b>Index 6009</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadWrite</b>
Configuration of temperature overload counter switch point				
<b>Factory setting</b>	<b>9000</b>			
Value range [°C]	(-4000 to 9000) * 0.01			
<b>Internal temperature</b>	<b>Index 543</b>	<b>Subindex 0</b>	<b>IntegerT (16 Bit)</b>	<b>ReadOnly</b>
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.