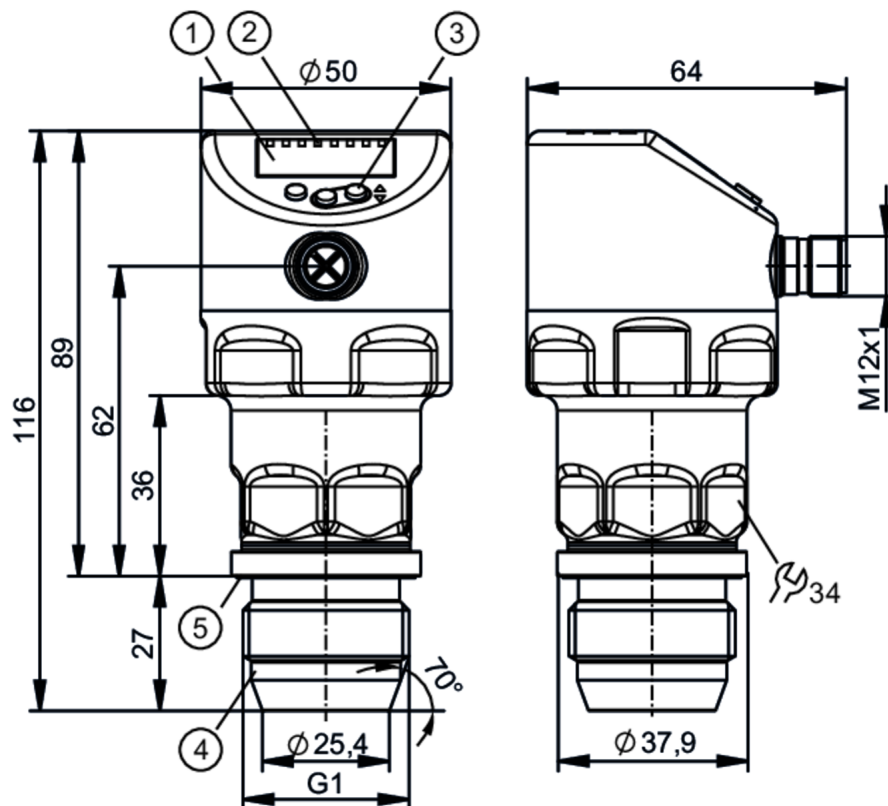




Flush pressure sensor with display

PI-160-REA01-MFRKG/US/ I/P



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 Programming button
- 4 G1 sealing cone external thread
- 5 groove with sealing ring (DIN 3863-33)



ACS



EC 1935/2004

FCM



Hygienic Cleanable



IO-Link



TSDP/TÜV

UK CA

Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	0...160 bar	0...2320 psi	0...16 MPa
Process connection	threaded connection G 1 external thread sealing cone		

Application

System	gold-plated contacts		
Application	flush mountable for the food and beverage industry		
Media	viscous media and liquids with suspended particles; liquids and gases; use in gases at pressures > 25 bar only on request		
Medium temperature [°C]	-25...150		
Min. burst pressure	650 bar	9425 psi	65 MPa
Pressure rating	200 bar	2900 psi	20 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

Electrical data

Min. insulation resistance [MΩ]	100; (500 V DC)		
Protection class	III		
Reverse polarity protection	yes		



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Integrated watchdog	yes		
2-wire			
Operating voltage	[V]	20...30 DC	
Current consumption	[mA]	3.5...21.5	
Power-on delay time	[s]	< 1	
3-wire			
Operating voltage	[V]	18...30 DC	
Current consumption	[mA]	5...45; (430 bei max. Laststrom)	
Power-on delay time	[s]	< 0.5	
Inputs / outputs			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Outputs			
Total number of outputs	2		
Output signal	switching signal; analog signal; IO-Link		
Electrical design	PNP/NPN		
Number of digital outputs	2		
Output function	normally open / closed; (configurable)		
Number of analog outputs	1		
Analog current output	[mA]	4...20, invertible; (scalable)	
Short-circuit protection	yes		
Type of short-circuit protection	yes (non-latching)		
Overload protection	yes		
2-wire			
Max. load	[Ω]	300	
3-wire			
Max. voltage drop switching output DC	[V]	2	
Permanent current rating of switching output DC	[mA]	100	
Switching frequency DC	[Hz]	125	
Max. load	[Ω]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)	
Measuring/setting range			
Measuring range	0...160 bar	0...2320 psi	0...16 MPa
Set point SP	0.2...160 bar	3...2321 psi	0.02...16 MPa
Reset point rP	0...159.8 bar	0...2317 psi	0...15.98 MPa
Analog start point	0...128 bar	0...1856 psi	0...12.8 MPa
Analog end point	32...160 bar	464...2321 psi	3.2...16 MPa
Min. difference between SP and rP	0.2 bar	3 psi	0.02 MPa
In steps of	0.1 bar	1 psi	0.01 MPa
Factory setting		SP1 = 40 bar	rP1 = 36.8 bar
		SP2 = 120 bar	rP2 = 116.8 bar
		ASP = 0.00 bar	AEP = 160 bar
		dAP = 0.06 s	dAA = 0.06 s



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Temperature monitoring		
Measuring range	-25...150 °C	-13...302 °F
Accuracy / deviations		
Switch point accuracy [% of the span]	< ± 0,5; (DIN EN IEC 62828-1; Turn down 1:1)	
Repeatability [% of the span]	< ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)	
Characteristics deviation [% of the span]	< ± 0,5; (DIN IEC EN 62828-1 incl. zero point and span error, non-linearity, hysteresis; Turn down 1:1)	
Linearity deviation [% of the span]	< ± 0,15; (Turn down 1:1)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
Hysteresis deviation [% of the span]	< ± 0,15; (Turn down 1:1)	
Long-term stability [% of the span]	< ± 0,1; (Turn down 1:1; per year)	
Total deviation over temperature range	Temperature range	total deviation
	-25...15 °C	Characteristics deviation ± 0,15 % of the span / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,2 % of the span / 10 K
Notes on the accuracy / deviation	for further details see section Diagrams and graphs	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	
Reaction times		
Damping process value dAP [s]	0...99.99	
Damping for the analog output dAA [s]	0...99.99	
2-wire		
Step response time analog output [ms]	30	
3-wire		
Min. response time of switching output (dAP) [ms]	3	
Step response time analog output [ms]	7	
Temperature monitoring		
Dynamic response T05 / T09 [s]	< 45 / < 200; (DIN EN 60751 water ; > 0,9 m/s)	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	



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SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.005	
IO-Link resolution temperature	[K]	0.2	
IO-Link process data (cyclical)		Function	bit length
		pressure	32
		temperature	32
		device status	4
		binary switching information	2
IO-Link functions (acyclical)		application specific tag; internal temperature; operating hours counter; switching cycles counter; Pressure peak counter; measuring cell diagnosis	
Supported DeviceIDs		Type of operation	DeviceID
		default	1825
Operating conditions			
Ambient temperature	[°C]	-25...80	
Storage temperature	[°C]	-40...100	
Protection		IP 67; IP 68; IP 69K	
Tests / approvals			
EMC		DIN EN 61326-1	
Shock resistance		DIN EN 60068-2-27	50 g (11 ms)
Vibration resistance		DIN EN 60068-2-6	20 g (10...2000 Hz)
MTTF	[years]	201	
UL approval		File number UL	E174189
Mechanical data			
Weight	[g]	399.6	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 116	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	20	
Process connection		threaded connection G 1 external thread sealing cone	
Displays / operating elements			
Display		Display unit	LED, green
		Switching status	LED, yellow
		Function display	alphanumeric display, 4-digit
		Measured values	alphanumeric display, 4-digit
Display unit		bar; psi; MPa	

PI1612



Flush pressure sensor with display

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Remarks

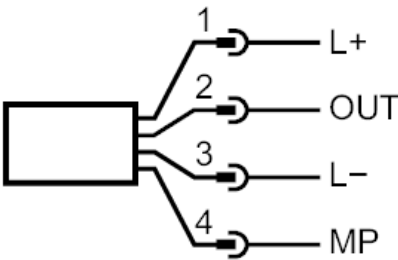
Pack quantity 1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



2-wire

1	L+	
2	OUT	AO

3-wire

1	L+	
2	OUT	DO2 (NO/NC), AO
3	L-	
4	MP	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP	IO-Link

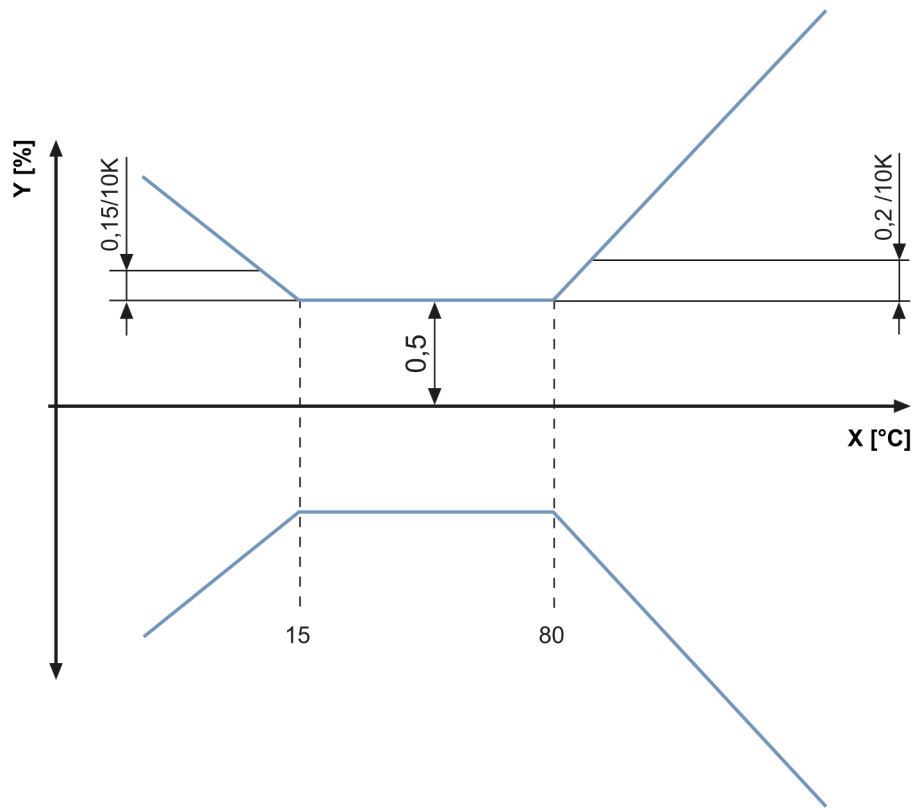
PI1612



Flush pressure sensor with display

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Diagrams and graphs



X temperature
Y total deviation