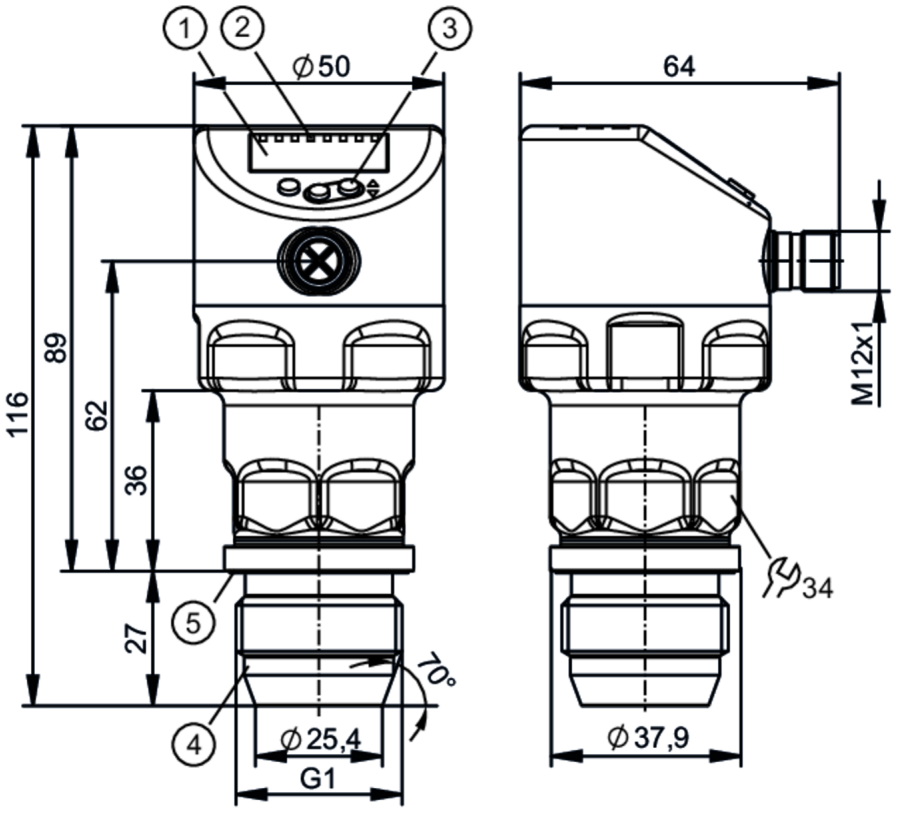
PI1602

Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ /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)

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1		
Measuring range	-1...100 bar	-14...1450 psi	-0.1...10 MPa
Process connection	threaded connection G 1 external thread sealing cone - 27 mm		
Application			
Special feature	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)		

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Protection class		III		
Reverse polarity protection		yes		
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 analogue outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analogue signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / normally closed; (parameterisable)		
Number of analogue outputs		1		
Analogue current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		pulsed		
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		-1...100 bar	-14...1450 psi	-0.1...10 MPa
Set point SP		-0.9...100 bar	-12...1450 psi	-0.09...10 MPa
Reset point rP		-1...99.9 bar	-15...1448 psi	-0.1...9.9 MPa
Analogue start point		-1...80 bar	-15...1160 psi	-0.1...8 MPa
Analogue end point		19...100 bar	276...1450 psi	1.9...10 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

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Factory setting		SP1 = 25 bar	rP1 = 23 bar
		SP2 = 75 bar	rP2 = 73 bar
		ASP = 0.00 bar	AEP = 100 bar
		dAP = 0.06 s	dAA = 0.06 s
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 stabilisation [% of the span]	IO-Link, analogue output	0,15; (see operating instructions zero-point behaviour)	
	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		

Response times	
Damping process value dAP [s]	0...99.99
Damping for the analogue output dAA [s]	0...99.99
2-wire	
Step response time analogue output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analogue output [ms]	7
Temperature monitoring	
Dynamic response T05 / T09 [s]	< 45 / < 200; (DIN EN 60751 water ; > 0,9 m/s)

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Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port type		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	1150
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]	214	
UL approval		UL approval no.	J034
		File number UL	E174189
Mechanical data			
Weight	[g]	395.1	
Housing		cylindrical	
Dimensions	[mm]	Ø 50 / L = 116	
Materials		Housing: stainless steel (316L/1.4404); pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (316L/1.4435) 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 - 27 mm	

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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	

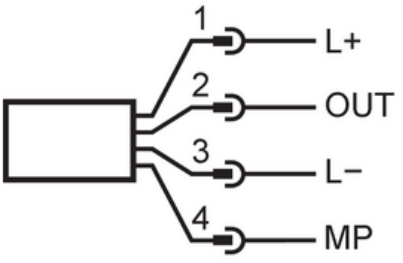
Remarks	
Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, 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

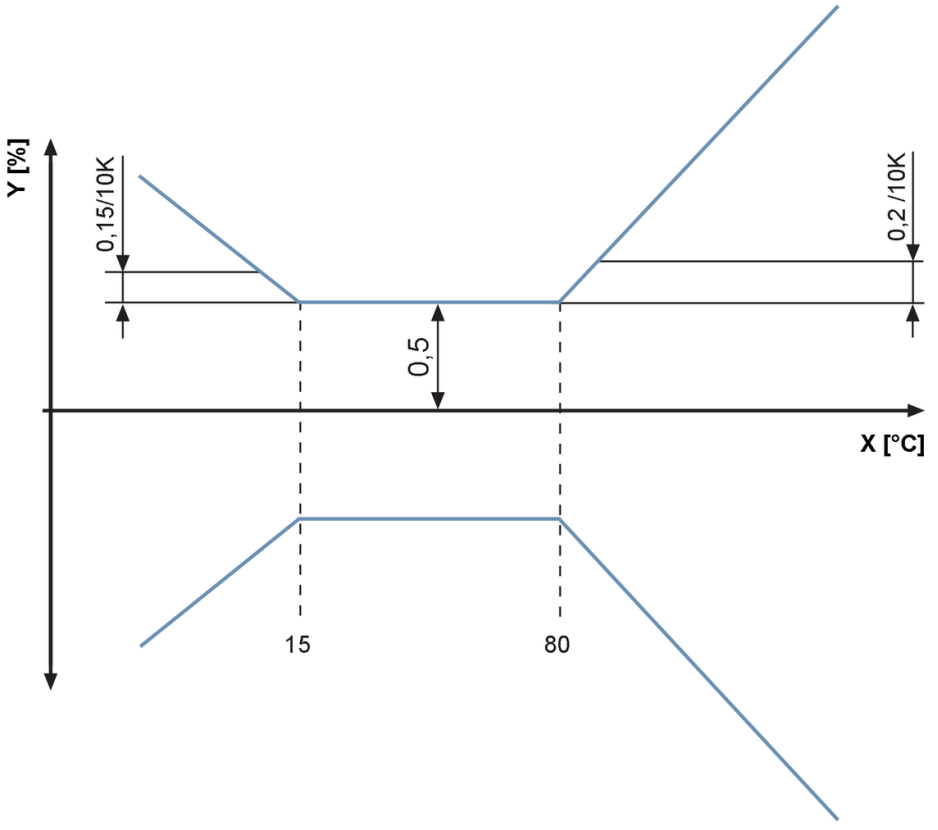
parameter setting		
1	L+	
3	L-	
4	MP	IO-Link

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Diagrams and graphs



X temperature

Y total deviation