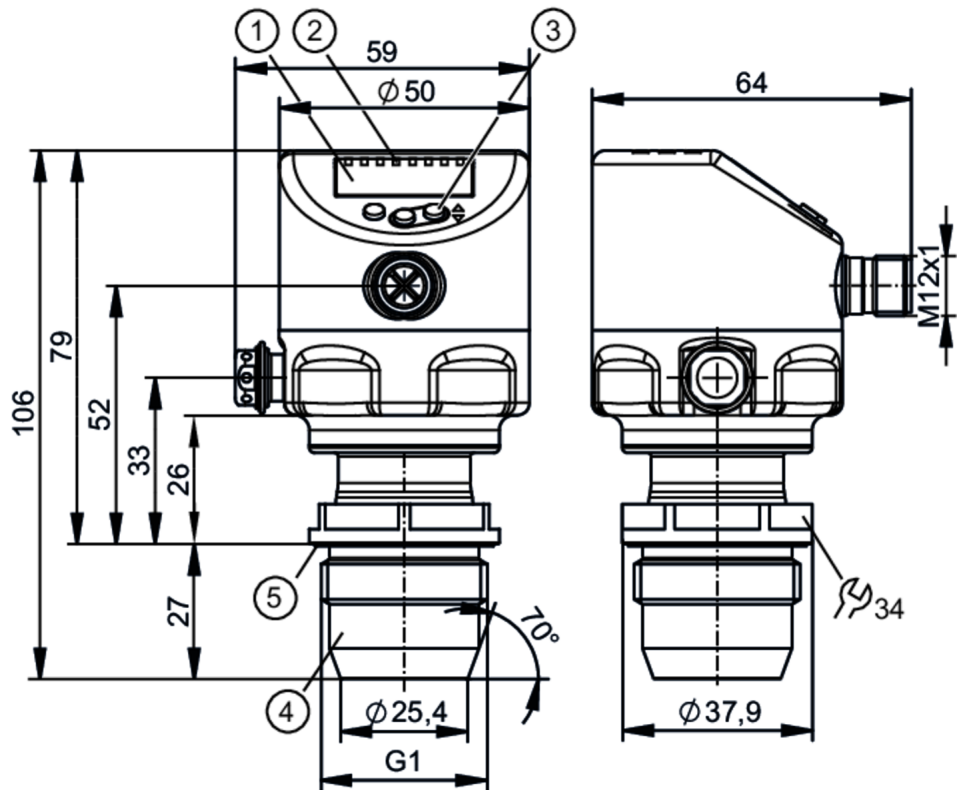




Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 Programming button
- 4 G1 sealing cone external thread
- Attention: The unit must only be installed in a process connection for G1 sealing cone.
- The G1A sealing cone of the unit is only suited for adapters with metal end stop.
- 5 groove with sealing ring

ACS CRN EC 1935/2004 FCM FDA Hygienic Cleanable IO-Link NSF Reg31

TSDP/TÜV

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-0.005...0.1 bar	-5...100 mbar	-2...40.15 inH2O -0.5...10 kPa
Process connection	threaded connection G 1 external thread sealing cone Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop.		
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		
Medium temperature [°C]	-25...150		
Min. burst pressure	30000 mbar	12044 inH2O	3000 kPa
Pressure rating	4000 mbar	1606 inH2O	400 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		



Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	4			
Electrical data					
Min. insulation resistance	[MΩ]	100; (500 V DC)			
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 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		-0.005...0.1 bar	-5...100 mbar	-2...40.15 inH2O	-0.5...10 kPa
Set point SP		-0.0049...0.1 bar	-4.9...100 mbar	-1.95...40.15 inH2O	-0.49...10 kPa
Reset point rP		-0.005...0.099 bar	-5...99.9 mbar	-2.01...40.09 inH2O	-0.5...9.99 kPa
Analog start point		-0.005...0.08 bar	-5...80 mbar	-2.01...32.12 inH2O	-0.5...8 kPa
Analog end point		0.015...0.1 bar	15...100 mbar	6.02...40.15 inH2O	1.5...10 kPa



Flush pressure sensor with display

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Min. difference between SP and rP	0.0002 bar	0.2 mbar	0.06 inH ₂ O	0.02 kPa
In steps of	0.0001 bar	0.1 mbar	0.01 inH ₂ O	0.01 kPa
Factory setting	SP1 = 25 mbar		rP1 = 23 mbar	
	SP2 = 75 mbar		rP2 = 73 mbar	
	ASP = 0 mbar		AEP = 100 mbar	
	dAP = 2.00 s		dAA = 2.00 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]	< ± 0,2; (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]	< ± 0,25; (Turn down 1:1)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,4; (see operating instructions zero-point behavior)
	Display, Switching output	0,4
Hysteresis deviation [% of the span]	< ± 0,2; (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



Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

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	
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	[mbar]	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	1158
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 number	J049
	File number UL	E174189
Mechanical data		
Weight	[g]	384.8
Housing	tubular	
Dimensions	[mm]	Ø 50 / L = 106
Material	Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
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

PI1889



Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

Process connection	threaded connection G 1 external thread sealing cone Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop.
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Displays / operating elements

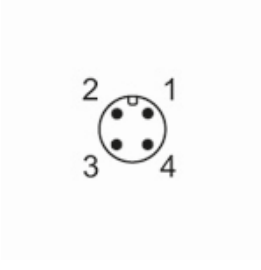
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	mbar; kPa; inH2O	

Remarks

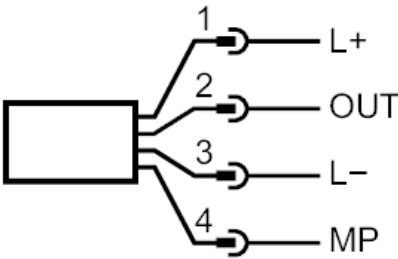
Pack quantity	1 pcs.
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Electrical connection

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

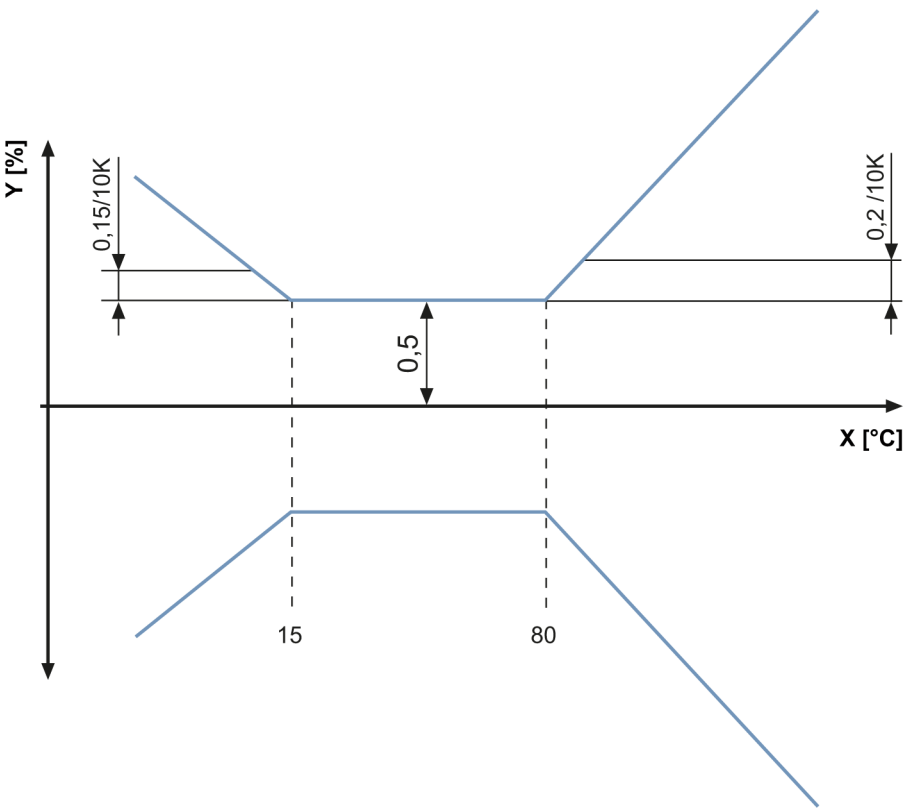
1	L+	
3	L-	
4	MP	IO-Link



Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

Diagrams and graphs



X temperature
Y total deviation