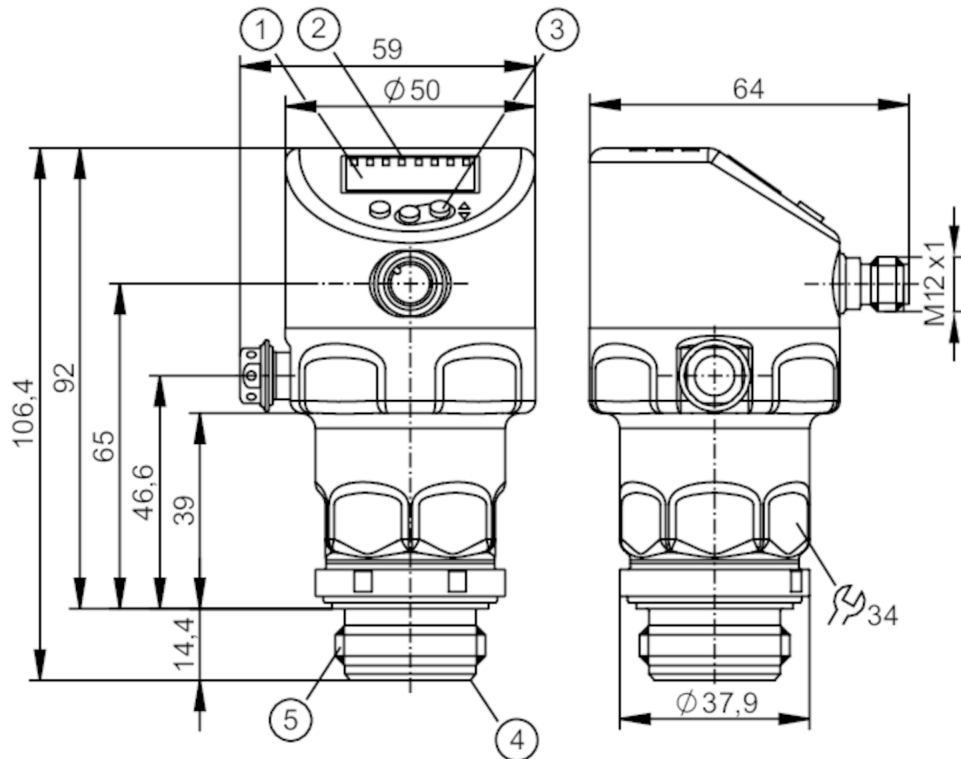




Flush pressure sensor with display

PI-1-1BRES30-MFRKG/US/ IP

Please do not use for new projects.
no more adapters available as accessories



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 Programming button
- 4 Aseptoflex - sealing contour
- 5 external thread Aseptoflex S30x2



EC 1935/2004

FCM



TSDP/TÜV



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH ₂ O	-100...100 kPa
Process connection	threaded connection S30x2 external thread Aseptoflex			

Application

Special feature	gold-plated contacts		
Design	replacement for PI10xx, PI20xx, PI709x, PIM09x, PL205x, PM205x, PF205x		
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	435 psi	3000 kPa
Pressure rating	10000 mbar	145 psi	1000 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		



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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		-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH2O	-100...100 kPa
Set point SP		-997...1000 mbar	-14.46...14.5 psi	-400...401 inH2O	-4.9...100 kPa
Reset point rP		-1000...997 mbar	-14.5...14.46 psi	-401...400 inH2O	-100...99.7 kPa
Analog start point		-1000...599 mbar	-14.5...8.68 psi	-401...240 inH2O	-100...59.9 kPa
Analog end point		-599...1000 mbar	-8.68...14.5 psi	-240...401 inH2O	-59.9...100 kPa
Min. difference between SP and rP		3 mbar	0.05 psi	2 inH2O	0.3 kPa
In steps of		1 mbar	0.01 psi	1 inH2O	0.1 kPa



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Factory setting		SP1 = 250 mbar	rP1 = 230 mbar
		SP2 = 750 mbar	rP2 = 730 mbar
		ASP = 0 mbar	AEP = 1000 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]	< ± 0,2; (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]	< ± 0,2; (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 ± 0,05 % of the span / 10 K
	15...80 °C		Characteristics deviation
	80...150 °C		Characteristics deviation ± 0,1 % 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)		



Flush pressure sensor with display

PI-1-1BRES30-MFRKG/US/ /P

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]	0.1	
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	1151
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	UL approval number	J048
	File number UL	E174189
Mechanical data		
Weight [g]	348.8	
Housing	tubular	
Dimensions [mm]	Ø 50 / L = 106.4	
Material	stainless steel sleeve top: stainless steel (1.4404 / 316L); Pushbuttons: FKM; sealing: PTFE; M12 connector: PBT; 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]	25	
Process connection	threaded connection S30x2 external thread Aseptoflex	

PI1009



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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; psi; kPa; inH2O	

Remarks	
Notes	Please do not use for new projects.; no more adapters available as accessories
Pack quantity	1 pcs.

Electrical connection	
Connector: 1 x M12; coding: A; Contacts: 4, gold-plated	

Connection	

2-wire		
1	L+	AO
2	OUT	

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

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

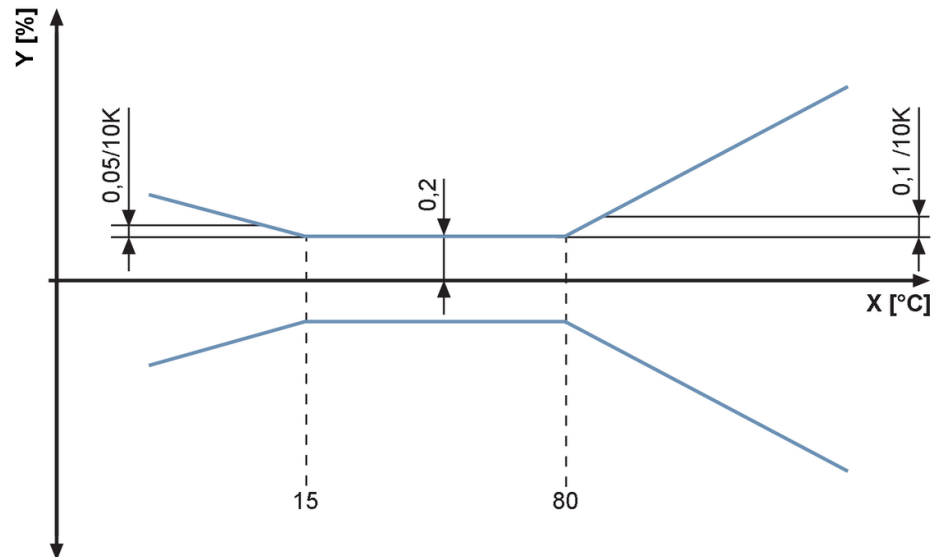


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Diagrams and graphs

ambient temperature influence on
the accuracy



X temperature
Y total deviation