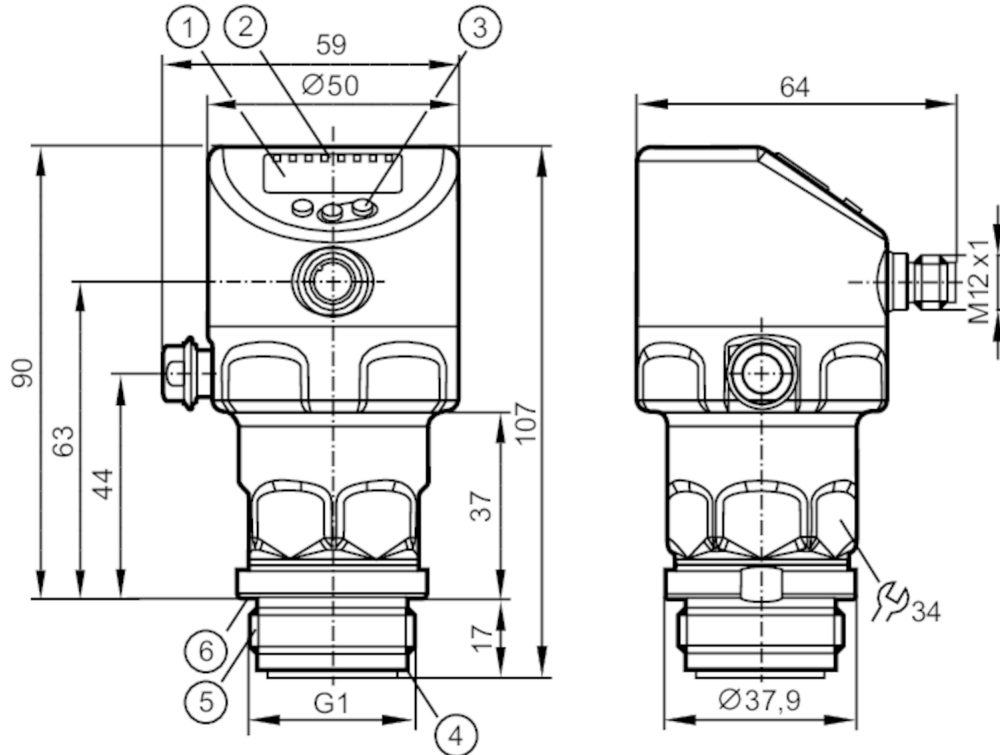




Flush pressure sensor with display

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



- | | | |
|---|--|---------------------|
| 1 | alphanumeric display | 4-digit |
| 2 | status LEDs | |
| 3 | Programming button | |
| 4 | groove for sealing ring | |
| 5 | external thread | G1 Aseptoflex Vario |
| 6 | groove with sealing ring (DIN 3869-33) | |



ACS C

**CRN**

US EC 1

1935/2

004 EI

HEDG

Certifie

ed FCN

IO-Lin

Bank Reg

g31

OK

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 Aseptoflex Vario			

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. bursting 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		
MAWP (for applications according to CRN) [bar]	4		

Electrical data

Min. insulation resistance	[MΩ]	100; (500 V DC)
----------------------------	------	-----------------



Flush pressure sensor with display

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

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
Min. difference between SP and rP	0.0002 bar	0.2 mbar	0.06 inH2O	0.02 kPa
In steps of	0.0001 bar	0.1 mbar	0.01 inH2O	0.01 kPa



Flush pressure sensor with display

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

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)	
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	
Temperature monitoring			
Dynamic response T05 / T09		[s]	< 35 / < 135; (DIN EN 60751 water ; > 0,9 m/s)
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	



Flush pressure sensor with display

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

IO-Link revision	1.1										
SDCI standard	IEC 61131-9										
Profiles	<table> <tr> <th>Function class</th><th>Description</th></tr> <tr> <td>0x4000</td><td>Identification and Diagnosis</td></tr> <tr> <td>0x800A</td><td>Measurement Data Channel (standard resolution)</td></tr> </table>	Function class	Description	0x4000	Identification and Diagnosis	0x800A	Measurement Data Channel (standard resolution)				
Function class	Description										
0x4000	Identification and Diagnosis										
0x800A	Measurement Data Channel (standard 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)	<table> <tr> <th>Function</th><th>bit length</th></tr> <tr> <td>pressure</td><td>32</td></tr> <tr> <td>temperature</td><td>32</td></tr> <tr> <td>device status</td><td>4</td></tr> <tr> <td>binary switching information</td><td>2</td></tr> </table>	Function	bit length	pressure	32	temperature	32	device status	4	binary switching information	2
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										
Supported DeviceIDs	<table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>default</td><td>1158</td></tr> </table>	Type of operation	DeviceID	default	1158						
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										
Note on approval	Factory certificate available as download at www.factory-certificate.ifm										
UL approval	<table> <tr> <td>UL approval number</td><td>J048</td></tr> <tr> <td>File number UL</td><td>E174189</td></tr> </table>	UL approval number	J048	File number UL	E174189						
UL approval number	J048										
File number UL	E174189										
Mechanical data											
Weight [g]	357										
Housing	tubular										
Dimensions [mm]	Ø 50 / L = 107										
Material	stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA										
Materials (wetted parts)	ceramics (99.9 % Al ₂ O ₃); stainless steel (1.4435 / 316L); surface characteristics: Ra < 0,4 / Rz 4; PTFE										
Min. pressure cycles	100 million										
Tightening torque [Nm]	35										
Process connection	threaded connection G 1 external thread Aseptoflex Vario										

PI1789



Flush pressure sensor with display

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

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.

Electrical connection

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

A diagram of an M12 connector with four pins arranged in a circle. The pins are numbered 1, 2, 3, and 4 in a clockwise direction starting from the top-right position. Pin 1 is at the top-right, pin 2 is at the top-left, pin 3 is at the bottom-left, and pin 4 is at the bottom-right.



Flush pressure sensor with display

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

Connection



- 1 connection for 2-wire operation
- 2 connection for 3-wire operation
- OUT1 Switching output / IO-Link
- OUT2 Switching output / analog output
- 3 connection for IO-Link parameter setting (P = communication via IO-Link)

Colors to DIN EN 60947-5-2

Core colors

BK = black
 BN = brown
 BU = blue
 WH = white

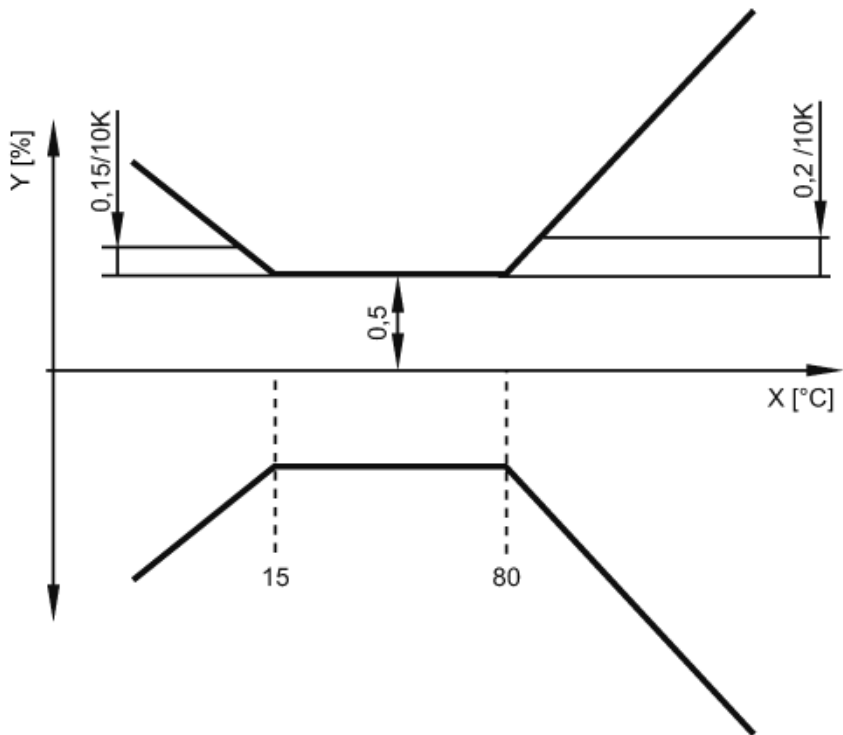
PI1789



Flush pressure sensor with display

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

Diagrams and graphs



X temperature
Y total deviation