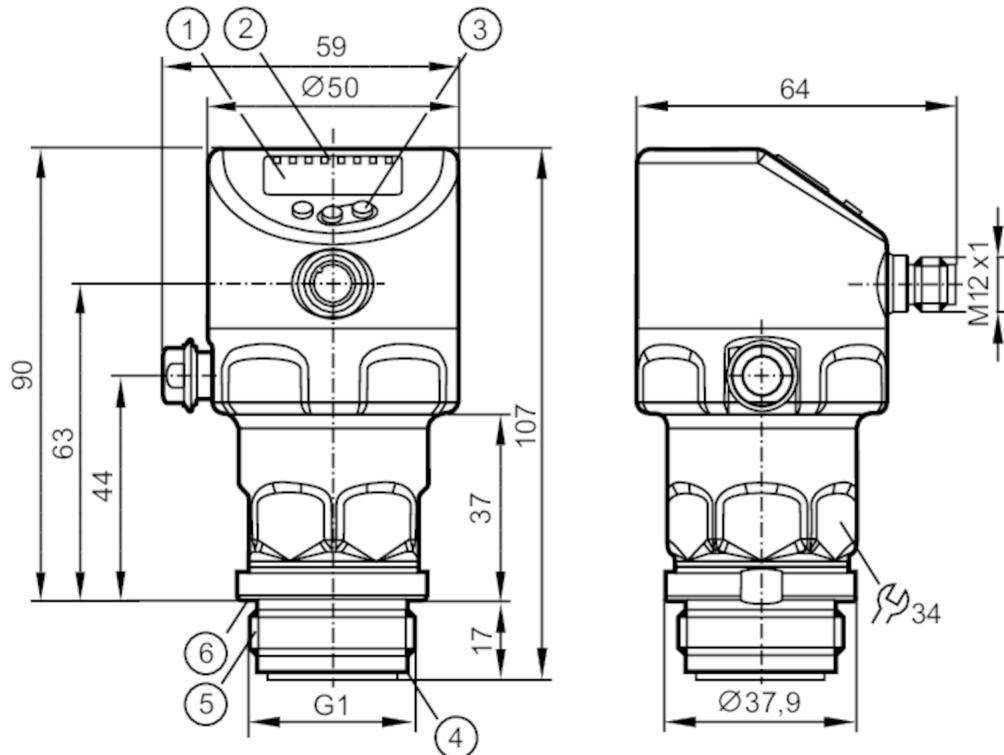


Flush pressure sensor with display

PI-40BREA01-MFRKG/US/ IP



- 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 CRN EC 1935/2004 EHEDG Certified FCM Reg31

Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1		
Measuring range	-50...400 mbar	-20...160.6 inH2O	-5...40 kPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario		

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		
Medium temperature [°C]	-25...150		
Min. bursting pressure	30000 mbar	12044 inH2O	3000 kPa
Pressure rating	8000 mbar	3200 inH2O	800 kPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure; vacuum		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	8		

Electrical data

Min. insulation resistance [MΩ]	100; (500 V DC)		
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Flush pressure sensor with display

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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	-50...400 mbar	-20...160.6 inH ₂ O	-5...40 kPa
Set point SP	-49.4...400 mbar	-19.8...160.6 inH ₂ O	-4.94...40 kPa
Reset point rP	-50...399.4 mbar	-20.1...160.3 inH ₂ O	-5...39.94 kPa
Analogue start point	-50...320 mbar	-20.1...128.5 inH ₂ O	-5...32 kPa
Analogue end point	30...400 mbar	12...160.6 inH ₂ O	3...40 kPa
Min. difference between SP and rP	0.6 mbar	0.3 inH ₂ O	0.06 kPa
In steps of	0.1 mbar	0.1 inH ₂ O	0.01 kPa

Flush pressure sensor with display

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Factory setting	SP1 = 100 mbar SP2 = 300 mbar ASP = 0.00 mbar dAP = 2.00 s	rP1 = 92 mbar rP2 = 292 mbar AEP = 400 mbar 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)	
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 ± 0,1 % of the span / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,15 % 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]	< 35 / < 135; (DIN EN 60751 water ; > 0,9 m/s)	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	

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Flush pressure sensor with display

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IO-Link revision	1.1											
SDCI standard	IEC 61131-9											
Profiles	Identification and Diagnosis (0x4000), Measurement Data Channel (0x800A)											
SIO mode	yes											
Required master port type	A											
Min. process cycle time [ms]	5.6											
IO-Link resolution pressure [mbar]	0.02											
IO-Link resolution temperature [K]	0.2											
IO-Link process data (cyclical)	<table border="1"> <thead> <tr> <th>function</th><th>bit length</th></tr> </thead> <tbody> <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> </tbody> </table> application specific tag; internal temperature; operating hours counter; switching cycles counter; Pressure peak counter		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											
Supported DeviceIDs	Type of operation	DeviceID										
	default	1189										
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	UL Approval no.	J048										
	File number UL	E174189										
Mechanical data												
Weight [g]	356.4											
Materials	stainless steel (316L/1.4404); FKM; PTFE; PBT; PEI; PFA											
Materials (wetted parts)	ceramics (99.9 % Al2O3); stainless steel (316L/1.4435); 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											
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.											

Flush pressure sensor with display

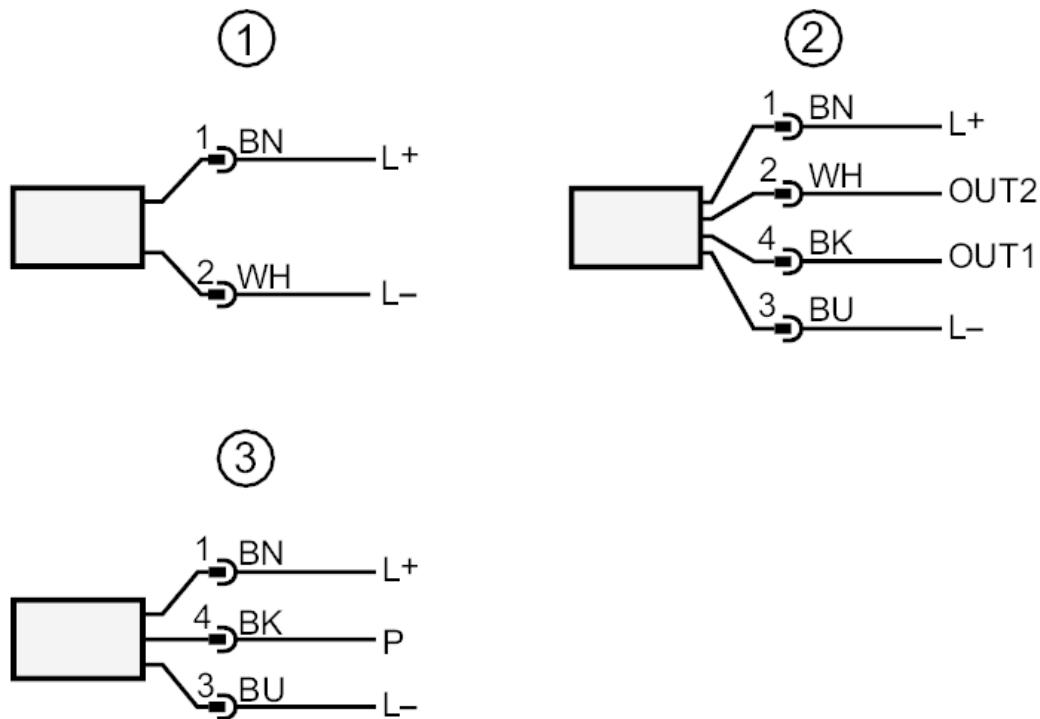
PI-40BREA01-MFRKG/US/ IP

Electrical connection

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



Connection



1	connection for 2-wire operation
2	connection for 3-wire operation
OUT1	switching output / IO-Link
OUT2	switching output / analogue output
3	connection for IO-Link parameter setting (P = communication via IO-Link) colours to DIN EN 60947-5-2 Core colours
BK =	black
BN =	brown
BU =	blue
WH =	white

Flush pressure sensor with display

PI-40BREA01-MFRKG/US/ IP

Diagrams and graphs

ambient temperature influence on
the accuracy

