

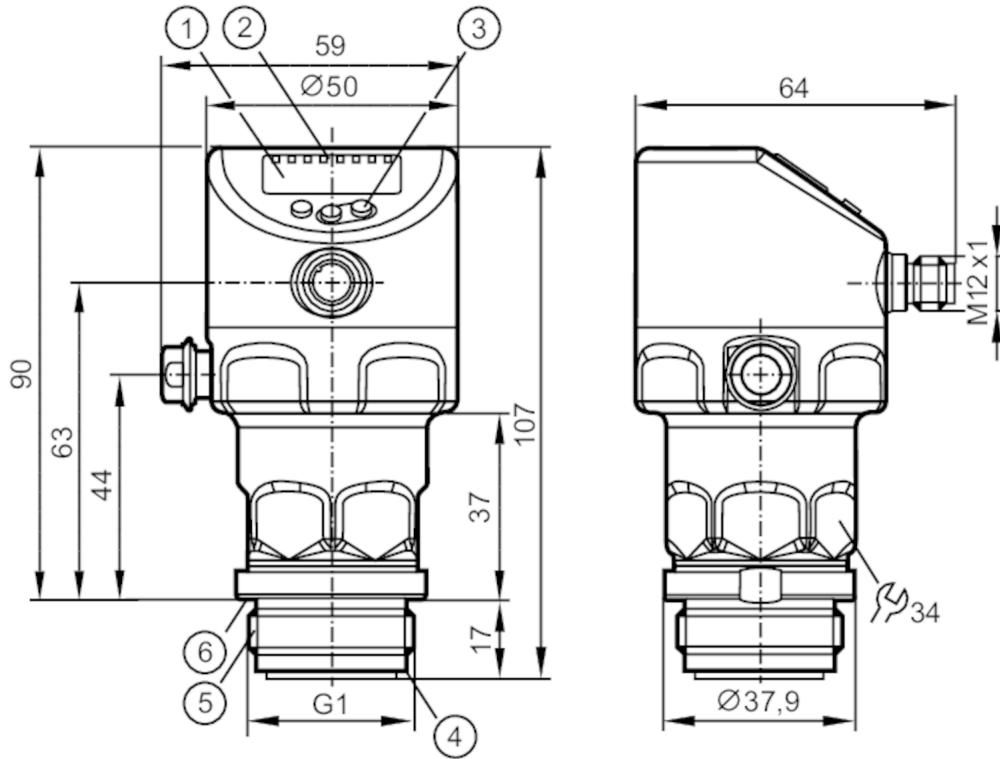
PI1709



Flush pressure sensor with display

PI-1-1BREA01-MFRKG/USI/IP

When selecting an alternative article and accessories please note that technical data may differ!



- 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)



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1			
Measuring range	-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH2O	-100...100 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	435 psi	3000 kPa
Pressure rating	10000 mbar	145 psi	1000 kPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure; vacuum		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	10		



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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 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]	(U _b - 10 V) / 21,5 mA; 650 Ω (U _b = 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
Analogue start point		-1000...599 mbar	-14.5...8.68 psi	-401...240 inH2O	-100...59.9 kPa
Analogue 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 = -500 mbar	rP1 = -540 mbar
	SP2 = 500 mbar	rP2 = 460 mbar
	ASP = -1000 mbar	AEP = 1000 mbar
	dAP = 2.00 s	dAA = 2.00 s

Temperature monitoring

Measuring range	-25...150 °C	-13...302 °F
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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 ± 0,05 % 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

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
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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)
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Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)

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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]	0.1										
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>	function	bit length	pressure	32	temperature	32	device status	4	binary switching information	2
function	bit length										
pressure	32										
temperature	32										
device status	4										
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IO-Link functions (acyclical)	application specific tag; internal temperature; operating hours counter; switching cycles counter; Pressure peak counter										
Supported DeviceIDs	<table border="1"><thead><tr><th>Type of operation</th><th>DeviceID</th></tr></thead><tbody><tr><td>default</td><td>1151</td></tr></tbody></table>	Type of operation	DeviceID	default	1151						
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]	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]	357.5
Materials	stainless steel (316L/1.4404); FKM; PTFE; PBT; PEI; PFA
Materials (wetted parts)	ceramics (99.9 % Al ₂ O ₃); 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; psi; kPa; inH ₂ O	

Remarks	
Pack quantity	1 pcs.

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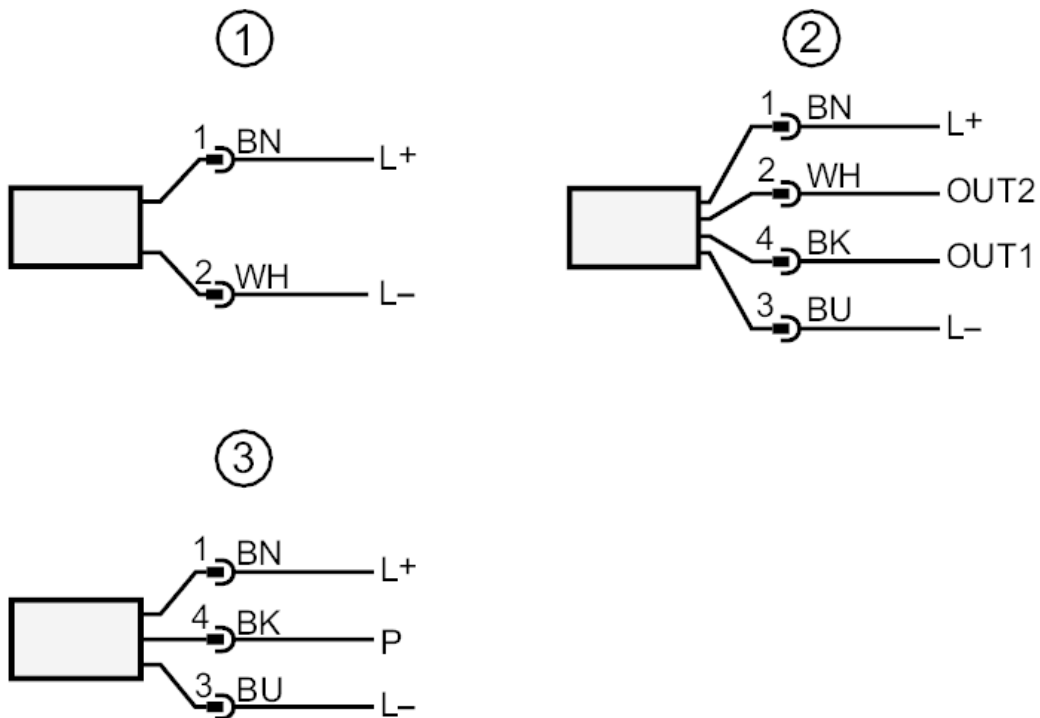
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Electrical connection

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

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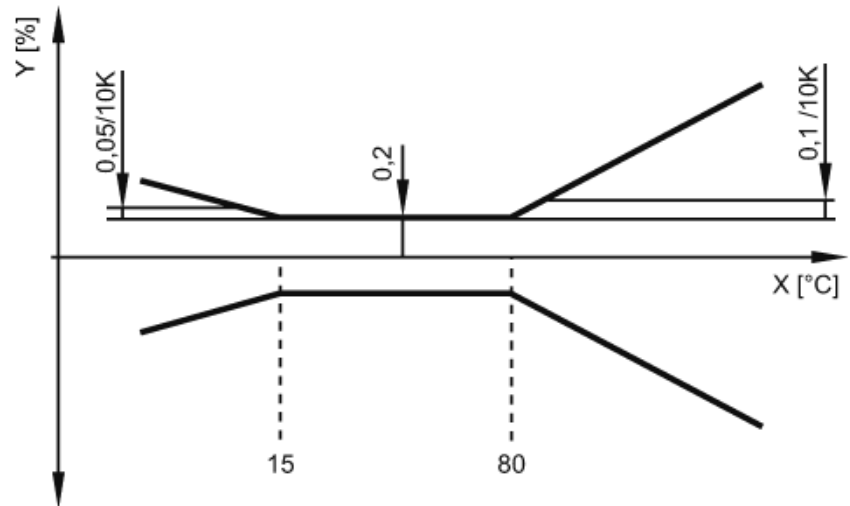


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Diagrams and graphs

ambient temperature influence on the accuracy



X temperature
Y total deviation