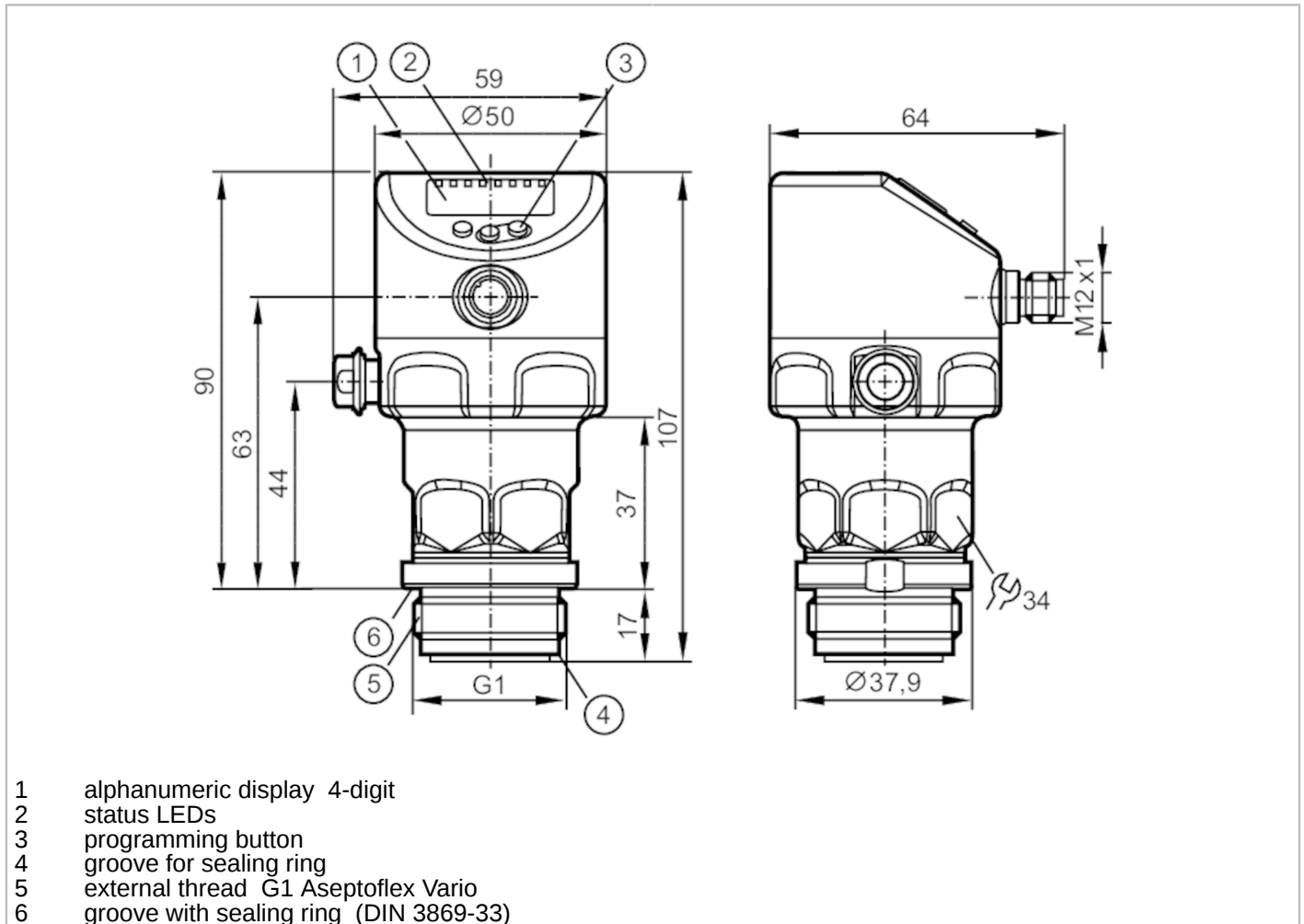


# PI1789



## Flush pressure sensor with display

PI-10BREA01-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)



Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1		
Measuring range	-5...100 mbar	-2...40.15 inH2O	-0.5...10 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	4000 mbar	1606 inH2O	400 kPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure; vacuum		
No dead space	yes		



## Flush pressure sensor with display

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

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 <sub>b</sub> - 10 V) / 21,5 mA; 650 Ω (U <sub>b</sub> = 24 V)



## Flush pressure sensor with display

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

Measuring/setting range			
Measuring range	-5...100 mbar	-2...40.15 inH2O	-0.5...10 kPa
Set point SP	-4.9...100 mbar	-1.95...40.15 inH2O	-0.49...10 kPa
Reset point rP	-5...99.9 mbar	-2.01...40.09 inH2O	-0.5...9.99 kPa
Analogue start point	-5...80 mbar	-2.01...32.12 inH2O	-0.5...8 kPa
Analogue end point	15...100 mbar	6.02...40.15 inH2O	1.5...10 kPa
Min. difference between SP and rP	0.2 mbar	0.06 inH2O	0.02 kPa
In steps of	0.1 mbar	0.01 inH2O	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			
Notes on the accuracy / deviation	for further details see section Diagrams and graphs		
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 % der Spanne / 10 K	
	15...80 °C	Characteristics deviation ± 0,2 % der Spanne / 10 K	
80...150 °C	Characteristics deviation ± 0,2 % der Spanne / 10 K		
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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## Flush pressure sensor with display

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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)
Interfaces		
Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
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]	0.005
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	
Supported DeviceIDs	Type of operation	DeviceID
	Default	1158 d
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 <a href="http://www.factory-certificate.ifm">www.factory-certificate.ifm</a>	
Mechanical data		
Weight	[g]	356
Materials	stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA	
Materials (wetted parts)	ceramics (99.9 % Al2O3); 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	

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## Flush pressure sensor with display

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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.

### Electrical connection

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

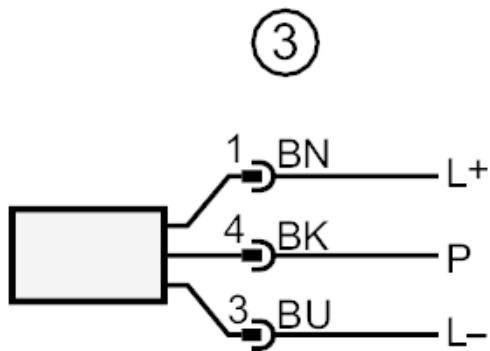
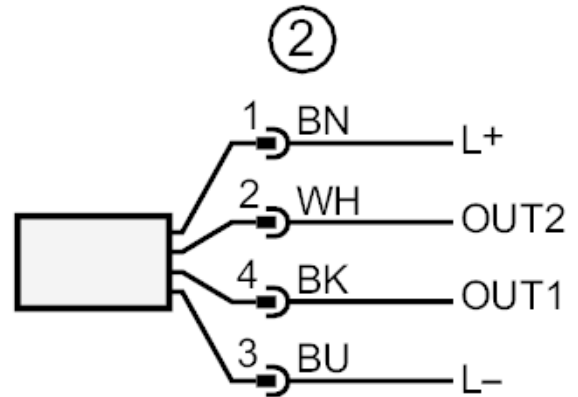
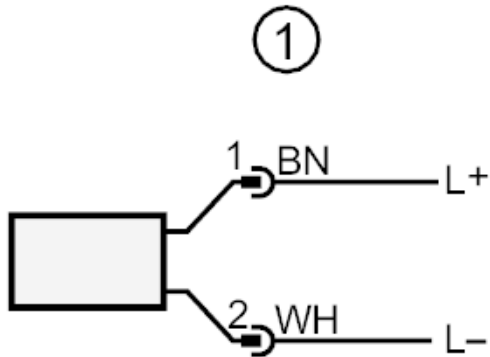




## Flush pressure sensor with display

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 / analogue output
- 3 connection for IO-Link parameter setting (P = communication via IO-Link)

colours to DIN EN 60947-5-2

Core colours

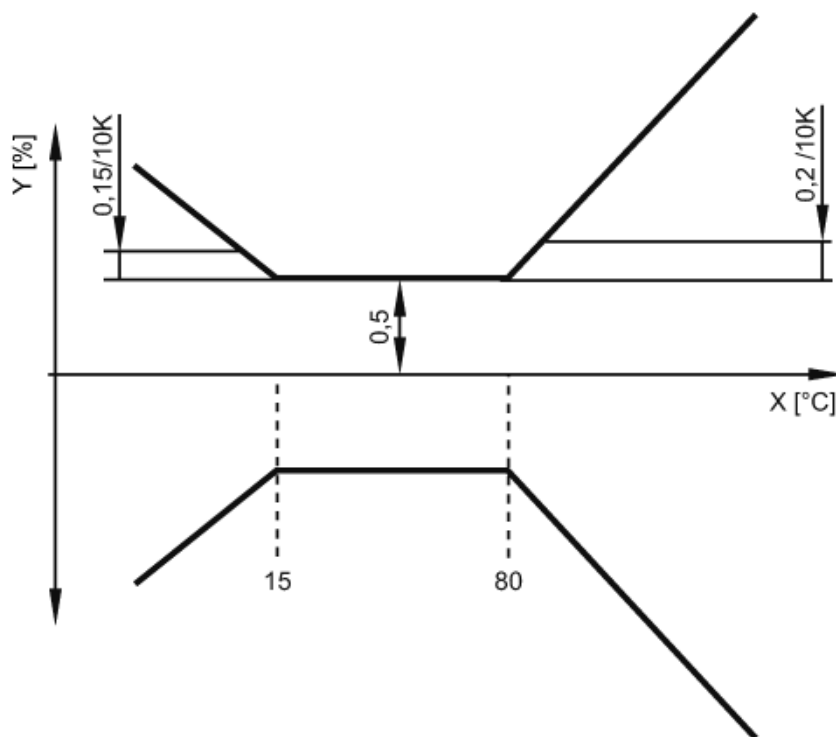
- BK = black
- BN = brown
- BU = blue
- WH = white



## Flush pressure sensor with display

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### Diagrams and graphs



X temperature  
Y total deviation