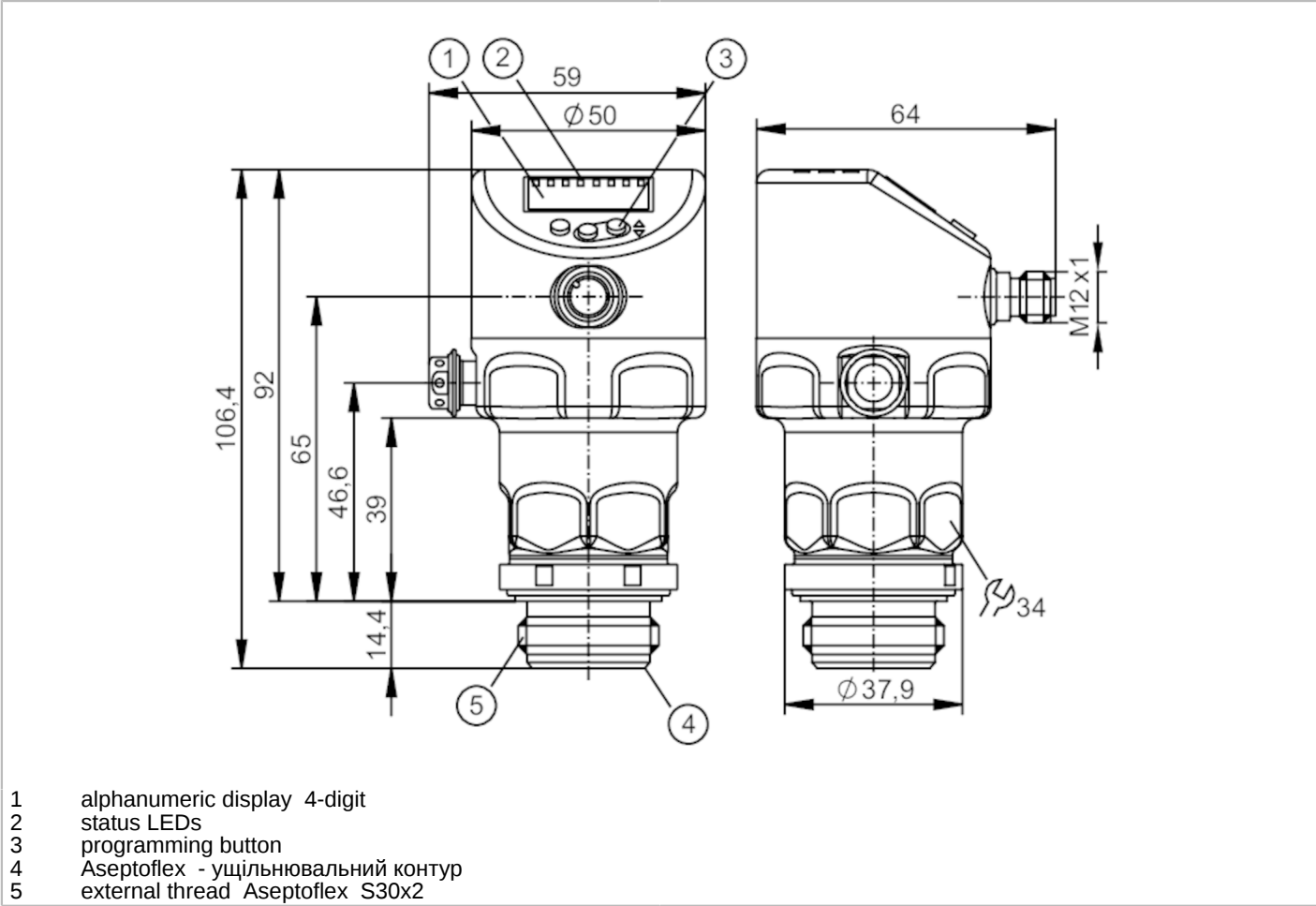




Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

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



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 S30x2 external thread Aseptoflex			
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	-25...150			
Min. bursting pressure	30000 mbar	435 psi	3000 kPa	
Pressure rating	10000 mbar	145 psi	1000 kPa	
Vacuum resistance	-1000			
Type of pressure	relative pressure; vacuum			
No dead space	yes			
Electrical data				
Min. insulation resistance	100; (500 V DC)			



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	-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



Flush pressure sensor with display

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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	[X21]	< ± 0,2; (DIN EN IEC 62828-1; Turn down 1:1)	
Repeatability	[X21]	< ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)	
Characteristics deviation	[X21]	< ± 0,2; (DIN IEC EN 62828-1 incl. zero point and span error, non-linearity, hysteresis; Turn down 1:1)	
Linearity deviation	[X21]	< ± 0,15; (Turn down 1:1)	
Hysteresis deviation	[X21]	< ± 0,15; (Turn down 1:1)	
Long-term stability	[X21]	< ± 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	
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		



Flush pressure sensor with display

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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)	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	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 [ANN]	201	
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]	348.8	
Materials	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]	25	
Process connection	threaded connection S30x2 external thread Aseptoflex	

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



Flush pressure sensor with display

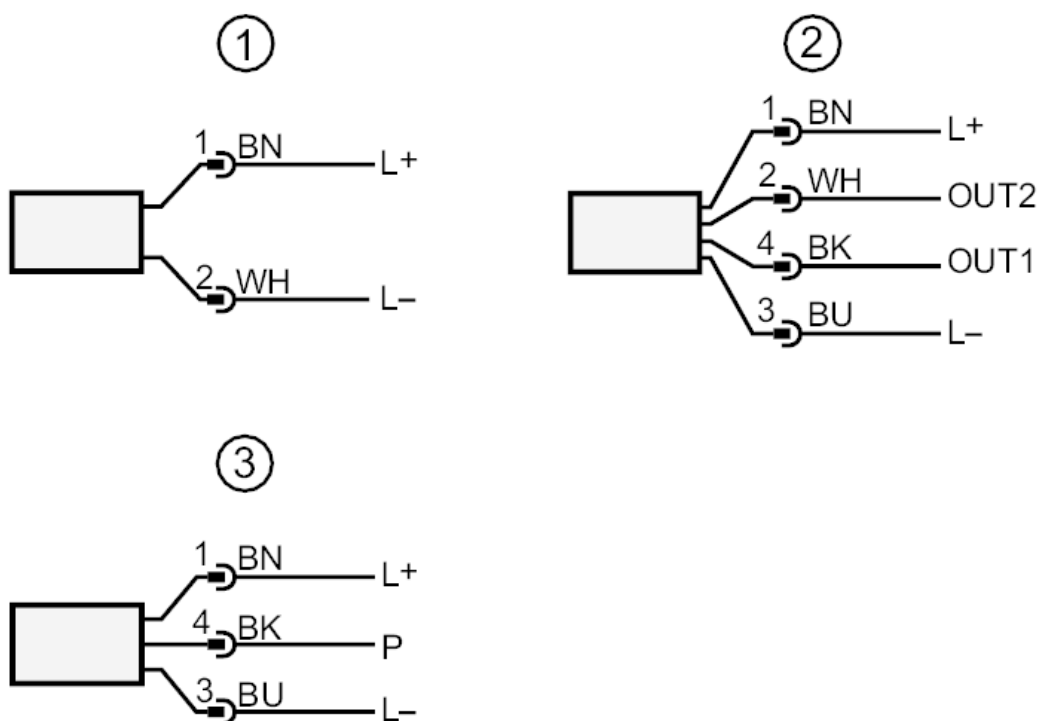
PI-1-1BREA01-MFRKG/US/ /P

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

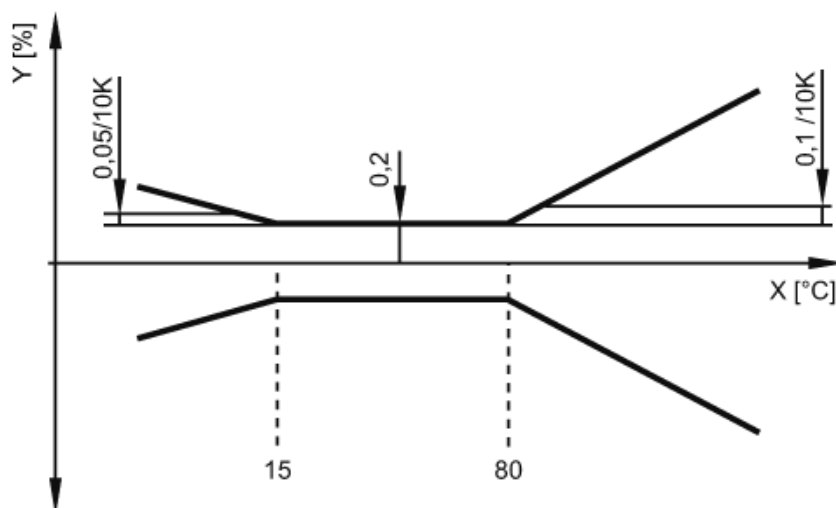


Flush pressure sensor with display

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Diagrams and graphs

ambient temperature influence on the accuracy



X temperature
Y total deviation