PI1707
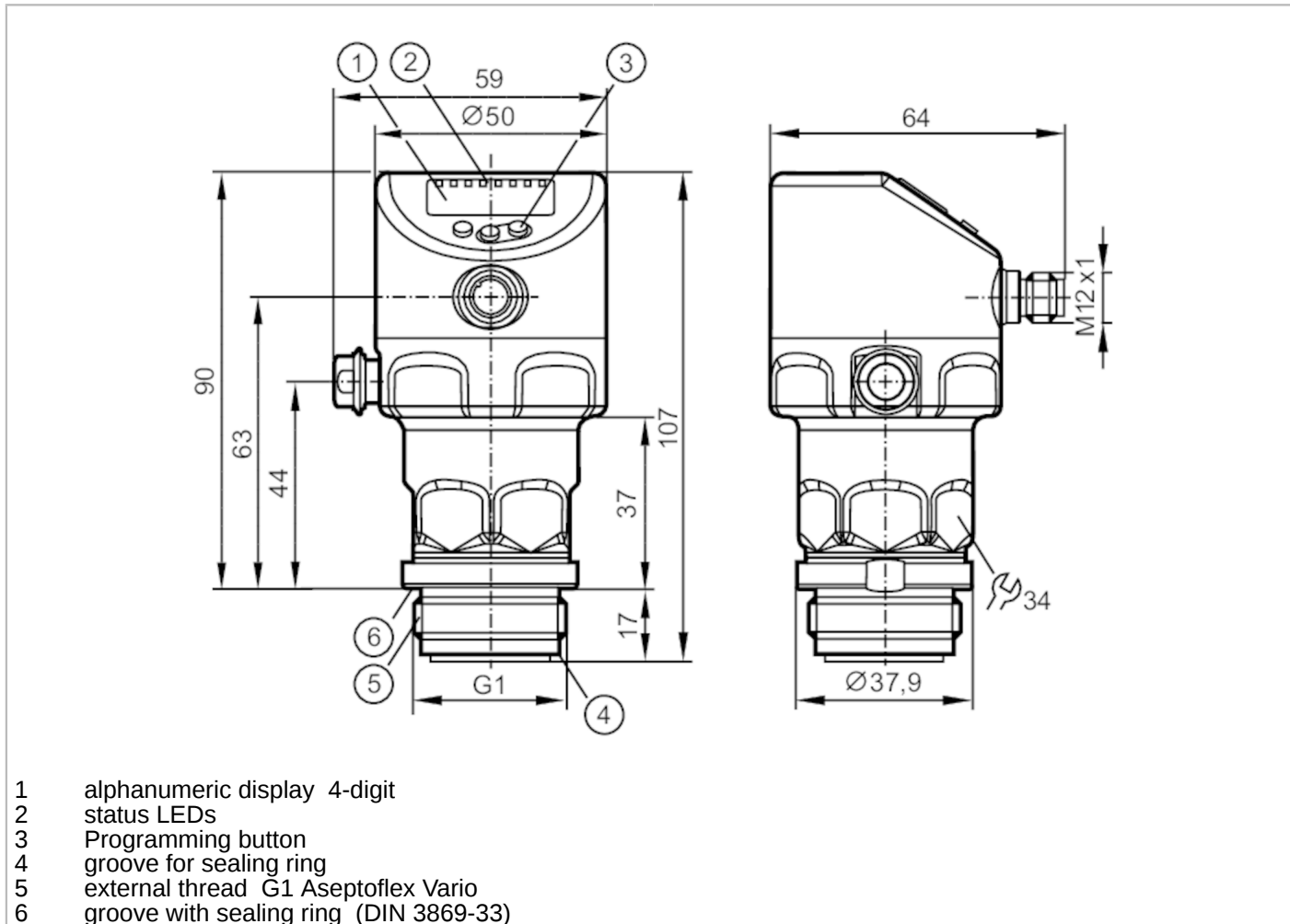
Flush pressure sensor with display

PI-001BREA01-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)

A3 ACS CE cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link Reg31 UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-50...1000 mbar	-0.72...14.5 psi	-20...401.5 inH2O	-5...100 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	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		

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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 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)

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Measuring/setting range				
Measuring range	-50...1000 mbar	-0.72...14.5 psi	-20...401.5 inH2O	-5...100 kPa
Set point SP	-49...1000 mbar	-0.7...14.5 psi	-19.5...401.5 inH2O	-4.9...100 kPa
Reset point rP	-50...999 mbar	-0.73...14.48 psi	-20.1...400.9 inH2O	-5...99.9 kPa
Analog start point	-50...800 mbar	-0.73...11.6 psi	-20.1...321.2 inH2O	-5...80 kPa
Analog end point	150...1000 mbar	2.18...14.5 psi	60.2...401.5 inH2O	15...100 kPa
Min. difference between SP and rP	2 mbar	0.03 psi	0.6 inH2O	0.2 kPa
In steps of	1 mbar	0.01 psi	0.1 inH2O	0.1 kPa
Factory setting			SP1 =250 mbar	rP1 = 230 mbar
			SP2 = 750 mbar	rP2 = 730 mbar
			ASP = 0.00 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 [% 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)

	Temperature range	total deviation
Total deviation over temperature range	-25...15 °C	Characteristics deviation ± 0,05 % der Spanne / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,1 % der Spanne / 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

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Flush pressure sensor with display

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)
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 class		A
Min. process cycle time	[ms]	5.6
IO-Link resolution pressure	[mbar]	0.05
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	1153d

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 number	J048
	File number UL	E174189

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Mechanical data		
Weight [g]	356.9	
Material	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	

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; inH2O	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

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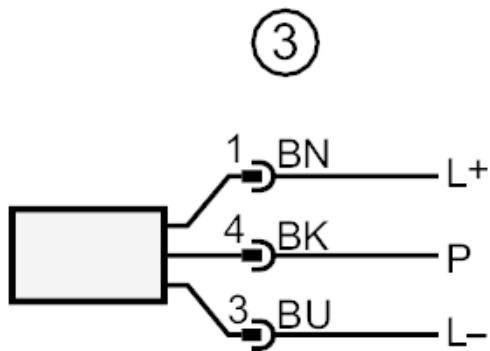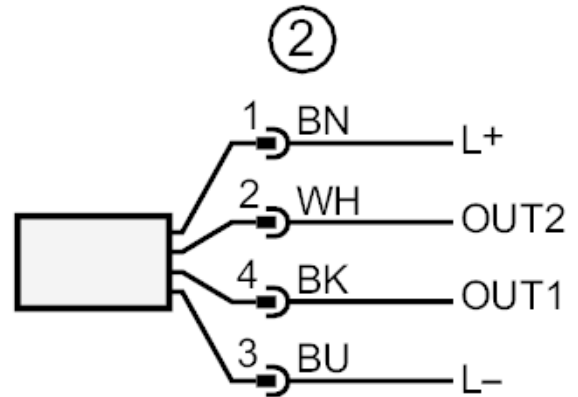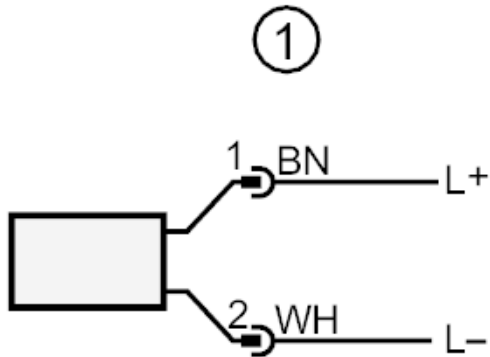
|	
1	connection for 2-wire operation
2	connection for 3-wire operation
OUT1	Switching output / IO-Link
OUT2	Switching output / analog output
3	connection for IO-Link parameter setting (P = communication via IO-Link)
	Colors to DIN EN 60947-5-2
	Core colors
BK =	black
BN =	brown
BU =	blue
WH =	white

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Diagrams and graphs

ambient temperature influence on the accuracy
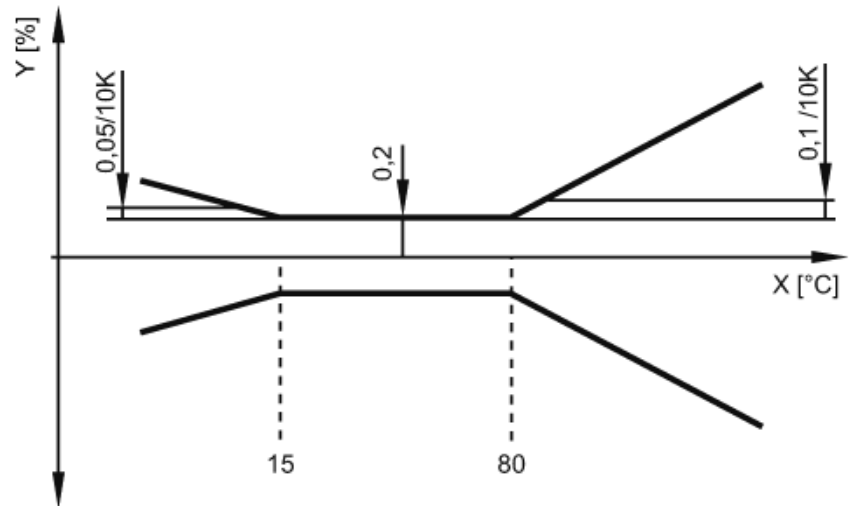
X   temperature

Y   total deviation