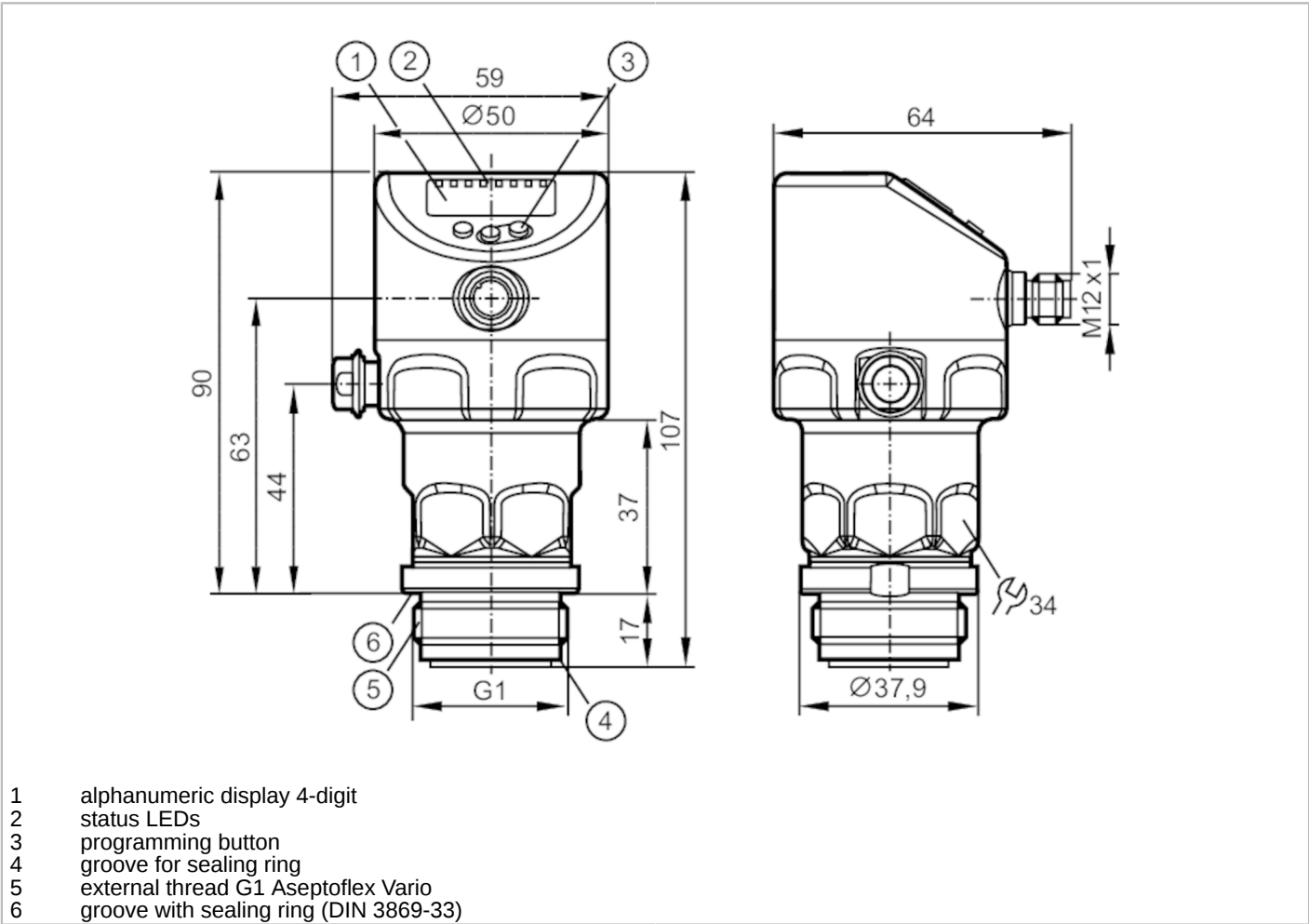




Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P



ACS CRN LISTED EC 1935/2004 EHEDG Certified FCM CN FCM JP

Reg31 TSDP/TÜV

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1			
Measuring range	-0.05...0.4 bar	-50...400 mbar	-20...160.6 inH2O	-5...40 kPa
Process connection	threaded connection G 1 external thread with Aseptoflex Vario sealing contour			
Note	G1 Gewinde nach ISO 228. Alternativ dichtend über rückwärtige Dichtkontur mit Dichtung in Anlehnung an DIN EN ISO 1179-2.			
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. burst pressure	30000 mbar	12044 inH2O	3000 kPa	
Pressure rating	8000 mbar	3200 inH2O	800 kPa	
Vacuum resistance	-1000 mbar		-0.1 MPa	
Type of pressure	relative pressure; vacuum			
No dead space	yes			



Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

MAWP for applications according to CRN	[bar]	8			
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)			
Measuring/setting range					
Measuring range		-0.05...0.4 bar	-50...400 mbar	-20...160.6 inH2O	-5...40 kPa
Set point SP		-49.4...400 mbar	-19.8...160.6 inH2O	-4.94...40 kPa	
Reset point rP		-50...399.4 mbar	-20.1...160.3 inH2O	-5...39.94 kPa	
Analogue start point		-50...320 mbar	-20.1...128.5 inH2O	-5...32 kPa	
Analogue end point		30...400 mbar	12...160.6 inH2O	3...40 kPa	



Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

Min. difference between SP and rP	0.6 mbar	0.3 inH2O	0.06 kPa
In steps of	0.1 mbar	0.1 inH2O	0.01 kPa
Factory setting		SP1 = 100 mbar	rP1 = 92 mbar
		SP2 = 300 mbar	rP2 = 292 mbar
		ASP = 0.00 mbar	AEP = 400 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)	
Zero-point stabilisation [% of the span]	IO-Link, analogue output	0,15; (see operating instructions zero-point behaviour)
	display, switching output	0,2
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



Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

Temperature monitoring		
Dynamic response T05 / T09	[s]	< 45 / < 200; (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	Common - I&D	Identification and Diagnosis
	Function	Measurement data, high resolution
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)	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; measuring cell diagnosis	
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
UL approval	UL approval no.	J048
	File number UL	E174189
Mechanical data		
Weight	[g]	356.4
Housing	cylindrical	
Dimensions	[mm]	Ø 50 / L = 107
Materials	Housing: stainless steel (316L/1.4404); pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)	measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (316L/1.4435) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; Sealing: PTFE	
Min. pressure cycles	100 million	
Tightening torque	[Nm]	35
Process connection	threaded connection G 1 external thread with Aseptoflex Vario sealing contour	

PI1718



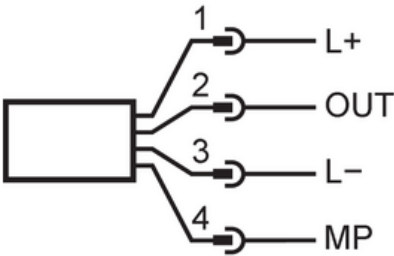
Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

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: 4, gold-plated	
	

Connection	
	

2-wire			
1	L+		
2	OUT	AO	

3-wire			
1	L+		
2	OUT	DO2 (NO/NC), AO	
3	L-		
4	MP	DO1 (NO/NC), IO-Link	

parameter setting			
1	L+		
3	L-		
4	MP	IO-Link	

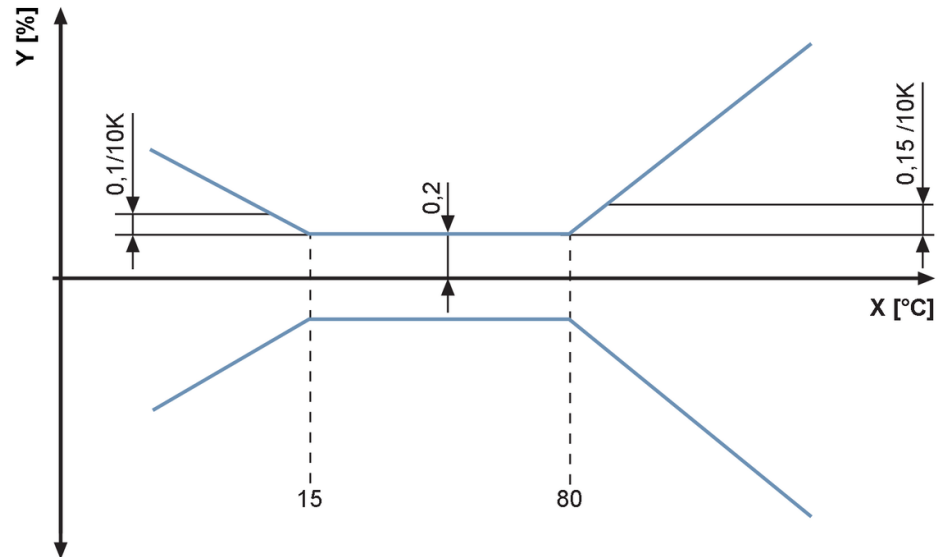


Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



X temperature
Y total deviation