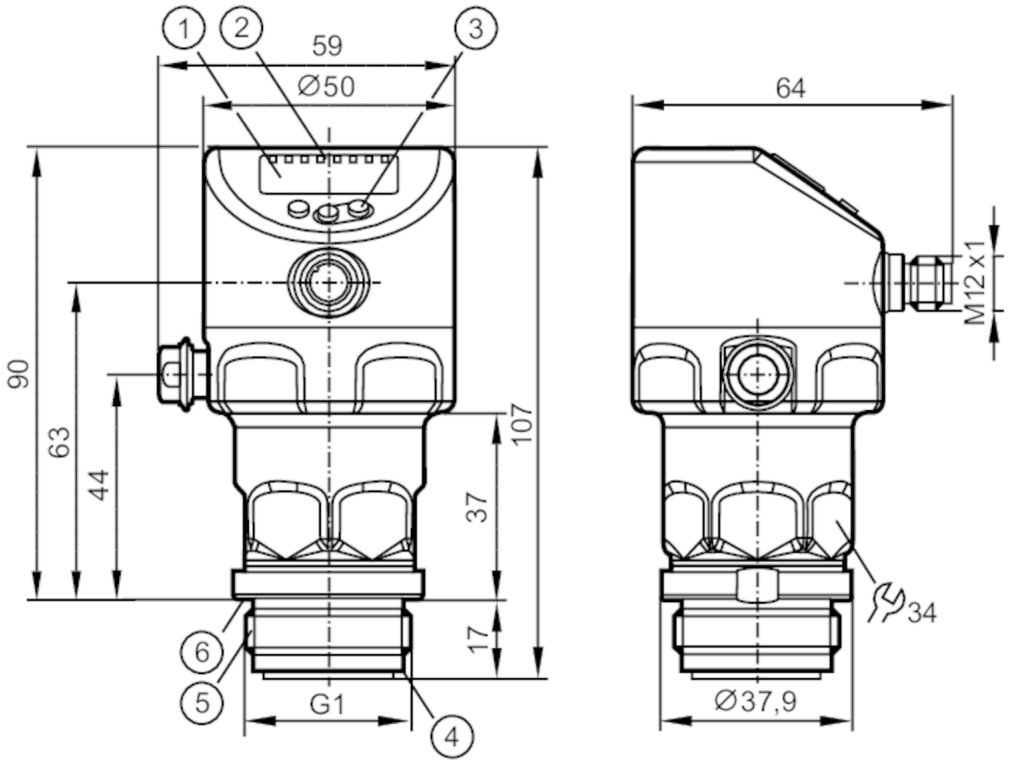
PI1714

Flush pressure sensor with display

PI-016-REA01-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)

ACS EC 1935/2004 EHEDG Certified FCM IO-Link Reg31

Product characteristics				
Number of inputs and outputs		Number of digital outputs: 2; Number of analogue outputs: 1		
Measuring range		-1...16 bar	-14.6...232 psi	-0.1...1.6 MPa
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		250 bar	3625 psi	25 MPa
Pressure rating		75 bar	1085 psi	7.5 Mpa
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 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)

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Measuring/setting range			
Measuring range	-1...16 bar	-14.6...232 psi	-0.1...1.6 MPa
Set point SP	-0.98...16 bar	-14.2...232.1 psi	-0.098...1.6 MPa
Reset point rP	-1...15.98 bar	-14.5...231.7 psi	-0.1...1.598 MPa
Analogue start point	-1...12.8 bar	-14.5...185.6 psi	-0.1...1.28 MPa
Analogue end point	2.2...16 bar	31.9...232.1 psi	0.22...1.6 MPa
Min. difference between SP and rP	0.03 bar	0.4 psi	0.003 MPa
In steps of	0.01 bar	0.1 psi	0.001 MPa
Factory setting		SP1 = 4.00bar	rP1 = 3.68 bar
		SP2 = 12.00 bar	rP2 = 11.68 bar
		ASP = 0.00 bar	AEP = 16.00 bar
		dAP = 0.06 s	dAA = 0.06 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]	< ± 0,2; (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 % der Spanne / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,1 % 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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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	[bar]	0.0005	
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	1147 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 www.factory-certificate.ifm	
Mechanical data			
Weight	[g]	357.8	
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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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	bar; psi; MPa	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

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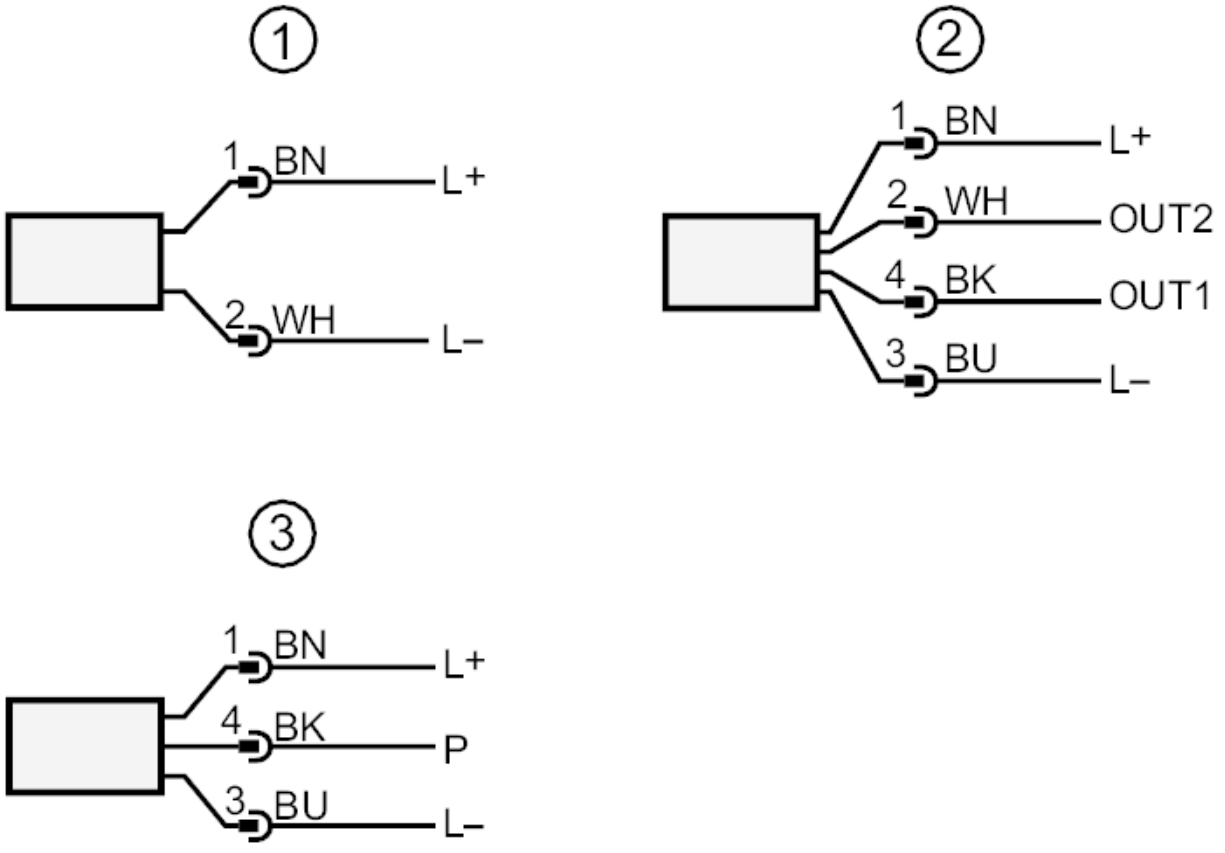
Connection



1	connection for 2-wire operation
2	connection for 3-wire operation
OUT1	switching output / IO-Link
OUT2	switching output / 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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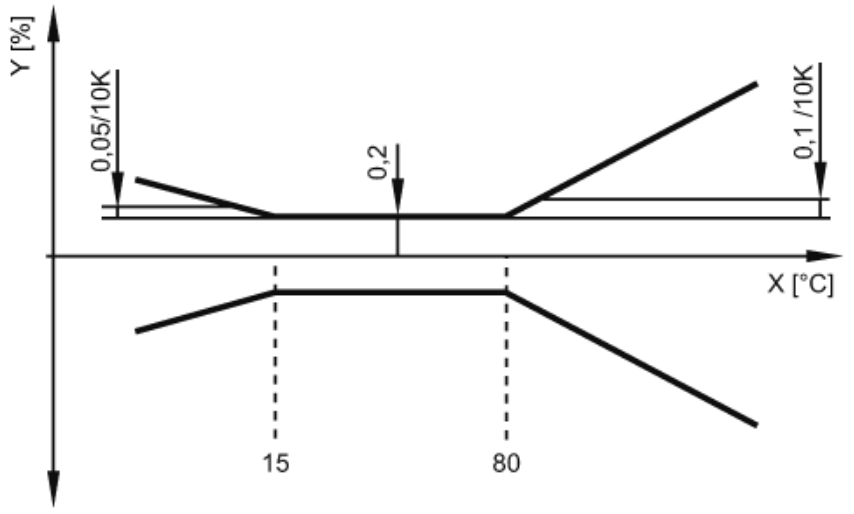
Diagrams and graphs

ambient temperature influence on the accuracy



X temperature

Y total deviation