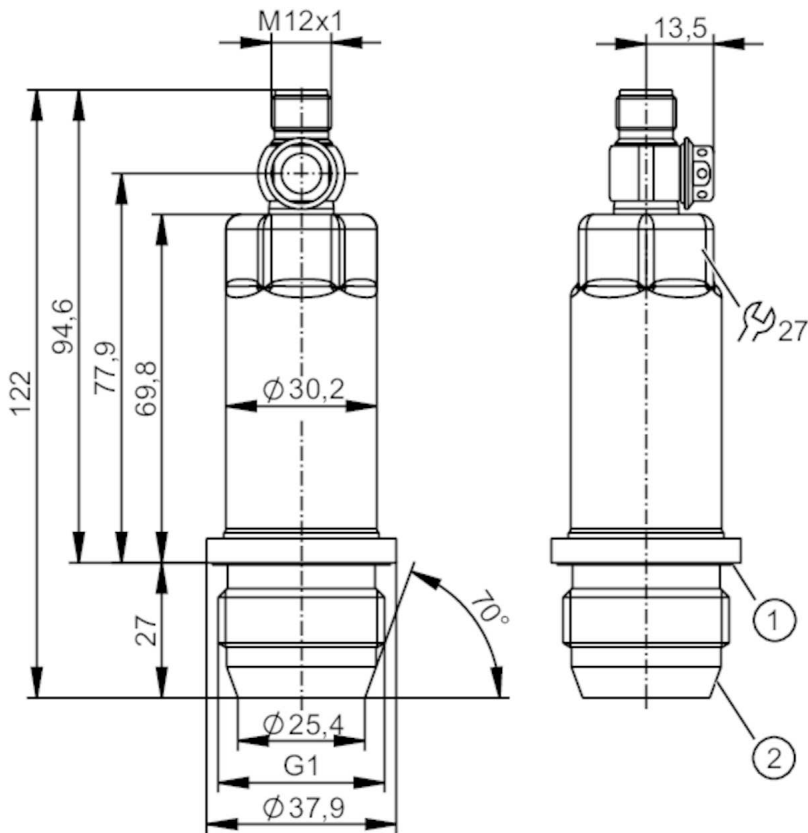# PM1603

Flush pressure sensor

PM-025-REA01-E-ZVG/US

1   groove with sealing ring (DIN EN ISO 1179-2)
2   G1 sealing cone external thread

A3 ACS CE CRN c(UL)us LISTED EC 1935/2004 EHEDG Tested FCM FDA IO-Link Reg31 UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 1; Number of analog outputs: 1		
Measuring range	-1...25 bar	-14.6...362.6 psi	-0.1...2.5 MPa
Process connection	threaded connection G 1 external thread sealing cone		

Application			
System	gold-plated contacts		
Measuring element	ceramic-capacitive pressure measuring cell		
Temperature monitoring	no		
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	350 bar	5075 psi	35 MPa
Pressure rating	100 bar	1450 psi	10 MPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure; vacuum		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	45		

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Electrical data		
Operating voltage	[V]	18...30 DC
Min. insulation resistance	[MΩ]	100; (500 V DC)
Protection class		III
Reverse polarity protection		yes
Integrated watchdog		yes
2-wire		
Current consumption	[mA]	3.5...21.5
Power-on delay time	[s]	1
3-wire		
Current consumption	[mA]	< 45
Power-on delay time	[s]	0.5

Inputs / outputs	
Number of inputs and outputs	Number of digital outputs: 1; Number of analog outputs: 1

Outputs	
Total number of outputs	2
Output signal	analog signal; IO-Link; (configurable)
Number of digital outputs	1; (IO-Link)
Number of analog outputs	1
Analog current output	[mA]	4...20; (scalable)
Max. load	[Ω]	700; (Ub = 24 V; (Ub - 9 V) / 21.5 mA)
Short-circuit proof	yes
Overload protection	yes

Measuring/setting range			
Measuring range	-1...25 bar	-14.6...362.6 psi	-0.1...2.5 MPa
Analog start point	-1...20 bar	-14.6...290 psi	-0.1...2 MPa
Analog end point	4...25 bar	58...362.6 psi	0.4...2.5 MPa
In steps of	0.01 bar	0.2 psi	0.001 MPa
Factory setting	ASP = 0.00 bar	AEP = 25.00 bar	

Accuracy / deviations	
Repeatability [% of the span]	< ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)
Characteristics deviation [% of the span]	< ± 0,2; (linearity incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1)
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 % of the span / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,1 % of the span / 10 K

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Notes on the accuracy / deviation		for further details see section Diagrams and graphs
Reaction times		
Damping for the analog output dAA	[s]	0...4
2-wire		
Step response time analog output	[ms]	30
3-wire		
Step response time analog output	[ms]	7
Interfaces		
Communication interface		IO-Link
Transmission type		COM2 (38,4 kBaud)
IO-Link revision		1.1
SDCI standard		IEC 61131-9
Profiles		Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000)
SIO mode		no
Required master port class		A
Process data analog		3
Min. process cycle time	[ms]	3.2
IO-Link resolution pressure	[bar]	0.005

IO-Link process data (cyclical)	**Function**	**bit length**
	pressure	16
	device status	4

IO-Link functions (acyclical)	application specific tag; internal temperature	

Supported DeviceIDs	**Type of operation**	**DeviceID**
	default	660

Operating conditions		
Ambient temperature	[°C]	-25...80
Storage temperature	[°C]	-40...100
Protection		IP 67; IP 68; IP 69K

Tests / approvals		
EMC	DIN EN 61000-6-2	
	DIN EN 61000-6-3	
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]	323
Note on approval	Factory certificate available as download at www.factory-certificate.ifm	
UL approval	UL approval number	J022

Mechanical data		
Weight	[g]	340.1
Material		stainless steel (1.4404 / 316L); PBT
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

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Tightening torque	[Nm]	20
Process connection		threaded connection G 1 external thread sealing cone

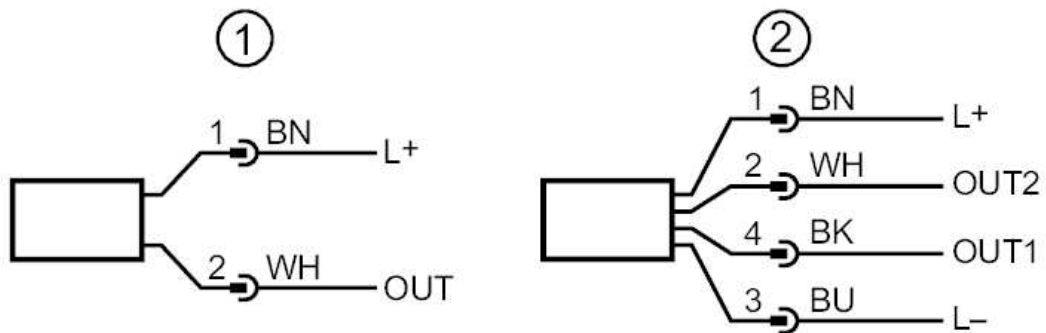| Remarks	
Pack quantity	1 pcs.

Electrical connection

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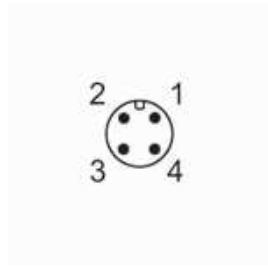
Connection

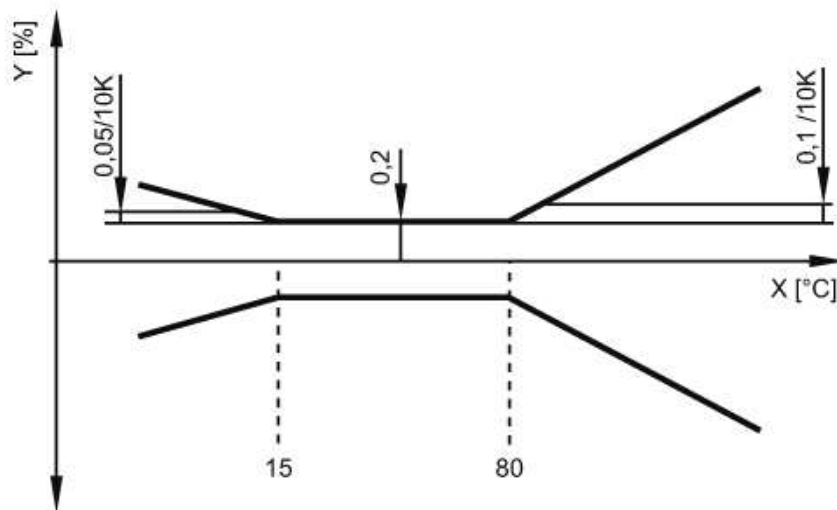| 1	connection for 2-wire operation (analog)
2	connection for 3-wire operation (analog / IO-Link)
	OUT1 : IO-Link
	OUT2 : analog output

PM1603
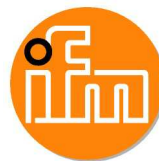
Flush pressure sensor

Diagrams and graphs

ambient temperature influence on
the accuracy

X   temperature

Y   total deviation