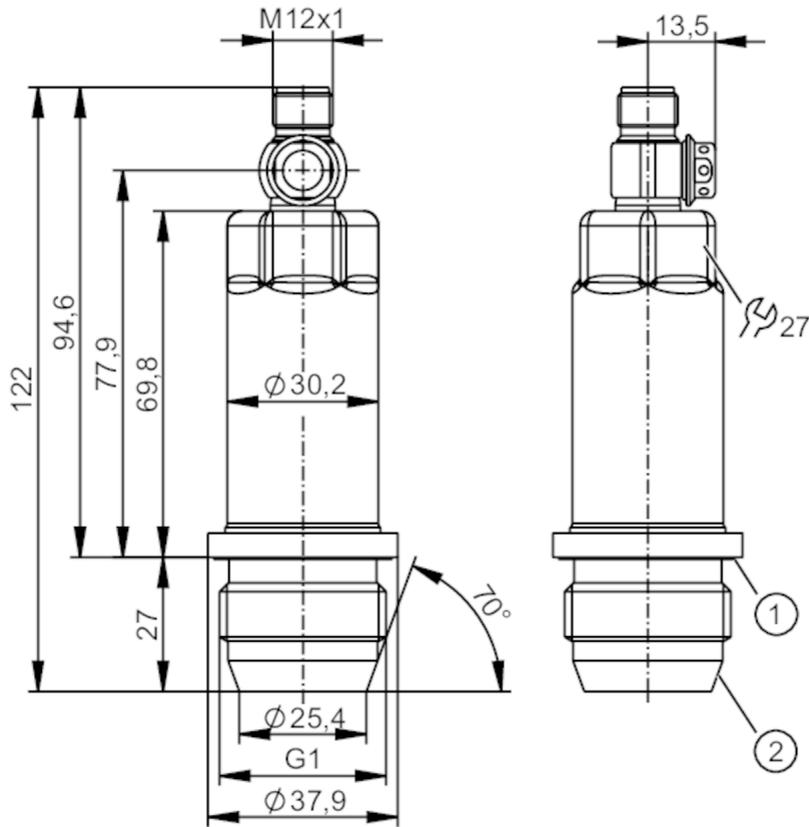


# PM1689



## Flush pressure sensor

PM-,10BREA01-E-ZVG/US



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



ACS



CRN



EC 1935/2004

FCM



Reg31



### Product characteristics

Number of inputs and outputs	Number of digital outputs: 1; Number of analog outputs: 1			
Measuring range	-0.005...0.1 bar	-5...100 mbar	-0.073...1.45 psi	-0.5...10 kPa
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. burst pressure	30000 mbar	435 psi	3000 kPa
Pressure rating	4000 mbar	58 psi	400 kPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	4		

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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; (U <sub>b</sub> = 24 V; (U <sub>b</sub> - 9 V) / 21.5 mA)								
Short-circuit proof	yes								
Overload protection	yes								
Measuring/setting range									
Measuring range	-0.005...0.1 bar    -5...100 mbar    -0.073...1.45 psi    -0.5...10 kPa								
Analog start point	-5...80 mbar    -0.073...1.16 psi    -0.5...8 kPa								
Analog end point	15...100 mbar    0.218...1.45 psi    1.5...10 kPa								
In steps of	0.05 mbar    0.001 psi    0.005 kPa								
Factory setting	ASP = 0.0 mbar    AEP = 100 mbar								
Accuracy / deviations									
Repeatability [% of the span]	< ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)								
Characteristics deviation [% of the span]	< ± 0,5; (linearity incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1)								
Linearity deviation [% of the span]	< ± 0,25; (Turn down 1:1)								
Hysteresis deviation [% of the span]	< ± 0,2; (Turn down 1:1)								
Long-term stability [% of the span]	< ± 0,1; (Turn down 1:1; per year)								
Total deviation over temperature range	<table border="1"> <thead> <tr> <th>Temperature range</th> <th>total deviation</th> </tr> </thead> <tbody> <tr> <td>-25...15 °C</td> <td>Characteristics deviation ± 0,15 % of the span / 10 K</td> </tr> <tr> <td>15...80 °C</td> <td>Characteristics deviation</td> </tr> <tr> <td>80...150 °C</td> <td>Characteristics deviation ± 0,2 % of the span / 10 K</td> </tr> </tbody> </table>	Temperature range	total deviation	-25...15 °C	Characteristics deviation ± 0,15 % of the span / 10 K	15...80 °C	Characteristics deviation	80...150 °C	Characteristics deviation ± 0,2 % 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
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#### 2-wire

Step response time analog output	[ms]	30
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#### 3-wire

Step response time analog output	[ms]	7
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### Interfaces

Communication interface	IO-Link
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Transmission type	COM2 (38,4 kBaud)
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IO-Link revision	1.1
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SDCI standard	IEC 61131-9
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Profiles	Smart Sensor - SSP 3.1	Measuring Sensor
	Common - I&D	Identification and Diagnosis

SIO mode	no
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Required master port class	A
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Process data analog	3
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Min. process cycle time	[ms]	3.2
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IO-Link resolution pressure	[mbar]	0.02
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IO-Link process data (cyclical)	Function	bit length
	pressure	16
	device status	4

IO-Link functions (acyclical)	application specific tag; internal temperature
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Supported DeviceIDs	Type of operation	DeviceID
	default	670

### Operating conditions

Ambient temperature	[°C]	-25...80
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Storage temperature	[°C]	-40...100
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Protection	IP 67; IP 68; IP 69K
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### Tests / approvals

EMC	DIN EN 61000-6-2	
	DIN EN 61000-6-3	

Shock resistance	DIN EN 60068-2-27	50 g (11 ms)
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Vibration resistance	DIN EN 60068-2-6	20 g (10...2000 Hz)
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MTTF	[years]	323
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Note on approval	Factory certificate available as download at <a href="http://www.factory-certificate.ifm">www.factory-certificate.ifm</a>
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UL approval	UL approval number	J022
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### Mechanical data

Weight	[g]	337.4
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Housing	tubular
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Dimensions	[mm]	Ø 30.2 / L = 122
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Material	stainless steel (1.4404 / 316L); PBT
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## Flush pressure sensor

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Materials (wetted parts)	ceramics (99.9 % Al <sub>2</sub> O <sub>3</sub> ); stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; PTFE
Min. pressure cycles	100 million
Tightening torque [Nm]	20
Process connection	threaded connection G 1 external thread sealing cone

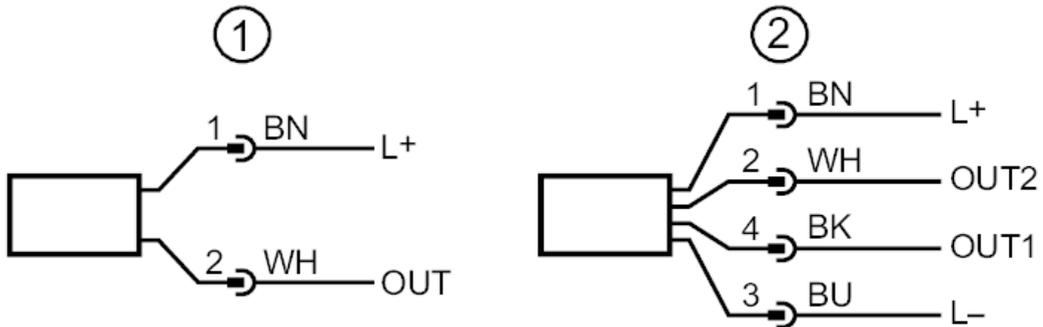
Remarks	
Pack quantity	1 pcs.

### 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

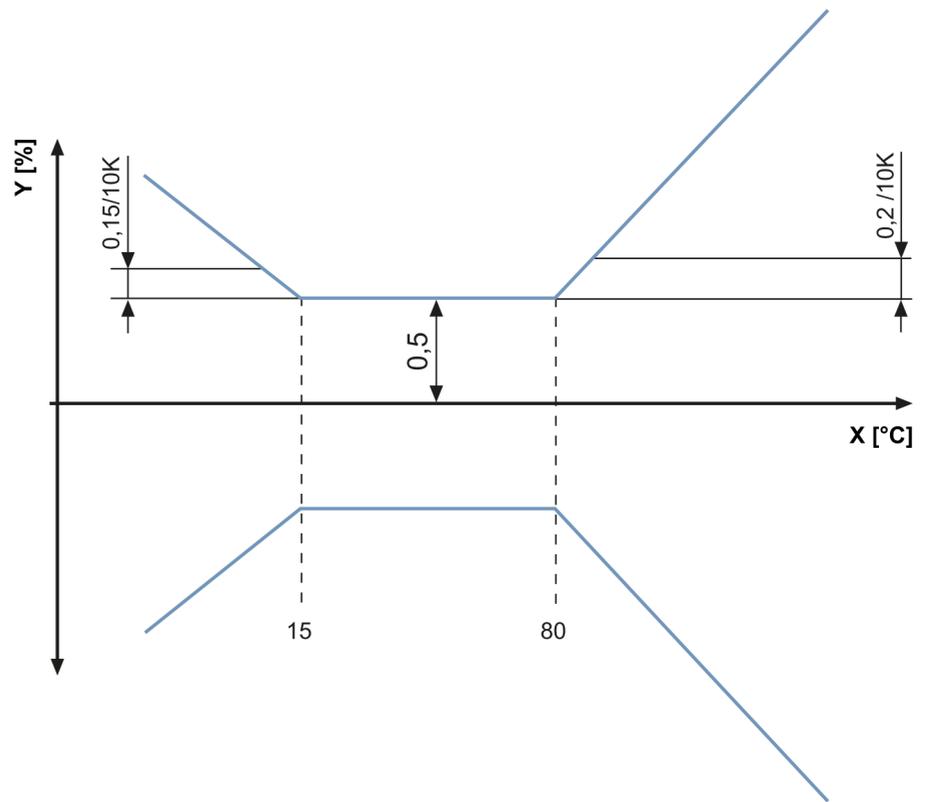
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### Diagrams and graphs



X temperature  
Y total deviation