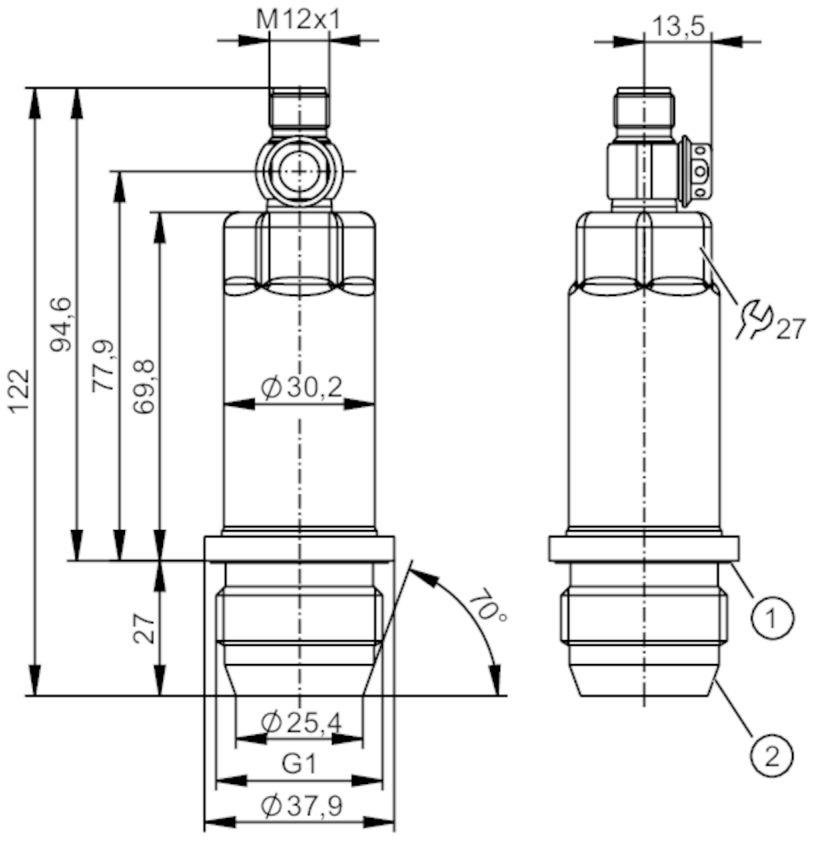
# PM1689

## 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 CE CRN cULus 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 analogue 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 | | | | |
|---|---|---|---|---|
| Special feature | 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 | 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 | | | |
| Measuring principle | | hydrostatic | | | |
| 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 analogue outputs: 1 | | | |
| **Outputs** | | | | | |
| Total number of outputs | | 2 | | | |
| Output signal | | analogue signal; IO-Link; (configurable) | | | |
| Number of digital outputs | | 1; (IO-Link) | | | |
| Number of analogue outputs | | 1 | | | |
| Analogue 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 | | -0.005...0.1 bar | -5...100 mbar | -0.073...1.45 psi | -0.5...10 kPa |
| Analogue start point | | -5...80 mbar | -0.073...1.16 psi | -0.5...8 kPa | |
| Analogue 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) | | | |

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| | | | |
|---|---|---|---|
| Total deviation over temperature range | **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 | |
| Notes on the accuracy / deviation | for further details see section Diagrams and graphs | | |
| **Response times** | | | |
| Damping for the analogue output dAA [s] | 0...4 | | |
| 2-wire | | | |
| Step response time analogue output [ms] | 30 | | |
| 3-wire | | | |
| Step response time analogue 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 type | A | | |
| Process data analogue | 3 | | |
| Min. process cycle time [ms] | 3.2 | | |
| IO-Link resolution pressure [mbar] | 0.02 | | |
| 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 | 670 | |
| **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 no. | J022 | |

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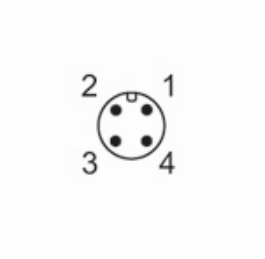
| Mechanical data | | |
|---|---|---|
| Weight | [g] | 337.4 |
| Housing | | cylindrical |
| Dimensions | [mm] | Ø 30.2 / L = 122 |
| Materials | | stainless steel (316L/1.4404); PBT |
| Materials (wetted parts) | | ceramics (99.9 % Al2O3); stainless steel (316L/1.4435); surface characteristics: Ra < 0,4 / Rz 4; PTFE |
| Min. pressure cycles | | 100 million |
| Tightening torque | [Nm] | 20 |
| Process connection | | threaded connection G 1 external thread sealing cone |

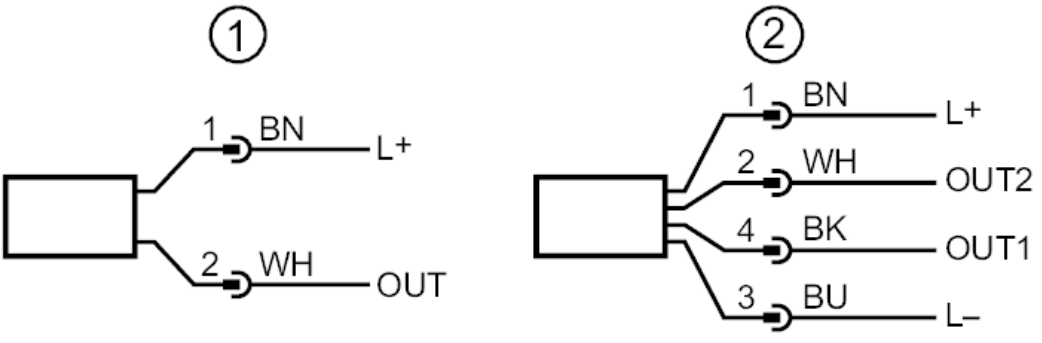
| Remarks | |
|---|---|
| Pack quantity | 1 pcs. |

**Electrical connection**

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




Connection




| | |
|---|---|
| 1 | connection for 2-wire operation ( analogue ) |
| 2 | connection for 3-wire operation ( analogue / IO-Link )<br>OUT1 : IO-Link<br>OUT2 : analogue output |

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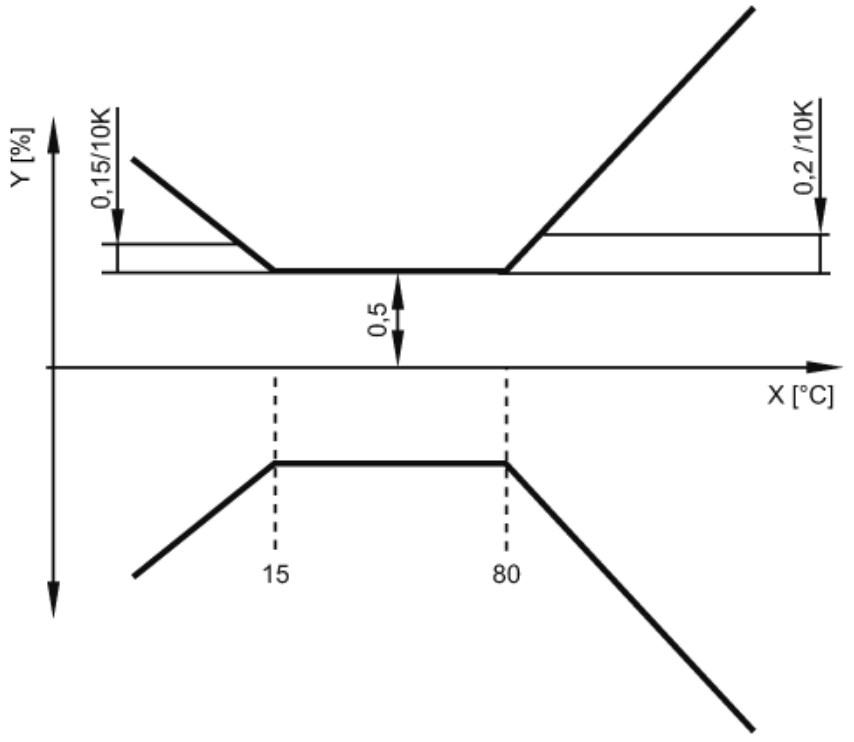
## Diagrams and graphs




X temperature

Y total deviation