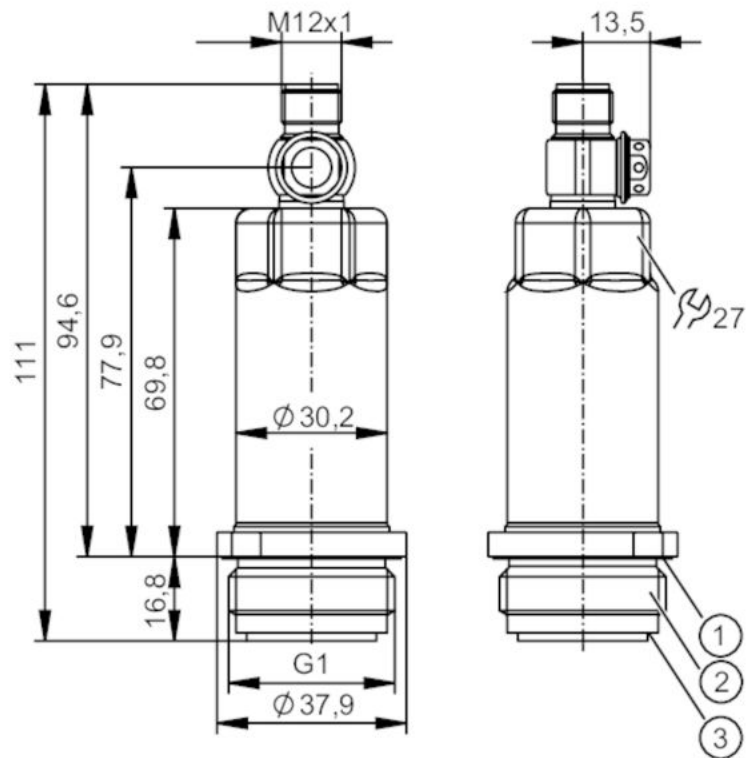


PM1709



Flush pressure sensor

PM-1-1BREA01-E-ZVG/US



- 1 groove with sealing ring (DIN EN ISO 1179-2)
- 2 external thread G1 (Aseptoflex Vario )
- 3 groove for sealing ring



| Product characteristics                        |                                                                       |                   |                  |                |
|------------------------------------------------|-----------------------------------------------------------------------|-------------------|------------------|----------------|
| Number of inputs and outputs                   | Number of digital outputs: 1; Number of analogue outputs: 1           |                   |                  |                |
| Measuring range                                | -1...1 bar                                                            | -1000...1000 mbar | -14.5...14.5 psi | -100...100 kPa |
| Process connection                             | threaded connection G 1 external thread Aseptoflex Vario              |                   |                  |                |
| 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                                | 10000 mbar                                                            | 145 psi           | 1000 kPa         |                |
| Vacuum resistance [mbar]                       | -1000                                                                 |                   |                  |                |
| Type of pressure                               | relative pressure; vacuum                                             |                   |                  |                |
| No dead space                                  | yes                                                                   |                   |                  |                |
| MAWP (for applications according to CRN) [bar] | 10                                                                    |                   |                  |                |
| Electrical data                                |                                                                       |                   |                  |                |
| Operating voltage [V]                          | 18...30 DC                                                            |                   |                  |                |



## Flush pressure sensor

PM-1-1BREA01-E-ZVG/US

|                                        |                                                     |                                                                                                    |
|----------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 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 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; (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                        |                                                     | -1...1 bar    -1000...1000 mbar    -14.5...14.5 psi    -100...100 kPa                              |
| Analogue start point                   |                                                     | -1000...600 mbar    -14.5...8.7 psi    -100...60 kPa                                               |
| Analogue end point                     |                                                     | -600...1000 mbar    -8.7...14.5 psi    -60...100 kPa                                               |
| In steps of                            |                                                     | 1 mbar    0.01 psi    0.1 kPa                                                                      |
| Factory setting                        |                                                     | ASP = -1000 mbar    AEP = 1000 mbar                                                                |
| 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 | <b>Temperature range</b>                            | <b>total deviation</b>                                                                             |
|                                        | -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                                               |
| Notes on the accuracy / deviation      | for further details see section Diagrams and graphs |                                                                                                    |



## Flush pressure sensor

PM-1-1BREA01-E-ZVG/US

| 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]                                                                                                                    | 0.5                 |
| IO-Link functions (acyclical)       | application specific tag; internal temperature                                                                            |                     |
| Supported DeviceIDs                 | Type of operation                                                                                                         | DeviceID            |
|                                     | default                                                                                                                   | 667                 |
| 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 <a href="http://www.factory-certificate.ifm">www.factory-certificate.ifm</a> |                     |
| UL approval                         | UL Approval no.                                                                                                           | J021                |
| Mechanical data                     |                                                                                                                           |                     |
| Weight                              | [g]                                                                                                                       | 306.9               |
| Housing                             | cylindrical                                                                                                               |                     |
| Dimensions                          | [mm]                                                                                                                      | Ø 30.2 / L = 111    |
| Materials                           | stainless steel (316L/1.4404); PBT                                                                                        |                     |
| Materials (wetted parts)            | ceramics (99.9 % Al2O3); stainless steel (316L/1.4435);<br>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                                                                  |                     |

# PM1709



## Flush pressure sensor

PM-1-1BREA01-E-ZVG/US

### Remarks

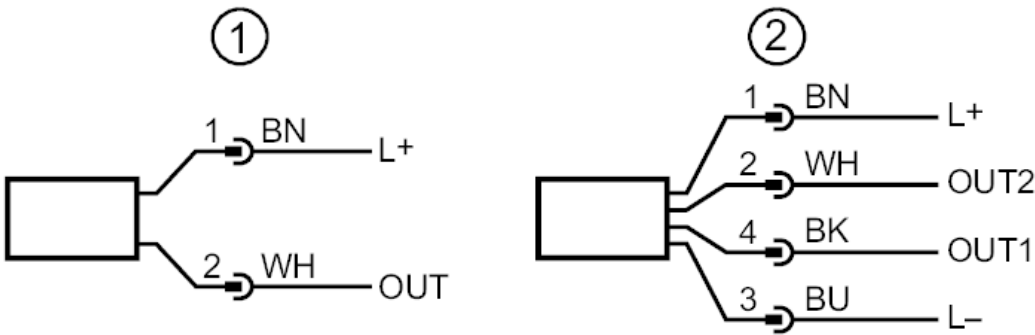
|               |        |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

### 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 )
- OUT1 : IO-Link  
OUT2 : analogue output

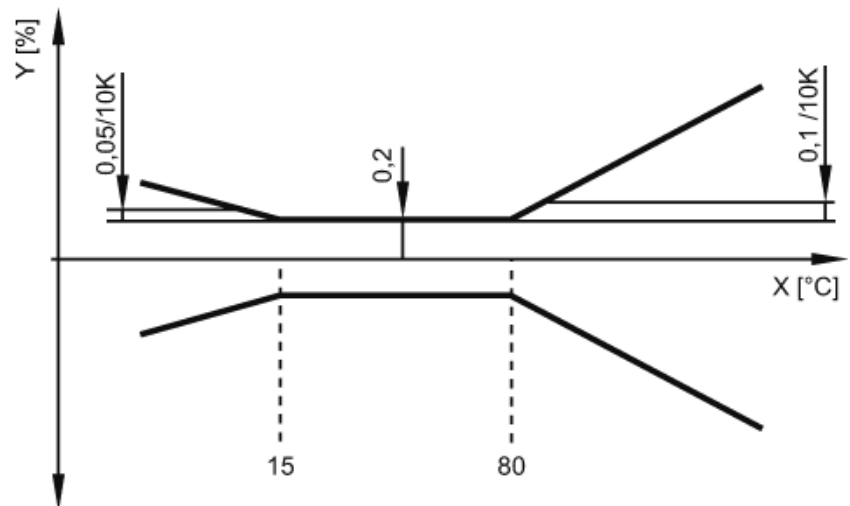


## Flush pressure sensor

PM-1-1BREA01-E-ZVG/US

### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation