





## 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; (Ub = 24 V; (Ub - 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 |      | 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  |                 |
| Notes on the accuracy / deviation      |      | for further details see section Diagrams and graphs                                                |                                        |                                                       |                 |



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| 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



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### Remarks

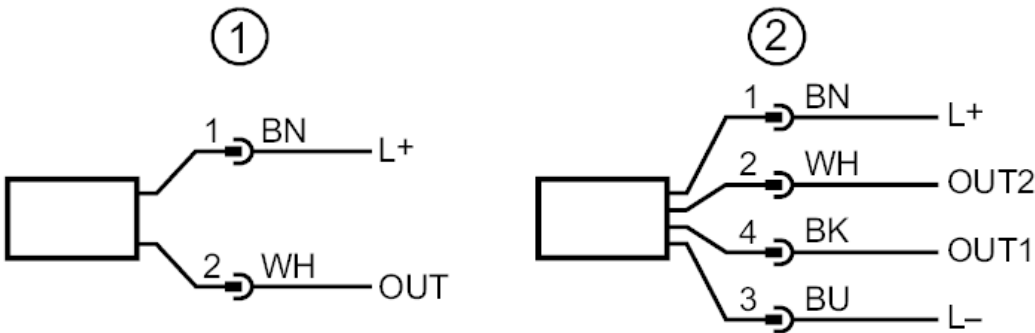
|               |        |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

### 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

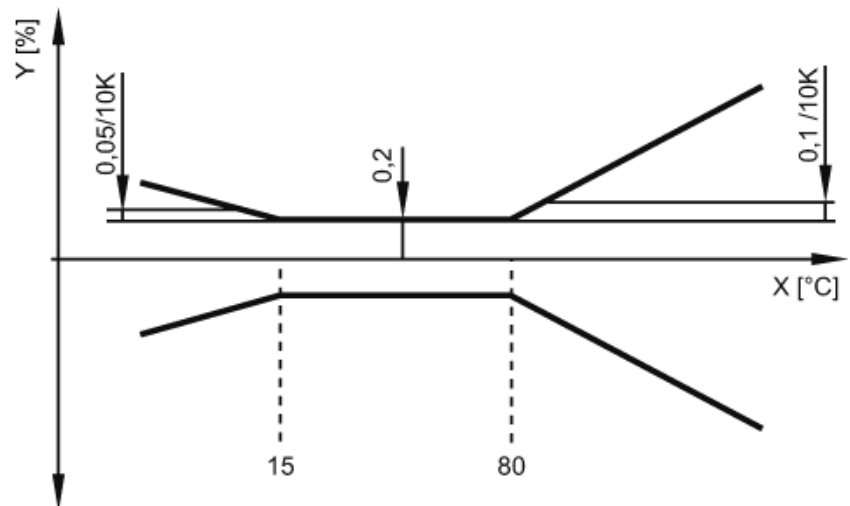


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### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation