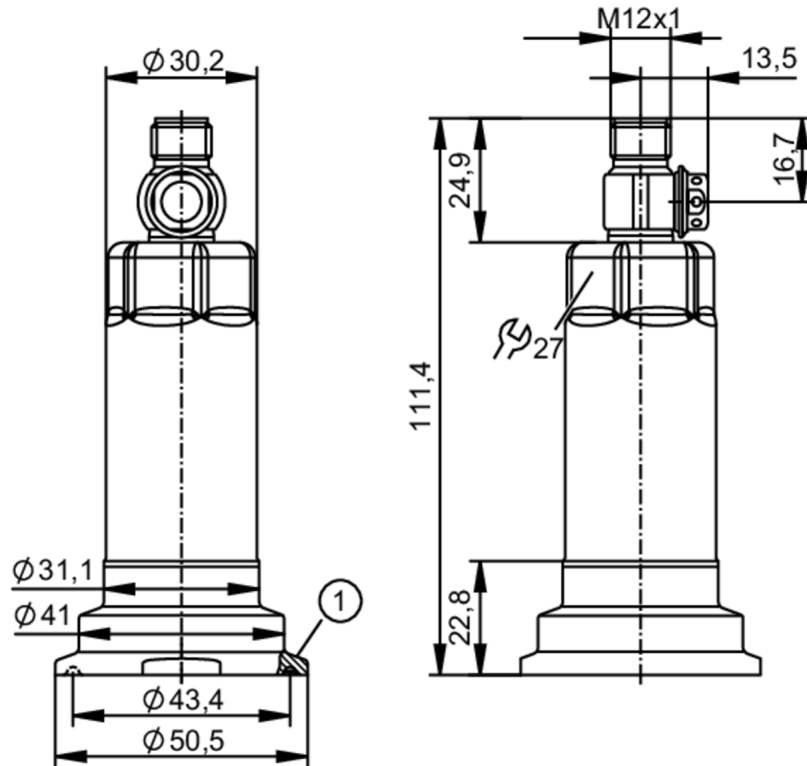


## Flush pressure sensor

PM-010-REZ01-E-ZVG/US



- 1 clamp DN25...DN40 (1...1.5") DIN 32676 (ISO 2852)  
the seal for the Triclamp process connection must have an inner diameter of at least 22 mm



ACS



CRN



EC 1935/2004

EHEDG Certified

FCM CN

FCM JP

FDA

IO-Link

NSF

Reg31

UK

CA

### Product characteristics

|                              |                                                             |                 |                 |              |
|------------------------------|-------------------------------------------------------------|-----------------|-----------------|--------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analogue outputs: 1 |                 |                 |              |
| Measuring range              | -1...10 bar                                                 | -14.5...145 psi | -100...1000 kPa | -0.1...1 MPa |
| Process connection           | Clamp DN25...DN40 (1...1.5") DIN 32676 (ISO 2852)           |                 |                 |              |

### 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. burst pressure      | 150 bar                                                                                         | 2175 psi | 15 MPa |
| Pressure rating          | 50 bar                                                                                          | 725 psi  | 5 MPa  |
| Note on pressure rating  | take into account the pressure resistance of the bracket and the seal used for clamp connection |          |        |
| Vacuum resistance [mbar] | -1000                                                                                           |          |        |
| Type of pressure         | relative pressure; vacuum                                                                       |          |        |
| No dead space            | yes                                                                                             |          |        |



## Flush pressure sensor

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|                                        |  |                                                                                                    |                                                                |                              |
|----------------------------------------|--|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------|
| MAWP for applications according to CRN |  | 10 bar                                                                                             | 1 MPa                                                          |                              |
| 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 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...10 bar                                                                                        | -14.5...145 psi                                                | -100...1000 kPa -0.1...1 MPa |
| Analogue start point                   |  | -1...8 bar                                                                                         | -14.5...116 psi                                                | -0.1...0.8 MPa               |
| Analogue end point                     |  | 1...10 bar                                                                                         | 14.5...145 psi                                                 | 0.1...1 MPa                  |
| In steps of                            |  | 0.005 bar                                                                                          | 0.1 psi                                                        | 0.0005 MPa                   |
| Factory setting                        |  | ASP = 0.0 bar                                                                                      | AEP = 10.0 bar                                                 |                              |
| Accuracy / deviations                  |  |                                                                                                    |                                                                |                              |
| Repeatability                          |  | [% of the span]                                                                                    |                                                                |                              |
|                                        |  | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                     |                                                                |                              |
| Characteristics deviation              |  |                                                                                                    |                                                                |                              |
|                                        |  | < ± 0,2; (linearity incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1) |                                                                |                              |
| Linearity deviation                    |  |                                                                                                    |                                                                |                              |
|                                        |  | < ± 0,15; (Turn down 1:1)                                                                          |                                                                |                              |
| Hysteresis deviation                   |  |                                                                                                    |                                                                |                              |
|                                        |  | < ± 0,15; (Turn down 1:1)                                                                          |                                                                |                              |
| Long-term stability                    |  |                                                                                                    |                                                                |                              |
|                                        |  | < ± 0,1; (Turn down 1:1; per year)                                                                 |                                                                |                              |

# PM1104



## Flush pressure sensor

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| Total deviation over temperature range  | <table> <tr> <th>Temperature range</th><th>total deviation</th></tr> <tr> <td>-25...15 °C</td><td>Characteristics deviation <math>\pm 0,05</math> % 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 <math>\pm 0,1</math> % of the span / 10 K</td></tr> </table> | Temperature range      | total deviation  | -25...15 °C      | Characteristics deviation $\pm 0,05$ % of the span / 10 K | 15...80 °C    | Characteristics deviation | 80...150 °C | Characteristics deviation $\pm 0,1$ % of the span / 10 K |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------|------------------|-----------------------------------------------------------|---------------|---------------------------|-------------|----------------------------------------------------------|
| Temperature range                       | total deviation                                                                                                                                                                                                                                                                                                                                                      |                        |                  |                  |                                                           |               |                           |             |                                                          |
| -25...15 °C                             | Characteristics deviation $\pm 0,05$ % of the span / 10 K                                                                                                                                                                                                                                                                                                            |                        |                  |                  |                                                           |               |                           |             |                                                          |
| 15...80 °C                              | Characteristics deviation                                                                                                                                                                                                                                                                                                                                            |                        |                  |                  |                                                           |               |                           |             |                                                          |
| 80...150 °C                             | Characteristics deviation $\pm 0,1$ % of the span / 10 K                                                                                                                                                                                                                                                                                                             |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Notes on the accuracy / deviation       | for further details see section Diagrams and graphs                                                                                                                                                                                                                                                                                                                  |                        |                  |                  |                                                           |               |                           |             |                                                          |
| <b>Response times</b>                   |                                                                                                                                                                                                                                                                                                                                                                      |                        |                  |                  |                                                           |               |                           |             |                                                          |
| 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                                                                                                                                                                                                                                                                                                                                                                    |                        |                  |                  |                                                           |               |                           |             |                                                          |
| <b>Interfaces</b>                       |                                                                                                                                                                                                                                                                                                                                                                      |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Communication interface                 | IO-Link                                                                                                                                                                                                                                                                                                                                                              |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Transmission type                       | COM2 (38,4 kBaud)                                                                                                                                                                                                                                                                                                                                                    |                        |                  |                  |                                                           |               |                           |             |                                                          |
| IO-Link revision                        | 1.1                                                                                                                                                                                                                                                                                                                                                                  |                        |                  |                  |                                                           |               |                           |             |                                                          |
| SDCI standard                           | IEC 61131-9                                                                                                                                                                                                                                                                                                                                                          |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Profiles                                | <table> <tr> <td>Smart Sensor - SSP 3.1</td><td>Measuring Sensor</td></tr> <tr> <td>Common - I&amp;D</td><td>Identification and Diagnosis</td></tr> </table>                                                                                                                                                                                                         | Smart Sensor - SSP 3.1 | Measuring Sensor | Common - I&D     | Identification and Diagnosis                              |               |                           |             |                                                          |
| Smart Sensor - SSP 3.1                  | Measuring Sensor                                                                                                                                                                                                                                                                                                                                                     |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Common - I&D                            | Identification and Diagnosis                                                                                                                                                                                                                                                                                                                                         |                        |                  |                  |                                                           |               |                           |             |                                                          |
| SIO mode                                | no                                                                                                                                                                                                                                                                                                                                                                   |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Required master port type               | A                                                                                                                                                                                                                                                                                                                                                                    |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Process data analogue                   | 3                                                                                                                                                                                                                                                                                                                                                                    |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Min. process cycle time [ms]            | 3.2                                                                                                                                                                                                                                                                                                                                                                  |                        |                  |                  |                                                           |               |                           |             |                                                          |
| IO-Link resolution pressure [bar]       | 0.002                                                                                                                                                                                                                                                                                                                                                                |                        |                  |                  |                                                           |               |                           |             |                                                          |
| IO-Link process data (cyclical)         | <table> <tr> <th>function</th><th>bit length</th></tr> <tr> <td>pressure</td><td>16</td></tr> <tr> <td>device status</td><td>4</td></tr> </table>                                                                                                                                                                                                                    | function               | bit length       | pressure         | 16                                                        | device status | 4                         |             |                                                          |
| function                                | bit length                                                                                                                                                                                                                                                                                                                                                           |                        |                  |                  |                                                           |               |                           |             |                                                          |
| pressure                                | 16                                                                                                                                                                                                                                                                                                                                                                   |                        |                  |                  |                                                           |               |                           |             |                                                          |
| device status                           | 4                                                                                                                                                                                                                                                                                                                                                                    |                        |                  |                  |                                                           |               |                           |             |                                                          |
| IO-Link functions (acyclical)           | application specific tag; internal temperature                                                                                                                                                                                                                                                                                                                       |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Supported DeviceIDs                     | <table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>default</td><td>662</td></tr> </table>                                                                                                                                                                                                                                                        | Type of operation      | DeviceID         | default          | 662                                                       |               |                           |             |                                                          |
| Type of operation                       | DeviceID                                                                                                                                                                                                                                                                                                                                                             |                        |                  |                  |                                                           |               |                           |             |                                                          |
| default                                 | 662                                                                                                                                                                                                                                                                                                                                                                  |                        |                  |                  |                                                           |               |                           |             |                                                          |
| <b>Operating conditions</b>             |                                                                                                                                                                                                                                                                                                                                                                      |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Ambient temperature [°C]                | -25...80                                                                                                                                                                                                                                                                                                                                                             |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Storage temperature [°C]                | -40...100                                                                                                                                                                                                                                                                                                                                                            |                        |                  |                  |                                                           |               |                           |             |                                                          |
| Protection                              | IP 67; IP 68; IP 69K                                                                                                                                                                                                                                                                                                                                                 |                        |                  |                  |                                                           |               |                           |             |                                                          |
| <b>Tests / approvals</b>                |                                                                                                                                                                                                                                                                                                                                                                      |                        |                  |                  |                                                           |               |                           |             |                                                          |
| EMC                                     | <table> <tr> <td>DIN EN 61000-6-2</td><td></td></tr> <tr> <td>DIN EN 61000-6-3</td><td></td></tr> </table>                                                                                                                                                                                                                                                           | DIN EN 61000-6-2       |                  | DIN EN 61000-6-3 |                                                           |               |                           |             |                                                          |
| 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>                                                                                                                                                                                                                                            |                        |                  |                  |                                                           |               |                           |             |                                                          |



Flush pressure sensor

PM-010-REZ01-E-ZVG/US

|             |                 |         |
|-------------|-----------------|---------|
| UL approval | UL approval no. | J055    |
|             | File number UL  | E174189 |

| Mechanical data                                                   |                               |                                                                                                                  |  |
|-------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------|--|
| Weight                                                            | [g]                           | 369.35                                                                                                           |  |
| Housing                                                           |                               | cylindrical                                                                                                      |  |
| Dimensions                                                        | [mm]                          | Ø 30.2 / L = 111.4                                                                                               |  |
| 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 µm / Rz = 4 µm; PTFE |  |
| Min. pressure cycles                                              |                               | 100 million                                                                                                      |  |
| Process connection                                                |                               | Clamp DN25...DN40 (1...1,5") DIN 32676 (ISO 2852)                                                                |  |
| Suitable for process connections in accordance with the standards | DIN 32676 series A (DIN)      | clamp DN25, DN32, DN40                                                                                           |  |
|                                                                   | DIN 32676 series B (ISO)      | clamp DN26,9, DN33,7                                                                                             |  |
|                                                                   | DIN 32676 series C (ASME BPE) | clamp 1", 1,5"                                                                                                   |  |
|                                                                   | ISO 2852                      | clamp DN25, DN33,7, DN38                                                                                         |  |

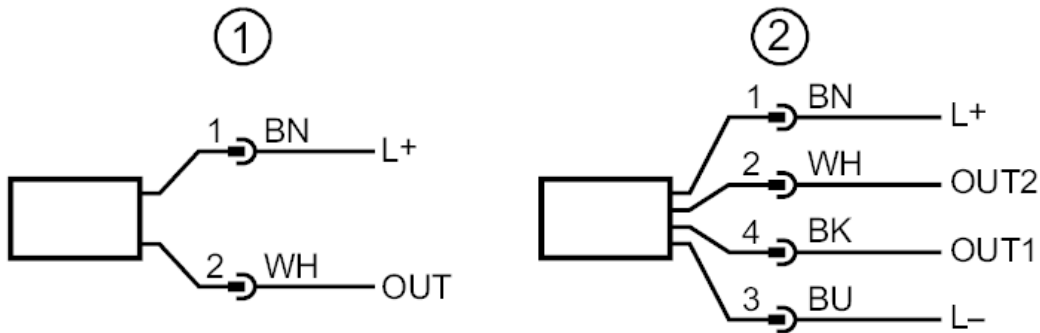
| Remarks       |        |
|---------------|--------|
| Pack quantity | 1 pcs. |

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, 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

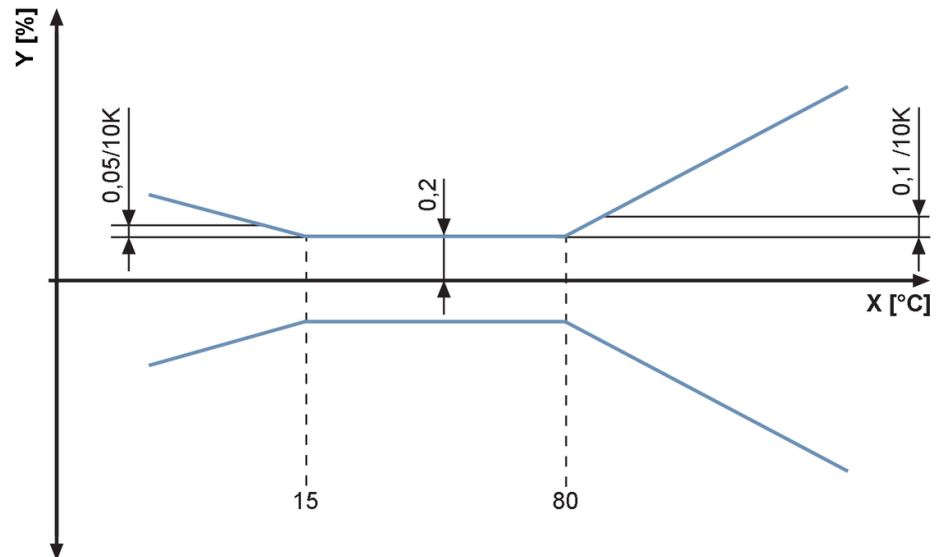


## Flush pressure sensor

PM-010-REZ01-E-ZVG/US

### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation