



Flush pressure sensor

PM-010-REA01-E-ZVG/US



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



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           | 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                         | 150 bar                                                               | 2175 psi | 15 MPa |
| Pressure rating                                | 50 bar                                                                | 725 psi  | 5 MPa  |
| Vacuum resistance [mbar]                       | -1000                                                                 |          |        |
| Type of pressure                               | relative pressure; vacuum                                             |          |        |
| No dead space                                  | yes                                                                   |          |        |
| MAWP (for applications according to CRN) [bar] | 50                                                                    |          |        |



## Flush pressure sensor

PM-010-REA01-E-ZVG/US

| 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; (Ub = 24 V; (Ub - 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              | [% 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  |



## Flush pressure sensor

PM-010-REA01-E-ZVG/US

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     | [bar]                                                                    | 0.002             |
| IO-Link process data (cyclical) | <b>function</b>                                                          | <b>bit length</b> |
|                                 | pressure                                                                 | 16                |
|                                 | device status                                                            | 4                 |
| IO-Link functions (acyclical)   | application specific tag; internal temperature                           |                   |
| Supported DeviceIDs             | <b>Type of operation</b>                                                 | <b>DeviceID</b>   |
|                                 | default                                                                  | 662               |

## 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.                                                                                                           | J022                |

## Mechanical data

|            |                                    |                  |
|------------|------------------------------------|------------------|
| Weight     | [g]                                | 337.7            |
| Housing    | cylindrical                        |                  |
| Dimensions | [mm]                               | Ø 30.2 / L = 122 |
| Materials  | stainless steel (316L/1.4404); PBT |                  |

PM1604



Flush pressure sensor

PM-010-REA01-E-ZVG/US

|                          |                                                                                                           |
|--------------------------|-----------------------------------------------------------------------------------------------------------|
| 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]   | 20                                                                                                        |
| Process connection       | threaded connection G 1 external thread sealing cone                                                      |

Remarks

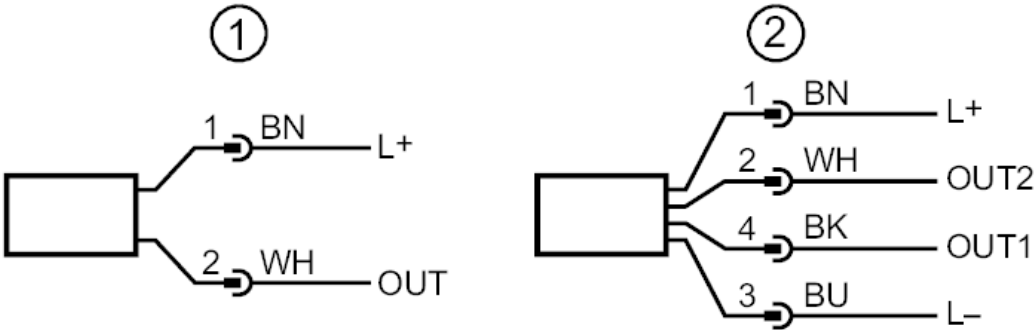
|               |        |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

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 )  
OUT1 : IO-Link  
OUT2 : analogue output



## Flush pressure sensor

PM-010-REA01-E-ZVG/US

### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation