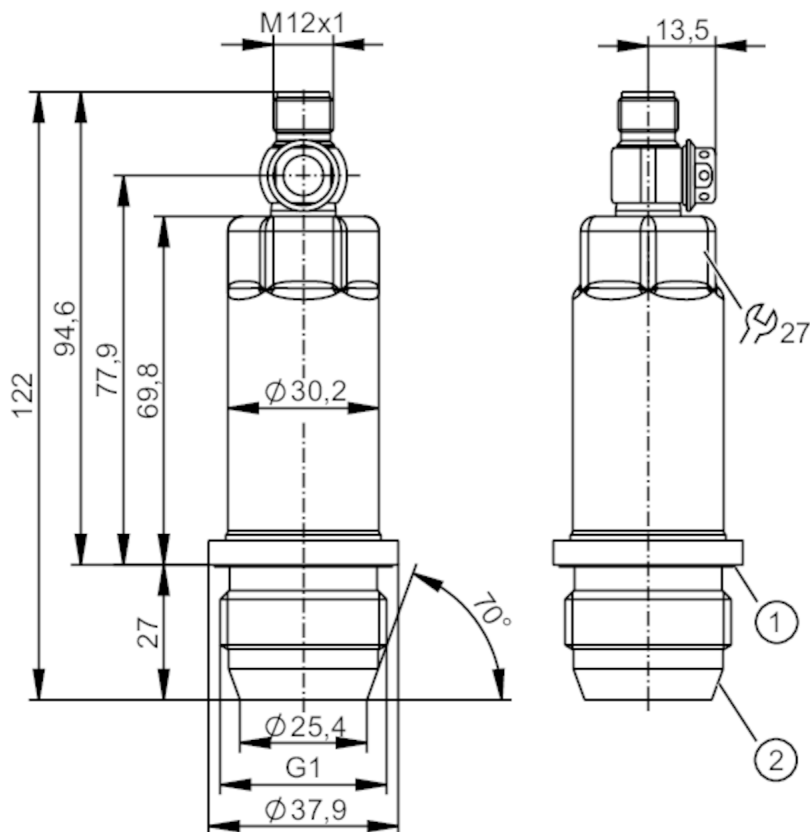


# PM1608

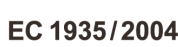


## Flush pressure sensor

PM-,25BREA01-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 analog outputs: 1    |                  |                    |                |
| Measuring range              | -0.0125...0.25 bar                                           | -12.5...250 mbar | -0.182...3.626 psi | -1.25...25 kPa |
| Process connection           | threaded connection G 1 external thread sealing cone - 27 mm |                  |                    |                |

### 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                            | 30000 mbar                                                            | 435 psi  | 3000 kPa |
| Pressure rating                                | 6000 mbar                                                             | 84 psi   | 600 kPa  |
| Vacuum resistance                              | -1000 mbar                                                            | -0.1 MPa |          |
| Type of pressure                               | relative pressure                                                     |          |          |
| No dead space                                  | yes                                                                   |          |          |
| MAWP (for applications according to CRN) [bar] | 10                                                                    |          |          |

# PM1608



## Flush pressure sensor

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| Electrical data                        |                 |                                                                                                    |                   |                                                       |
|----------------------------------------|-----------------|----------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------|
| Operating voltage                      | [V]             | 18...30 DC                                                                                         |                   |                                                       |
| Min. insulation resistance             | [MΩ]            | 100; (500 V DC)                                                                                    |                   |                                                       |
| Protection class                       |                 | III                                                                                                |                   |                                                       |
| Reverse polarity protection            |                 | yes                                                                                                |                   |                                                       |
| 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 analog outputs: 1                                          |                   |                                                       |
| Outputs                                |                 |                                                                                                    |                   |                                                       |
| Total number of outputs                |                 | 2                                                                                                  |                   |                                                       |
| Output signal                          |                 | analog signal; IO-Link; (configurable)                                                             |                   |                                                       |
| Number of digital outputs              |                 | 1; (IO-Link)                                                                                       |                   |                                                       |
| Number of analog outputs               |                 | 1                                                                                                  |                   |                                                       |
| Analog current output                  | [mA]            | 4...20; (scalable)                                                                                 |                   |                                                       |
| Max. load                              | [Ω]             | 700; (Ub = 24 V; (Ub - 9 V) / 21.5 mA)                                                             |                   |                                                       |
| Short-circuit proof                    |                 | yes                                                                                                |                   |                                                       |
| Overload protection                    |                 | yes                                                                                                |                   |                                                       |
| Measuring/setting range                |                 |                                                                                                    |                   |                                                       |
| Measuring range                        |                 | -0.0125...0.25 bar                                                                                 | -12.5...250 mbar  | -0.182...3.626 psi    -1.25...25 kPa                  |
| Analog start point                     |                 | -12.5...200 mbar                                                                                   | -0.182...2.9 psi  | -1.25...20 kPa                                        |
| Analog end point                       |                 | 37.5...250 mbar                                                                                    | 0.544...3.626 psi | 3.75...25 kPa                                         |
| In steps of                            |                 | 0.1 mbar                                                                                           | 0.002 psi         | 0.01 kPa                                              |
| Factory setting                        |                 | ASP = 0.0 bar                                                                                      | AEP = 250 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 ± 0,1 % of the span / 10 K  |
|                                        |                 | 15...80 °C                                                                                         |                   | Characteristics deviation                             |
|                                        |                 | 80...150 °C                                                                                        |                   | Characteristics deviation ± 0,15 % of the span / 10 K |

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## Flush pressure sensor

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Notes on the accuracy /  
deviation

for further details see section Diagrams and graphs

### Reaction times

|                                   |     |       |
|-----------------------------------|-----|-------|
| Damping for the analog output dAA | [s] | 0...4 |
|-----------------------------------|-----|-------|

#### 2-wire

|                                  |      |    |
|----------------------------------|------|----|
| Step response time analog output | [ms] | 30 |
|----------------------------------|------|----|

#### 3-wire

|                                  |      |   |
|----------------------------------|------|---|
| Step response time analog 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 | Smart Sensor - SSP 3.1 | Measuring Sensor             |
|          | Common - I&D           | Identification and Diagnosis |

|          |    |
|----------|----|
| SIO mode | no |
|----------|----|

|                            |   |
|----------------------------|---|
| Required master port class | A |
|----------------------------|---|

|                     |   |
|---------------------|---|
| Process data analog | 3 |
|---------------------|---|

|                         |      |     |
|-------------------------|------|-----|
| Min. process cycle time | [ms] | 3.2 |
|-------------------------|------|-----|

|                             |        |      |
|-----------------------------|--------|------|
| IO-Link resolution pressure | [mbar] | 0.05 |
|-----------------------------|--------|------|

|                                 |                 |                   |
|---------------------------------|-----------------|-------------------|
| 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                  | 669             |

### 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 number | J022 |
|-------------|--------------------|------|

### Mechanical data

|        |     |       |
|--------|-----|-------|
| Weight | [g] | 304.8 |
|--------|-----|-------|

|         |         |
|---------|---------|
| Housing | tubular |
|---------|---------|

|            |      |                  |
|------------|------|------------------|
| Dimensions | [mm] | Ø 30.2 / L = 122 |
|------------|------|------------------|

|          |                                      |
|----------|--------------------------------------|
| Material | stainless steel (1.4404 / 316L); PBT |
|----------|--------------------------------------|

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Flush pressure sensor

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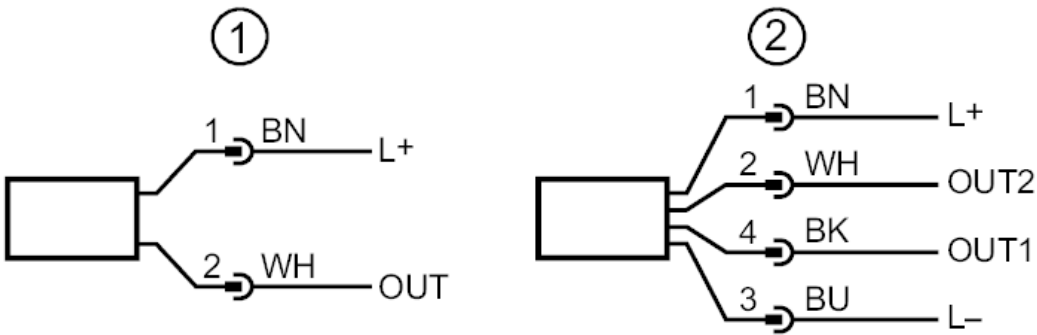
|                          |                                                                                                                    |
|--------------------------|--------------------------------------------------------------------------------------------------------------------|
| Materials (wetted parts) | ceramics (99.9 % Al2O3); stainless steel (1.4435 / 316L)<br>surface characteristics: Ra < 0,4 µm / Rz = 4 µm; PTFE |
| Min. pressure cycles     | 100 million                                                                                                        |
| Tightening torque [Nm]   | 20                                                                                                                 |
| Process connection       | threaded connection G 1 external thread sealing cone - 27 mm                                                       |
| Remarks                  |                                                                                                                    |
| Pack quantity            | 1 pcs.                                                                                                             |

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



Connection



- 1
- connection for 2-wire operation ( analog )
- 2
- connection for 3-wire operation ( analog / IO-Link )  
OUT1 : IO-Link  
OUT2 : analog output

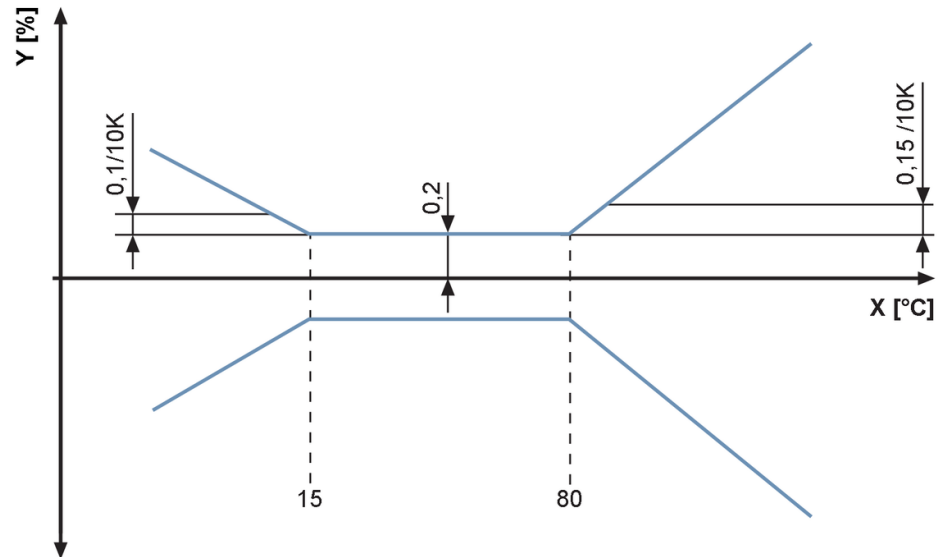


## Flush pressure sensor

PM-,25BREA01-E-ZVG/US

### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation