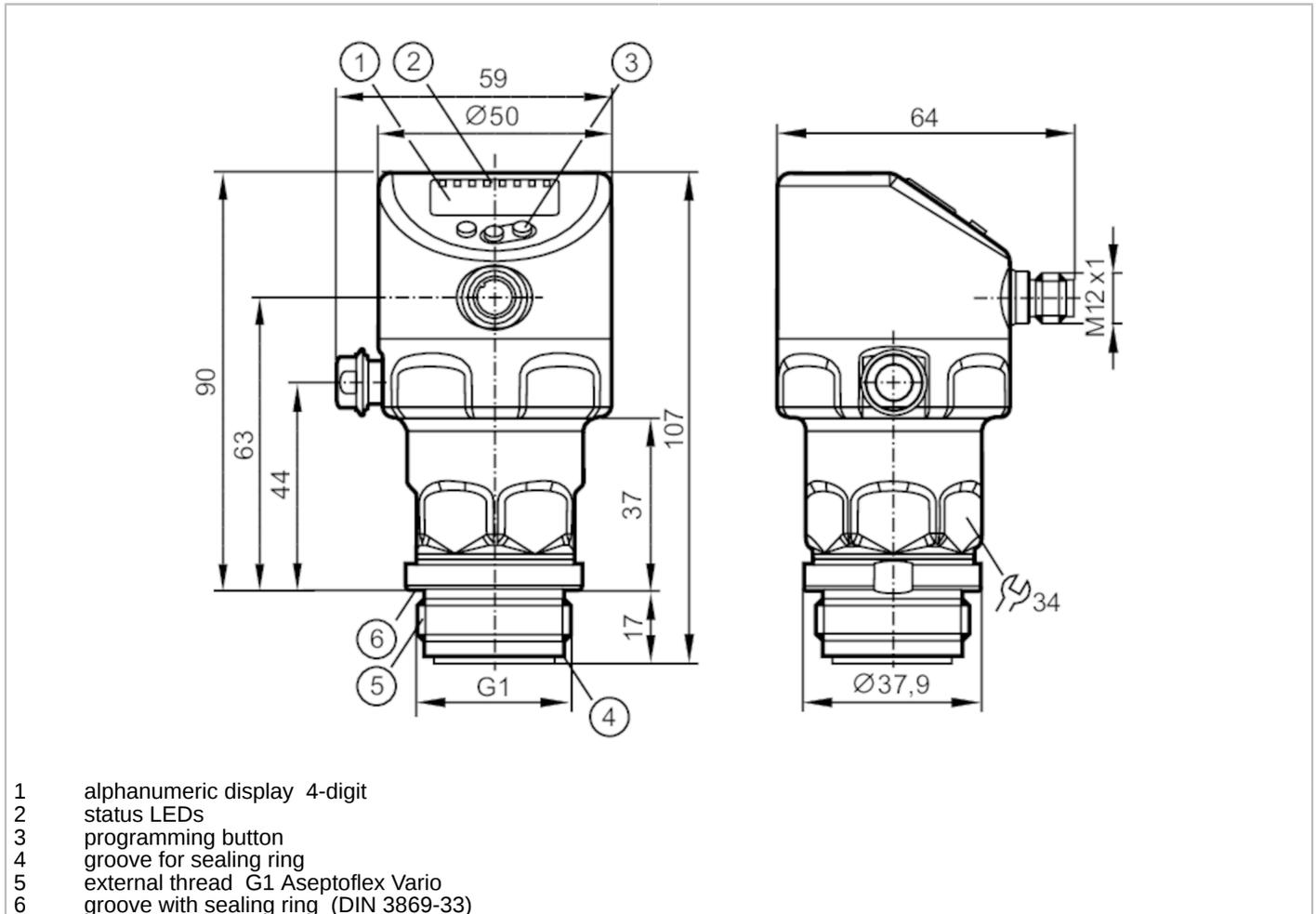


PI1703



Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ IP



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 programming button
- 4 groove for sealing ring
- 5 external thread G1 Aseptoflex Vario
- 6 groove with sealing ring (DIN 3869-33)



Product characteristics

| | | | |
|------------------------------|---|-------------------|----------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 | | |
| Measuring range | -1...25 bar | -14.5...362.5 psi | -0.1...2.5 MPa |
| Process connection | threaded connection G 1 external thread Aseptoflex Vario | | |

Application

| | | | |
|--|---|----------|--------|
| Special feature | Gold-plated contacts | | |
| 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 | 350 bar | 5075 psi | 35 MPa |
| Pressure rating | 100 bar | 1450 psi | 10 MPa |
| Vacuum resistance [mbar] | -1000 | | |
| Type of pressure | relative pressure; vacuum | | |
| No dead space | yes | | |
| MAWP (for applications according to CRN) [bar] | 61 | | |

Electrical data

| | |
|---------------------------------|-----------------|
| Min. insulation resistance [MΩ] | 100; (500 V DC) |
|---------------------------------|-----------------|

PI1703



Flush pressure sensor with display

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| | |
|-----------------------------|-----|
| Protection class | III |
| Reverse polarity protection | yes |
| Integrated watchdog | yes |

| 2-wire | |
|--------------------------|------------|
| Operating voltage [V] | 20...30 DC |
| Current consumption [mA] | 3.5...21.5 |
| Power-on delay time [s] | < 1 |

| 3-wire | |
|--------------------------|----------------------------------|
| Operating voltage [V] | 18...30 DC |
| Current consumption [mA] | 5...45; (430 bei max. Laststrom) |
| Power-on delay time [s] | < 0.5 |

Inputs / outputs

| | |
|------------------------------|---|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |
|------------------------------|---|

Outputs

| | |
|----------------------------------|--|
| Total number of outputs | 2 |
| Output signal | switching signal; analogue signal; IO-Link |
| Electrical design | PNP/NPN |
| Number of digital outputs | 2 |
| Output function | normally open / normally closed; (parameterisable) |
| Number of analogue outputs | 1 |
| Analogue current output [mA] | 4...20, invertible; (scalable) |
| Short-circuit protection | yes |
| Type of short-circuit protection | pulsed |
| Overload protection | yes |

| 2-wire | |
|---------------|-----|
| Max. load [Ω] | 300 |

| 3-wire | |
|--|--|
| Max. voltage drop switching output DC [V] | 2 |
| Permanent current rating of switching output DC [mA] | 100 |
| Switching frequency DC [Hz] | 125 |
| Max. load [Ω] | (U _b - 10 V) / 21,5 mA; 650 Ω (U _b = 24 V) |

Measuring/setting range

| | | | |
|-----------------------------------|----------------|-------------------|------------------|
| Measuring range | -1...25 bar | -14.5...362.5 psi | -0.1...2.5 MPa |
| Set point SP | -0.96...25 bar | -14...362.6 psi | -0.096...2.5 MPa |
| Reset point rP | -1...24.96 bar | -14.5...362.1 psi | -0.1...2.496 MPa |
| Analogue start point | -1...20 bar | -14.5...290.1 psi | -0.1...2 MPa |
| Analogue end point | 4...25 bar | 58...362.6 psi | 0.4...2.5 MPa |
| Min. difference between SP and rP | 0.04 bar | 0.6 psi | 0.004 MPa |
| In steps of | 0.01 bar | 0.1 psi | 0.001 MPa |

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| | | |
|-----------------|-----------------|-----------------|
| Factory setting | SP1 = 6.25 bar | rP1 = 5.75 bar |
| | SP2 = 18.75 bar | rP2 = 18.25 bar |
| | ASP = 0.00 bar | AEP = 25.00 bar |
| | dAP = 0.06 s | dAA = 0.06 s |

| | | |
|------------------------|--------------|--------------|
| Temperature monitoring | | |
| Measuring range | -25...150 °C | -13...302 °F |

Accuracy / deviations

| | | |
|--|---|---|
| Switch point accuracy [% of the span] | < ± 0,2; (DIN EN IEC 62828-1; Turn down 1:1) | |
| Repeatability [% of the span] | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1) | |
| Characteristics deviation [% of the span] | < ± 0,2; (DIN IEC EN 62828-1 incl. zero point and span error, non-linearity, hysteresis; Turn down 1:1) | |
| 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 | |

| | | |
|------------------------|--|--|
| Temperature monitoring | | |
| Accuracy [K] | ± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur)) | |
| Repeatability [K] | ± 0,2 | |
| Resolution [K] | 0.2 | |

Response times

| | |
|---|-----------|
| Damping process value dAP [s] | 0...99.99 |
| Damping for the analogue output dAA [s] | 0...99.99 |

| | | |
|---|----|--|
| 2-wire | | |
| Step response time analogue output [ms] | 30 | |

| | | |
|---|---|--|
| 3-wire | | |
| Min. response time of switching output (dAP) [ms] | 3 | |
| Step response time analogue output [ms] | 7 | |

| | | |
|--------------------------------|--|--|
| Temperature monitoring | | |
| Dynamic response T05 / T09 [s] | < 35 / < 135; (DIN EN 60751 water ; > 0,9 m/s) | |

Interfaces

| | | |
|-------------------------|-------------------|--|
| Communication interface | IO-Link | |
| Transmission type | COM2 (38,4 kBaud) | |

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Flush pressure sensor with display

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| IO-Link revision | 1.1 | | | | | | | | | | |
|------------------------------------|---|-------------------|------------|----------|------|-------------|----|---------------|---|------------------------------|---|
| SDCI standard | IEC 61131-9 | | | | | | | | | | |
| Profiles | Identification and Diagnosis (0x4000), Measurement Data Channel (0x800A) | | | | | | | | | | |
| SIO mode | yes | | | | | | | | | | |
| Required master port type | A | | | | | | | | | | |
| Min. process cycle time [ms] | 5.6 | | | | | | | | | | |
| IO-Link resolution pressure [bar] | 0.001 | | | | | | | | | | |
| IO-Link resolution temperature [K] | 0.2 | | | | | | | | | | |
| IO-Link process data (cyclical) | <table border="1"><thead><tr><th>function</th><th>bit length</th></tr></thead><tbody><tr><td>pressure</td><td>32</td></tr><tr><td>temperature</td><td>32</td></tr><tr><td>device status</td><td>4</td></tr><tr><td>binary switching information</td><td>2</td></tr></tbody></table> | function | bit length | pressure | 32 | temperature | 32 | device status | 4 | binary switching information | 2 |
| function | bit length | | | | | | | | | | |
| pressure | 32 | | | | | | | | | | |
| temperature | 32 | | | | | | | | | | |
| device status | 4 | | | | | | | | | | |
| binary switching information | 2 | | | | | | | | | | |
| IO-Link functions (acyclical) | application specific tag; internal temperature; operating hours counter; switching cycles counter; Pressure peak counter | | | | | | | | | | |
| Supported DeviceIDs | <table border="1"><thead><tr><th>Type of operation</th><th>DeviceID</th></tr></thead><tbody><tr><td>default</td><td>1157</td></tr></tbody></table> | Type of operation | DeviceID | default | 1157 | | | | | | |
| Type of operation | DeviceID | | | | | | | | | | |
| default | 1157 | | | | | | | | | | |

| Operating conditions | |
|--------------------------|----------------------|
| Ambient temperature [°C] | -25...80 |
| Storage temperature [°C] | -40...100 |
| Protection | IP 67; IP 68; IP 69K |

| Tests / approvals | |
|----------------------|---|
| EMC | DIN EN 61326-1 |
| 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] | 214 |
| Note on approval | factory certificate available as download at www.factory-certificate.ifm |
| UL approval | UL Approval no. J035 File number UL E174189 |

| Mechanical data | |
|--------------------------|---|
| Weight [g] | 358.2 |
| Materials | stainless steel (316L/1.4404); FKM; PTFE; PBT; PEI; PFA |
| Materials (wetted parts) | ceramics (99.9 % Al ₂ O ₃); stainless steel (316L/1.4435); 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 |

| Displays / operating elements | | |
|-------------------------------|------------------|-------------------------------|
| Display | Display unit | LED, green |
| | switching status | LED, yellow |
| | function display | alphanumeric display, 4-digit |
| | measured values | alphanumeric display, 4-digit |
| Display unit | bar; psi; MPa | |

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

PI1703



Flush pressure sensor with display

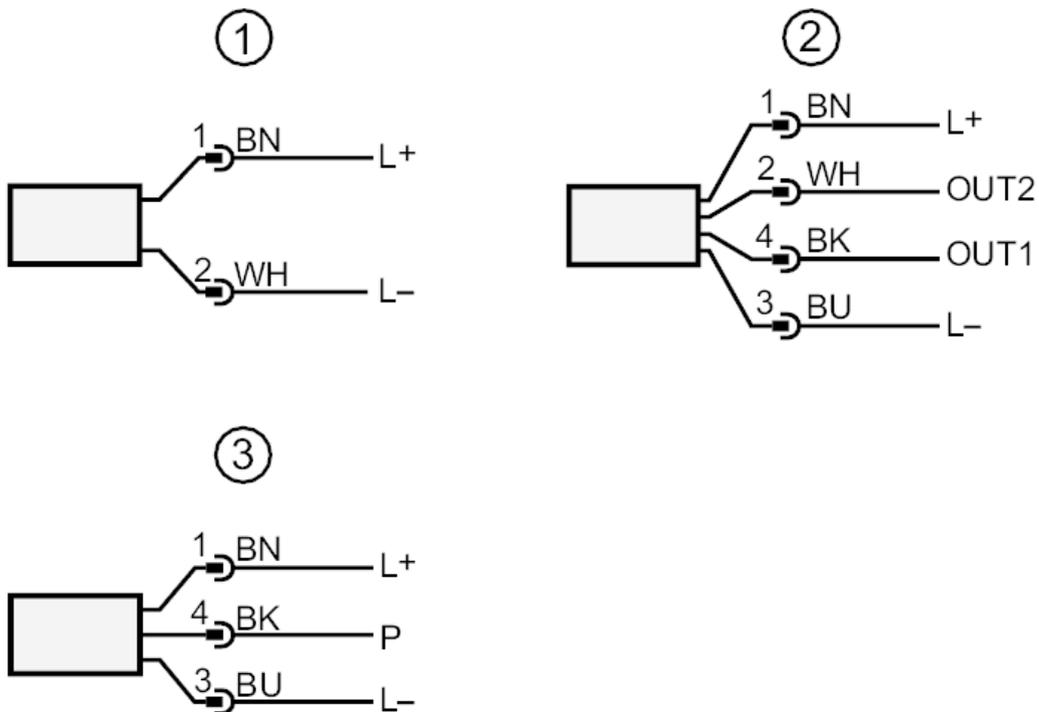
PI-025-REA01-MFRKG/US/ IP

Electrical connection

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



Connection



- 1 connection for 2-wire operation
- 2 connection for 3-wire operation
- OUT1 switching output / IO-Link
- OUT2 switching output / analogue output
- 3 connection for IO-Link parameter setting (P = communication via IO-Link)

colours to DIN EN 60947-5-2

Core colours

- BK = black
- BN = brown
- BU = blue
- WH = white

PI1703

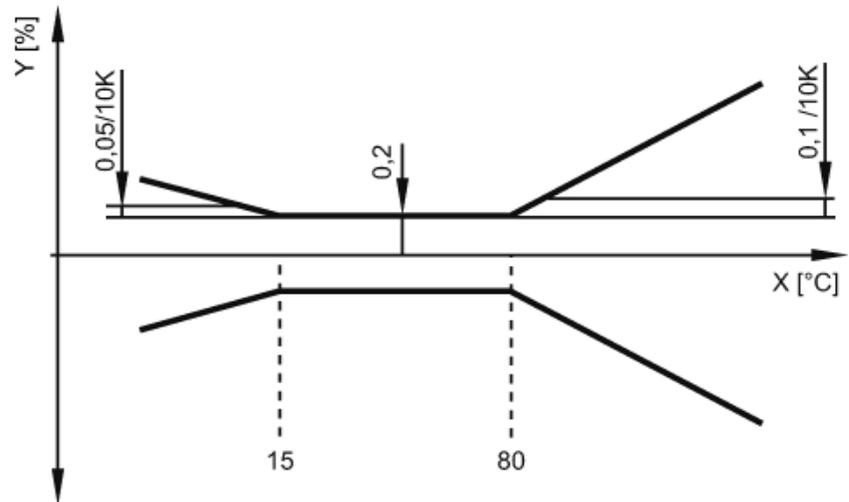


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Diagrams and graphs

ambient temperature influence on the accuracy



X temperature
Y total deviation