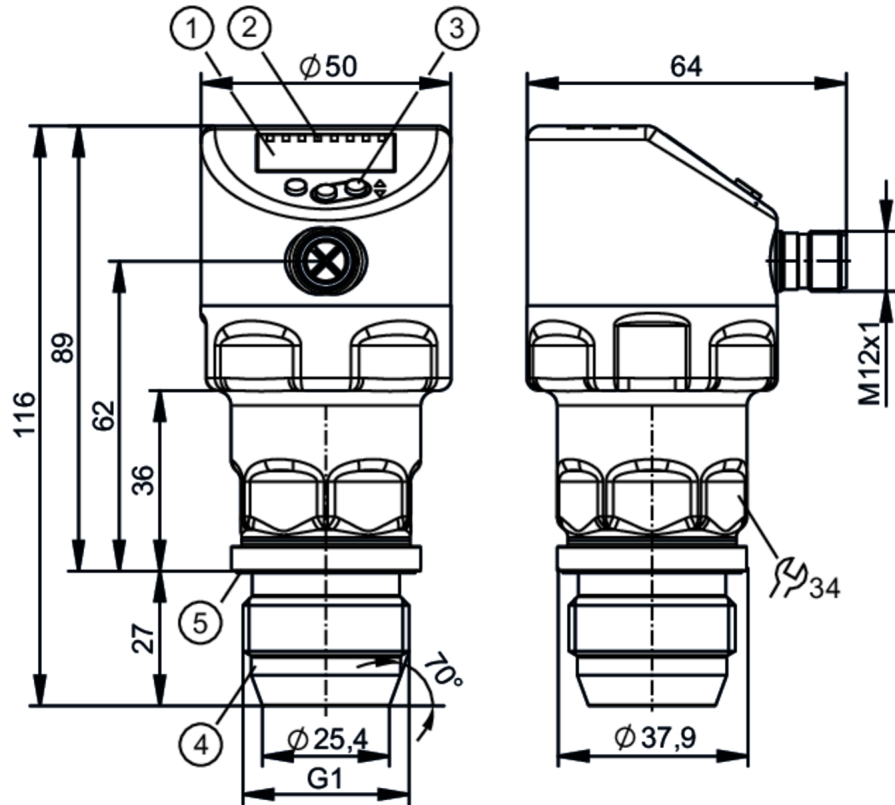


PI1602



Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ IP



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 programming button
- 4 G1 sealing cone external thread
- 5 groove with sealing ring (DIN 3863-33)



Product characteristics

| | | | |
|------------------------------|---|----------------|---------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 | | |
| Measuring range | -1...100 bar | -14...1450 psi | -0.1...10 MPa |
| Process connection | threaded connection G 1 external thread sealing cone | | |

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; use in gases at pressures > 25 bar only on request | | |
| Medium temperature [°C] | -25...150 | | |
| Min. bursting pressure | 650 bar | 9425 psi | 65 MPa |
| Pressure rating | 200 bar | 2900 psi | 20 MPa |
| Vacuum resistance [mbar] | -1000 | | |
| Type of pressure | relative pressure; vacuum | | |
| No dead space | yes | | |

Electrical data

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



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| | | | |
|---|------|--|----------------|
| 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...100 bar | -14...1450 psi |
| | | | -0.1...10 MPa |
| Set point SP | | -0.9...100 bar | -12...1450 psi |
| | | | -0.09...10 MPa |
| Reset point rP | | -1...99.9 bar | -15...1448 psi |
| | | | -0.1...9.9 MPa |
| Analogue start point | | -1...80 bar | -15...1160 psi |
| | | | -0.1...8 MPa |
| Analogue end point | | 19...100 bar | 276...1450 psi |
| | | | 1.9...10 MPa |
| Min. difference between SP and rP | | 0.2 bar | 3 psi |
| | | | 0.02 MPa |
| In steps of | | 0.1 bar | 1 psi |
| | | | 0.01 MPa |
| Factory setting | | | SP1 = 25 bar |
| | | | rP1 = 23 bar |
| | | | SP2 = 75 bar |
| | | | rP2 = 73 bar |
| | | | ASP = 0.00 bar |
| | | | AEP = 100 bar |
| | | | dAP = 0.06 s |
| | | | dAA = 0.06 s |



Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ IP

| Temperature monitoring | | |
|---|---|---|
| Measuring range | -25...150 °C -13...302 °F | |
| Accuracy / deviations | | |
| Switch point accuracy [% of the span] | < ± 0,5; (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] | < ± 0,5; (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 ± 0,15 % of the span / 10 K |
| | 15...80 °C | Characteristics deviation |
| | 80...150 °C | Characteristics deviation ± 0,2 % 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) | |
| IO-Link revision | 1.1 | |
| SDCI standard | IEC 61131-9 | |
| Profiles | Identification and Diagnosis (0x4000), Measurement Data Channel (0x800A) | |
| SIO mode | yes | |

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Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ IP

| Required master port type | A | | | | | | | | | | |
|------------------------------------|---|-------------------|------------|----------|------|-------------|----|---------------|---|------------------------------|---|
| Min. process cycle time [ms] | 5.6 | | | | | | | | | | |
| IO-Link resolution pressure [bar] | 0.005 | | | | | | | | | | |
| 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>1150</td></tr></tbody></table> | Type of operation | DeviceID | default | 1150 | | | | | | |
| Type of operation | DeviceID | | | | | | | | | | |
| default | 1150 | | | | | | | | | | |

| 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. J034 File number UL E174189 |

| Mechanical data | |
|--------------------------|---|
| Weight [g] | 395.1 |
| 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] | 20 |
| Process connection | threaded connection G 1 external thread sealing cone |

| 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. |

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Flush pressure sensor with display

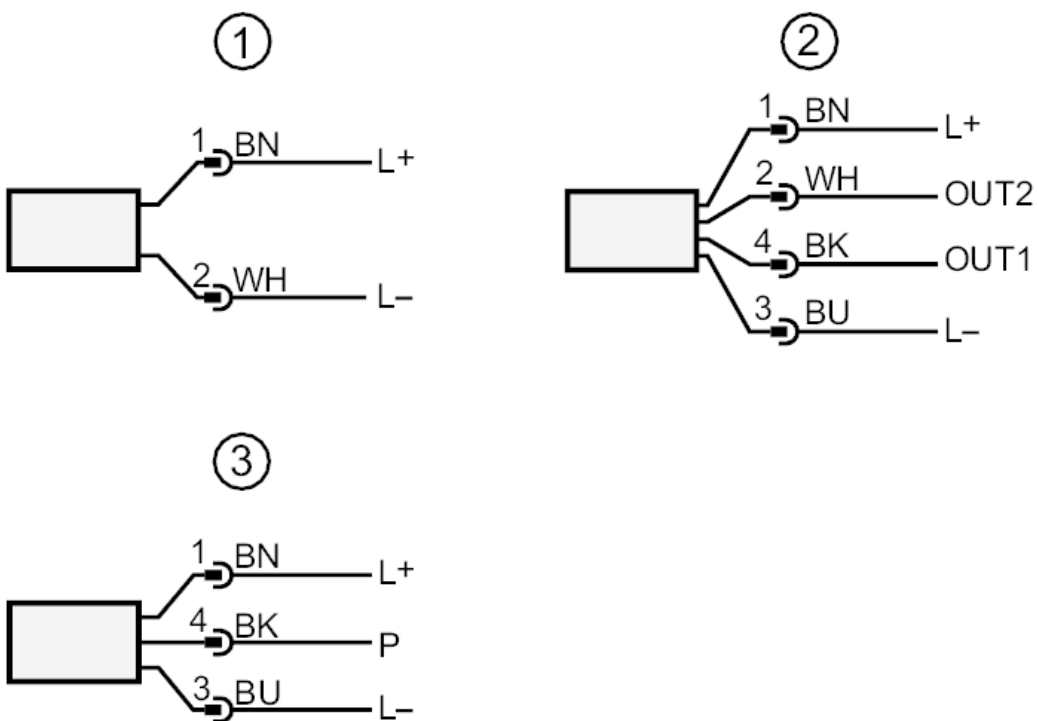
PI-100-REA01-MFRKG/US/ IP

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

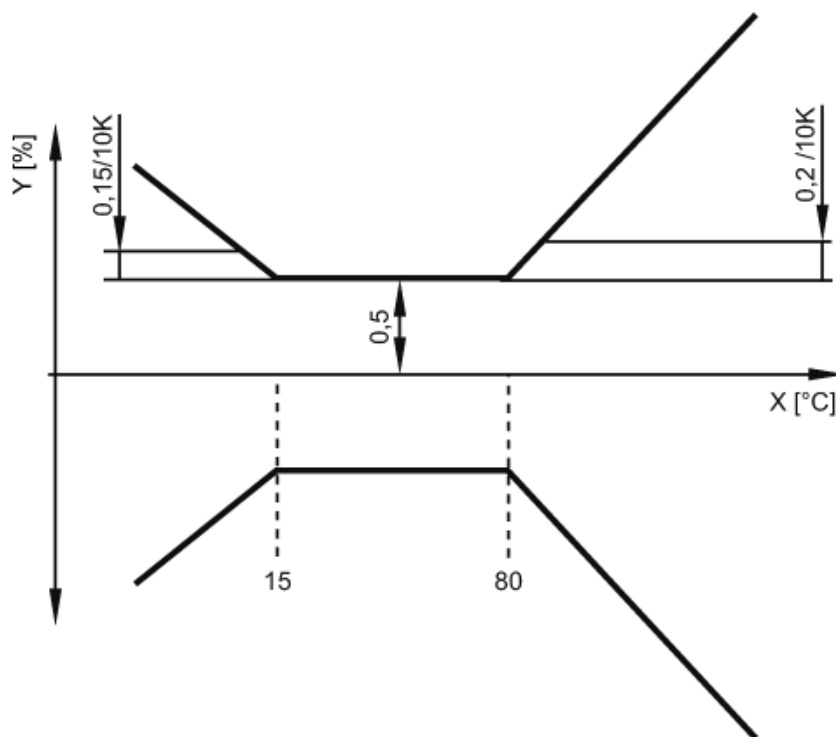
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Diagrams and graphs



X temperature
Y total deviation