

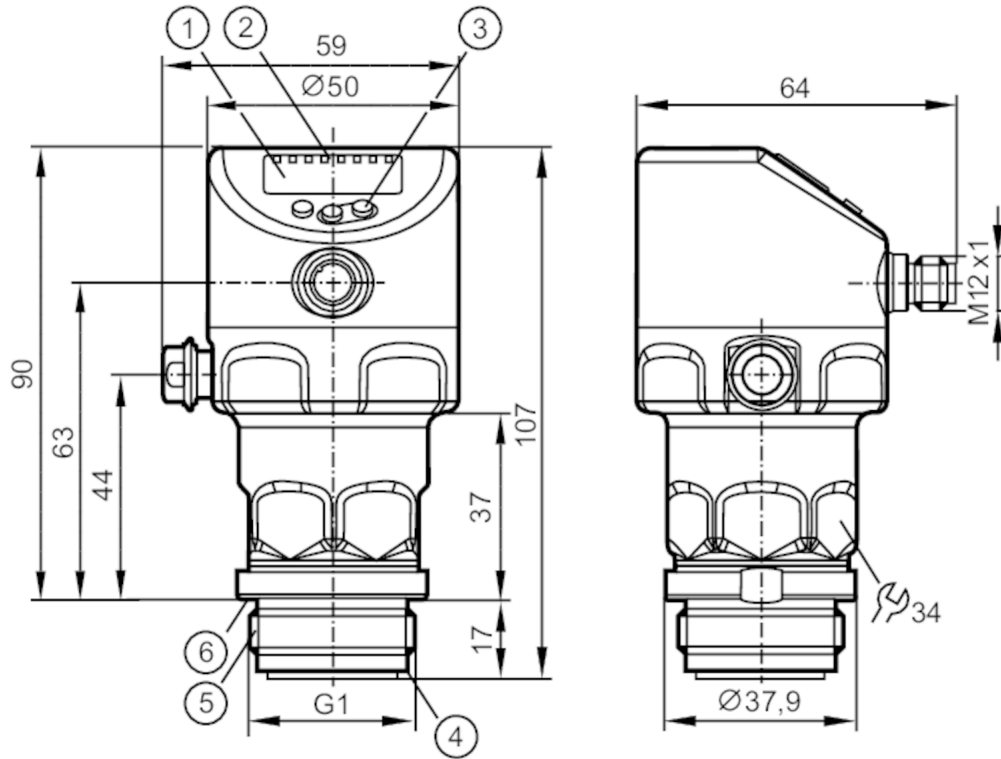
PI1704



Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ IP

When selecting an alternative article and accessories please note that technical data may differ!



- 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)



ACS



UL LISTED

US

EC 1935/2004

EHDG Certified

FCM

FDA

IO-Link

Reg31

UK

CA

Product characteristics

| | | | |
|------------------------------|---|-----------------|--------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analog outputs: 1 | | |
| Measuring range | -1...10 bar | -14.6...145 psi | -0.1...1 MPa |
| Process connection | threaded connection G 1 external thread Aseptoflex Vario | | |

Application

| | | | |
|--------------------------|---|----------|--------|
| System | 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 | 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 | | |

Electrical data

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

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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 analog outputs: 1 |
|------------------------------|---|

Outputs

| | |
|----------------------------------|--|
| Total number of outputs | 2 |
| Output signal | switching signal; analog signal; IO-Link |
| Electrical design | PNP/NPN |
| Number of digital outputs | 2 |
| Output function | normally open / closed; (configurable) |
| Number of analog outputs | 1 |
| Analog current output [mA] | 4...20, invertible; (scalable) |
| Short-circuit protection | yes |
| Type of short-circuit protection | yes (non-latching) |
| 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] | ($U_b - 10\text{ V}$) / 21,5 mA; 650 Ω ($U_b = 24\text{ V}$) |

Measuring/setting range

| | | | |
|-----------------------------------|----------------|-------------------|------------------|
| Measuring range | -1...10 bar | -14.6...145 psi | -0.1...1 MPa |
| Set point SP | -0.99...10 bar | -14.3...145 psi | -0.099...1 MPa |
| Reset point rP | -1...9.99 bar | -14.5...144.8 psi | -0.1...0.999 MPa |
| Analog start point | -1...8 bar | -14.5...116 psi | -0.1...0.8 MPa |
| Analog end point | 1...10 bar | 14.5...145 psi | 0.1...1 MPa |
| Min. difference between SP and rP | 0.02 bar | 0.3 psi | 0.002 MPa |
| In steps of | 0.01 bar | 0.1 psi | 0.001 MPa |

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| | | |
|-----------------|----------------|-----------------|
| Factory setting | SP1 = 2.50 bar | rP1 = 2.30 bar |
| | SP2 = 7.50 bar | rP2 = 7.30 bar |
| | ASP = 0.00 bar | AEP = 10.00 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 % der Spanne / 10 K |
| | 15...80 °C | Characteristics deviation |
| | 80...150 °C | Characteristics deviation ± 0,1 % der Spanne / 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 | |

Reaction times

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

2-wire

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

3-wire

| | |
|---|---|
| Min. response time of switching output (dAP) [ms] | 3 |
| Step response time analog 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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| | | |
|------------------------------------|--|------------|
| 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 class | A | |
| Min. process cycle time [ms] | 5.6 | |
| IO-Link resolution pressure [bar] | 0.0005 | |
| IO-Link resolution temperature [K] | 0.2 | |
| IO-Link process data (cyclical) | 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 | Type of operation | DeviceID |
| | default | 1156 d |

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 number | J048 |
| | File number UL | E174189 |

Mechanical data

| | |
|--------------------------|--|
| Weight [g] | 360 |
| Material | stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA |
| Materials (wetted parts) | ceramics (99.9 % Al ₂ O ₃); stainless steel (1.4435 / 316L); 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. |
|---------------|--------|

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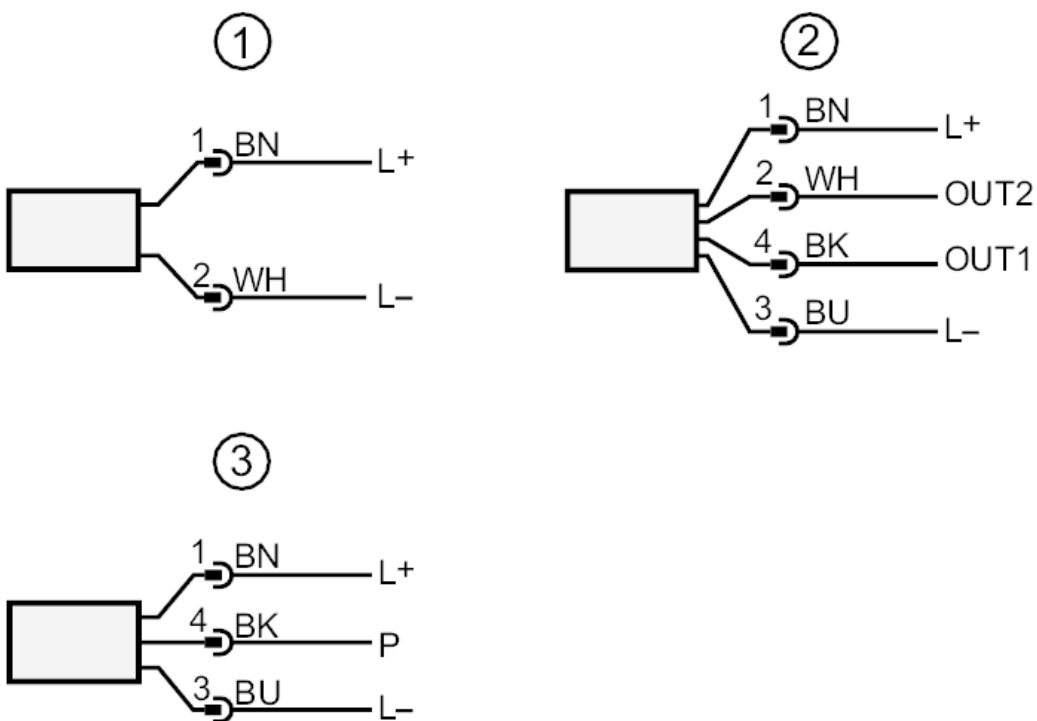
PI-010-REA01-MFRKG/US/ IP

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 / analog output
- 3 connection for IO-Link parameter setting (P = communication via IO-Link)

Colors to DIN EN 60947-5-2
Core colors

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

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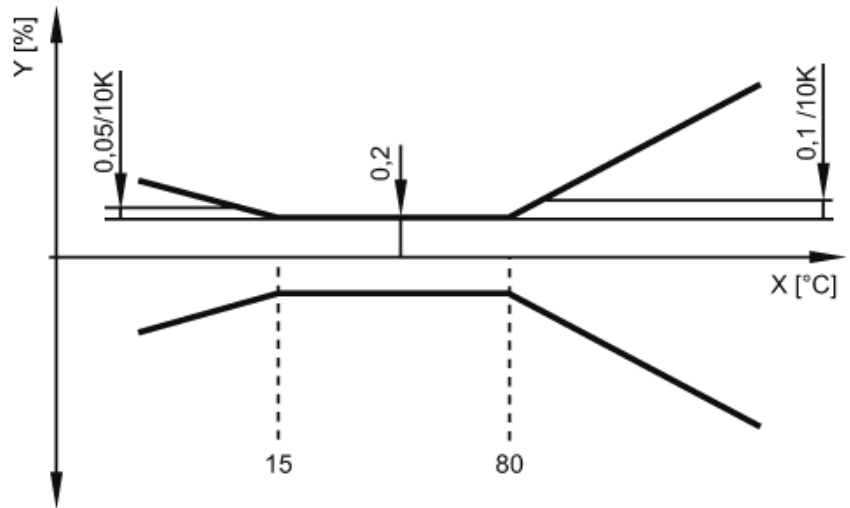


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Diagrams and graphs

ambient temperature influence on the accuracy



X temperature
Y total deviation