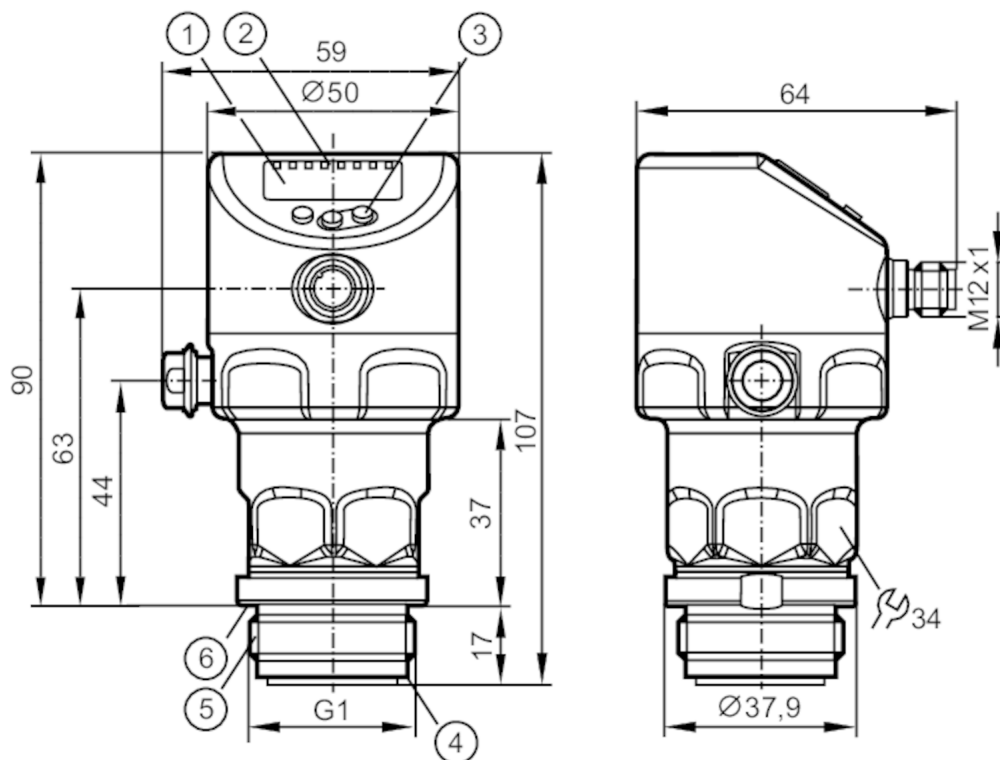




## Flush pressure sensor with display

PI-2,5-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



CRN



EC 1935/2004

EHEDG Certified

FCM



IO-Link

Reg31



UK

CA

### Product characteristics

|                              |                                                             |                  |                  |                 |
|------------------------------|-------------------------------------------------------------|------------------|------------------|-----------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |                  |                  |                 |
| Measuring range              | -0.124...2.5 bar                                            | -1.8...36.25 psi | -50...1004 inH2O | -12.4...250 kPa |
| 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                         | 50 bar                                                                | 725 psi | 5000 kPa |
| Pressure rating                                | 20 bar                                                                | 290 psi | 2000 kPa |
| Vacuum resistance [mbar]                       | -1000                                                                 |         |          |
| Type of pressure                               | relative pressure; vacuum                                             |         |          |
| No dead space                                  | yes                                                                   |         |          |
| MAWP (for applications according to CRN) [bar] | 2.5                                                                   |         |          |



## Flush pressure sensor with display

PI-2,5-REA01-MFRKG/US/ /P

| Electrical data                                 |      |                                                             |                   |                  |                   |
|-------------------------------------------------|------|-------------------------------------------------------------|-------------------|------------------|-------------------|
| Min. insulation resistance                      | [MΩ] | 100; (500 V DC)                                             |                   |                  |                   |
| 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]  | (Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)                    |                   |                  |                   |
| Measuring/setting range                         |      |                                                             |                   |                  |                   |
| Measuring range                                 |      | -0.124...2.5 bar                                            | -1.8...36.25 psi  | -50...1004 inH2O | -12.4...250 kPa   |
| Set point SP                                    |      | -0.12...2.5 bar                                             | -1.74...36.26 psi | -48...1004 inH2O | -12...250 kPa     |
| Reset point rP                                  |      | -0.124...2.496 bar                                          | -1.8...36.2 psi   | -50...1002 inH2O | -12.4...249.6 kPa |
| Analogue start point                            |      | -0.124...1.994 bar                                          | -1.8...28.92 psi  | -50...801 inH2O  | -12.4...199.4 kPa |
| Analogue end point                              |      | 0.382...2.5 bar                                             | 5.54...36.26 psi  | 153...1004 inH2O | 38.2...250 kPa    |
| Min. difference between SP and rP               |      | 0.004 bar                                                   | 0.06 psi          | 2 inH2O          | 0.4 kPa           |
| In steps of                                     |      | 0.001 bar                                                   | 0.01 psi          | 1 inH2O          | 0.1 kPa           |



## Flush pressure sensor with display

PI-2,5-REA01-MFRKG/US/ /P

|                                              |                   |                                                                                                         |                                                       |
|----------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Factory setting                              |                   | SP1 = 0.625 bar                                                                                         | rP1 = 0.575 bar                                       |
|                                              |                   | SP2 = 1.875 bar                                                                                         | rP2 = 1.825 bar                                       |
|                                              |                   | ASP = 0.00 bar                                                                                          | AEP = 2.50 bar                                        |
|                                              |                   | dAP = 2.00 s                                                                                            | dAA =2.00 s                                           |
| Temperature monitoring                       |                   |                                                                                                         |                                                       |
| Measuring range                              |                   | -25...150 °C                                                                                            | -13...302 °F                                          |
| Accuracy / deviations                        |                   |                                                                                                         |                                                       |
| Switch point accuracy<br>[% of the span]     |                   | < ± 0,2; (DIN EN IEC 62828-1; Turn down 1:1)                                                            |                                                       |
| Repeatability<br>[% of the span]             |                   | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                          |                                                       |
| Characteristics deviation<br>[% 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<br>[% of the span]       |                   | < ± 0,15; (Turn down 1:1)                                                                               |                                                       |
| Hysteresis deviation<br>[% of the span]      |                   | < ± 0,15; (Turn down 1:1)                                                                               |                                                       |
| Long-term stability<br>[% 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) |                                                                                                         |                                                       |



## Flush pressure sensor with display

PI-2,5-REA01-MFRKG/US/ IP

|                                    |                                                                                                                          |            |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------|
| 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]  | 0.0001                                                                                                                   |            |
| 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                                                                                                                  | 1154       |

| 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 <a href="http://www.factory-certificate.ifm">www.factory-certificate.ifm</a> |                     |
| UL approval          | UL Approval no.                                                                                                           | J048                |
|                      | File number UL                                                                                                            | E174189             |

| Mechanical data          |                                                                                                                                  |             |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------|
| Weight [g]               |                                                                                                                                  | 358.1       |
| Materials                | stainless steel (316L/1.4404); FKM; PTFE; PBT; PEI; PFA                                                                          |             |
| Materials (wetted parts) | ceramics (99.9 % Al <sub>2</sub> O <sub>3</sub> ); 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; kPa; inH <sub>2</sub> O |                               |

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



## Flush pressure sensor with display

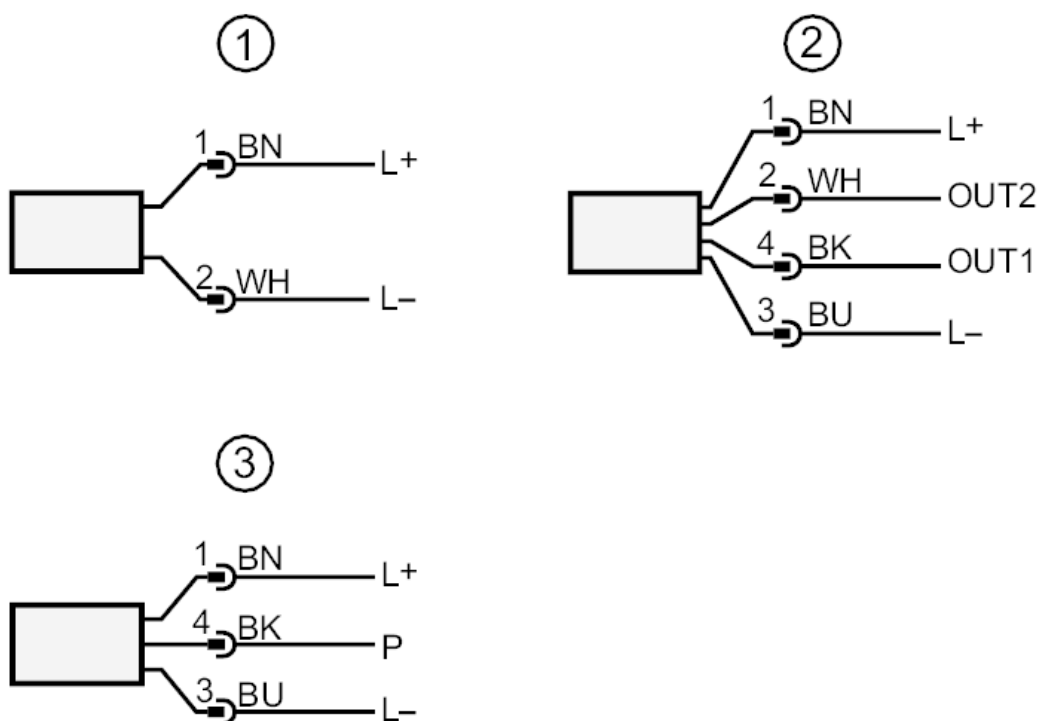
PI-2,5-REA01-MFRKG/US/ IP

### 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

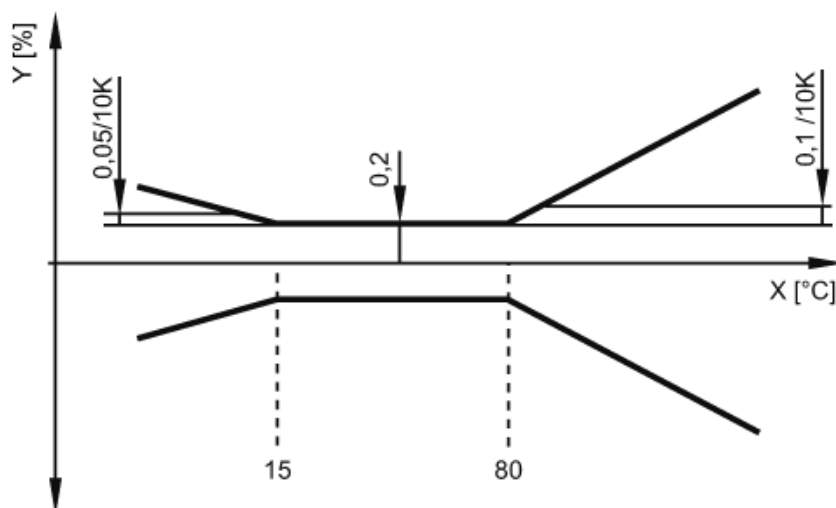


## Flush pressure sensor with display

PI-2,5-REA01-MFRKG/US/ IP

### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation