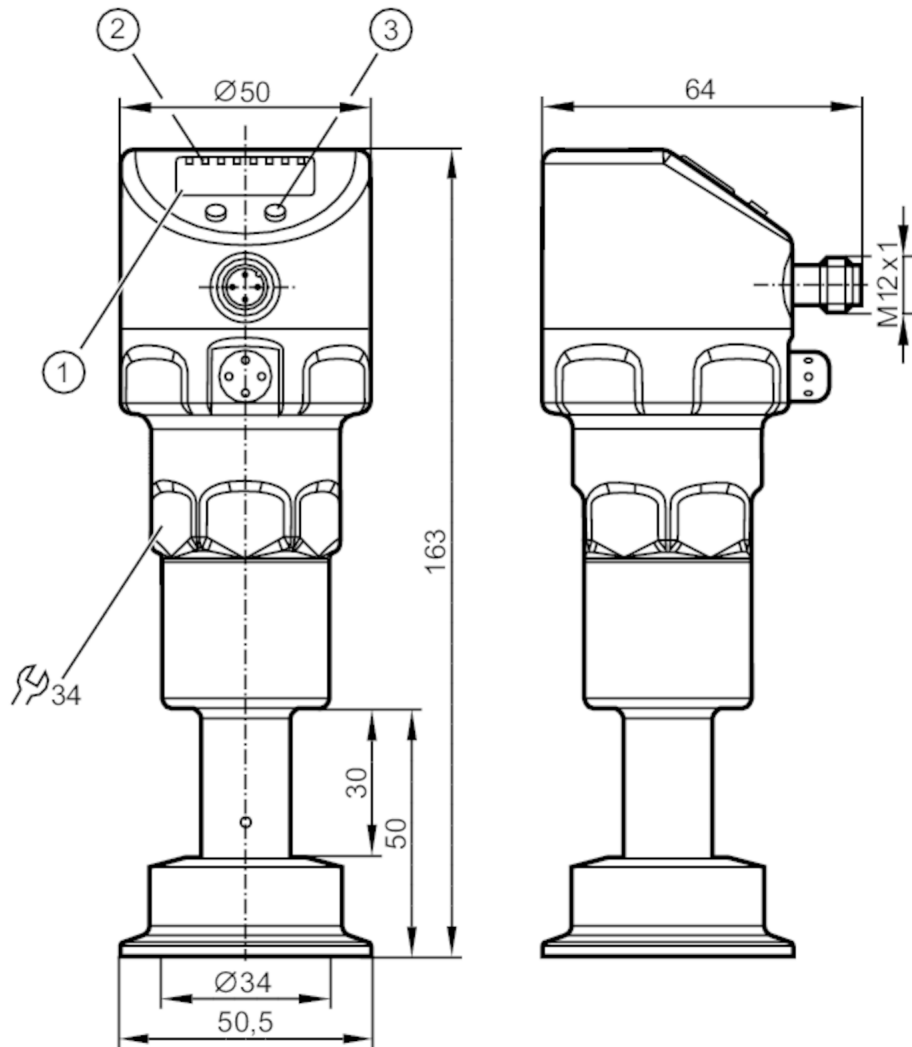


PI2209



Flush pressure sensor with display

PI-1-1BREZ01-MFRKG/US/ IP



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 programming button



| Application                     |                                                                       |         |
|---------------------------------|-----------------------------------------------------------------------|---------|
| Application                     | hygienic systems                                                      |         |
| Media                           | viscous media and liquids with suspended particles; liquids and gases |         |
| Medium temperature [°C]         | -25...200; (-25...160 °C; Ambient temperature > 65 °C)                |         |
| Pressure rating                 | 10000 mbar                                                            | 145 psi |
| Min. bursting pressure          | 30000 mbar                                                            | 435 psi |
| Type of pressure                | relative pressure                                                     |         |
| Electrical data                 |                                                                       |         |
| Min. insulation resistance [MΩ] | 100; (500 V DC)                                                       |         |
| Protection class                | III                                                                   |         |
| Reverse polarity protection     | yes                                                                   |         |
| Integrated watchdog             | yes                                                                   |         |



## Flush pressure sensor with display

PI-1-1BREZ01-MFRKG/US/ /P

|                                                 |                                                             |                                |                   |
|-------------------------------------------------|-------------------------------------------------------------|--------------------------------|-------------------|
| 2-wire                                          |                                                             |                                |                   |
| Operating voltage                               | [V]                                                         | 20...32 DC                     |                   |
| Current consumption                             | [mA]                                                        | 3.6...21                       |                   |
| Power-on delay time                             | [s]                                                         | 1                              |                   |
| 3-wire                                          |                                                             |                                |                   |
| Operating voltage                               | [V]                                                         | 18...32 DC                     |                   |
| Current consumption                             | [mA]                                                        | < 45                           |                   |
| 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; (configurable)  |                                |                   |
| 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]                                                        | 250                            |                   |
| Switching frequency DC                          | [Hz]                                                        | 125                            |                   |
| Max. load                                       | [Ω]                                                         | (Ub - 10 V) / 20 mA            |                   |
| Measuring/setting range                         |                                                             |                                |                   |
| Measuring range                                 | -1000...1000 mbar                                           |                                | -14.5...14.5 psi  |
| Set point SP                                    | -998...1000 mbar                                            |                                | -14.45...14.5 psi |
| Reset point rP                                  | -1000...998 mbar                                            |                                | -14.5...14.45 psi |
| Analogue start point                            | -1000...500 mbar                                            |                                | -14.5...7.25 psi  |
| Analogue end point                              | -500...1000 mbar                                            |                                | -7.25...14.5 psi  |
| In steps of                                     | 1 mbar                                                      |                                | 0.05 psi          |
| Factory setting                                 |                                                             | SP1 = -500 mbar                | rP1 = -540 mbar   |
|                                                 |                                                             | SP2 = 500 mbar                 | rP2 = 460 mbar    |
|                                                 |                                                             | ASP = -1000 mbar               | AEP = 1000 mbar   |
| Accuracy / deviations                           |                                                             |                                |                   |
| Switch point accuracy                           | < ± 0,2; (Turn down 1:1)                                    |                                |                   |



## Flush pressure sensor with display

PI-1-1BREZ01-MFRKG/US/ IP

|                                    |                        |                                                                                                              |
|------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------|
|                                    | [% of the span]        |                                                                                                              |
| Repeatability                      | [% of the span]        | $< \pm 0,1$ ; (with temperature fluctuations $< 10$ K; Turn down 1:1)                                        |
| Characteristics deviation          | [% of the span]        | $< \pm 0,2$ ; (Turn down 1:1 linearity, incl. hysteresis and repeatability limit value setting to DIN 16086) |
| Linearity deviation                | [% of the span]        | $< \pm 0,15$ ; (Turn down 1:1)                                                                               |
| Hysteresis deviation               | [% of the span]        | $< \pm 0,15$ ; (Turn down 1:1)                                                                               |
| Long-term stability                | [% of the span]        | $< \pm 0,1$ ; (Turn down 1:1; per year)                                                                      |
| Temperature coefficient zero point | [% of the span / 10 K] | $< \pm 0,3$ ; (0...200 °C)                                                                                   |
| Temperature coefficient span       | [% of the span / 10 K] | $< \pm 0,15$ ; (0...200 °C)                                                                                  |

### Response times

|                                      |     |              |
|--------------------------------------|-----|--------------|
| Damping for the switching output dAP | [s] | 0...30       |
| Damping for the analogue output dAA  | [s] | 0.01...99.99 |

### 2-wire

|                                    |      |    |
|------------------------------------|------|----|
| Step response time analogue output | [ms] | 45 |
|------------------------------------|------|----|

### 3-wire

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

### Interfaces

|                           |      |                                                                                   |
|---------------------------|------|-----------------------------------------------------------------------------------|
| Communication interface   |      | IO-Link                                                                           |
| Transmission type         |      | COM2 (38,4 kBaud)                                                                 |
| IO-Link revision          |      | 1.0                                                                               |
| SDCI standard             |      | IO-Link Communication Specification, Version 1.0, January 2009, Ordner No: 10.002 |
| IO-Link device ID         |      | 108 d / 00 00 6C h                                                                |
| Profiles                  |      | no profile                                                                        |
| SIO mode                  |      | yes                                                                               |
| Required master port type |      | A                                                                                 |
| Process data analogue     |      | 1                                                                                 |
| Process data binary       |      | 2                                                                                 |
| Min. process cycle time   | [ms] | 2.3                                                                               |

### Operating conditions

|                             |      |                                               |
|-----------------------------|------|-----------------------------------------------|
| Ambient temperature         | [°C] | -25...80                                      |
| Note on ambient temperature |      | -25...60 °C<br>Medium temperature: $> 160$ °C |
| Storage temperature         | [°C] | -25...100                                     |
| Protection                  |      | IP 67; IP 68; IP 69K                          |



## Flush pressure sensor with display

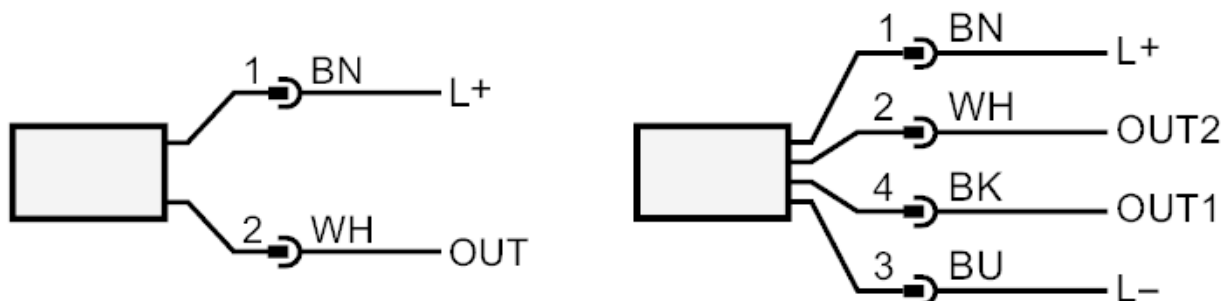
PI-1-1BREZ01-MFRKG/US/ IP

| 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]                                                                         | 141                           |
| Note on approval                                                                               | Including free 6-point calibration certificate.                                 |                               |
| Mechanical data                                                                                |                                                                                 |                               |
| Weight                                                                                         | [g]                                                                             | 921.2                         |
| Materials                                                                                      | stainless steel (1.4404 / 316L); stainless steel (1.4435 / 316L); PBT; PEI; PFA |                               |
| Materials (wetted parts)                                                                       | stainless steel (1.4435 / 316L)                                                 |                               |
| Min. pressure cycles                                                                           | 10 million                                                                      |                               |
| Process connection                                                                             | Clamp DN 38 / 1,5"                                                              |                               |
| Surface characteristics Ra/Rz of the wetted parts                                              | < 0.38 / -                                                                      |                               |
| Fill fluid for pressure transfer                                                               | medical white oil (suited for use in food applications, FDA compliant)          |                               |
| Diaphragm diameter                                                                             | [mm]                                                                            | 34                            |
| 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                                                                                   | mbar; kPa; psi; inH2O; mWS; % of the span                                       |                               |
| Remarks                                                                                        |                                                                                 |                               |
| Pack quantity                                                                                  | 1 pcs.                                                                          |                               |
| Electrical connection                                                                          |                                                                                 |                               |
| Connector: 1 x M12; Contacts: gold-plated                                                      |                                                                                 |                               |
| <div></div> |                                                                                 |                               |



## Flush pressure sensor with display

PI-1-1BREZ01-MFRKG/US/ IP



|      |                                   |
|------|-----------------------------------|
|      | connection for 2-wire operation : |
| OUT  | analogue output                   |
|      | connection for 3-wire operation : |
| OUT1 | switching output                  |
|      | IO-Link                           |
| OUT2 | switching output                  |
|      | analogue output                   |
|      | colours to DIN EN 60947-5-2       |
|      | Core colours :                    |
| BK = | black                             |
| BN = | brown                             |
| BU = | blue                              |
| WH = | white                             |