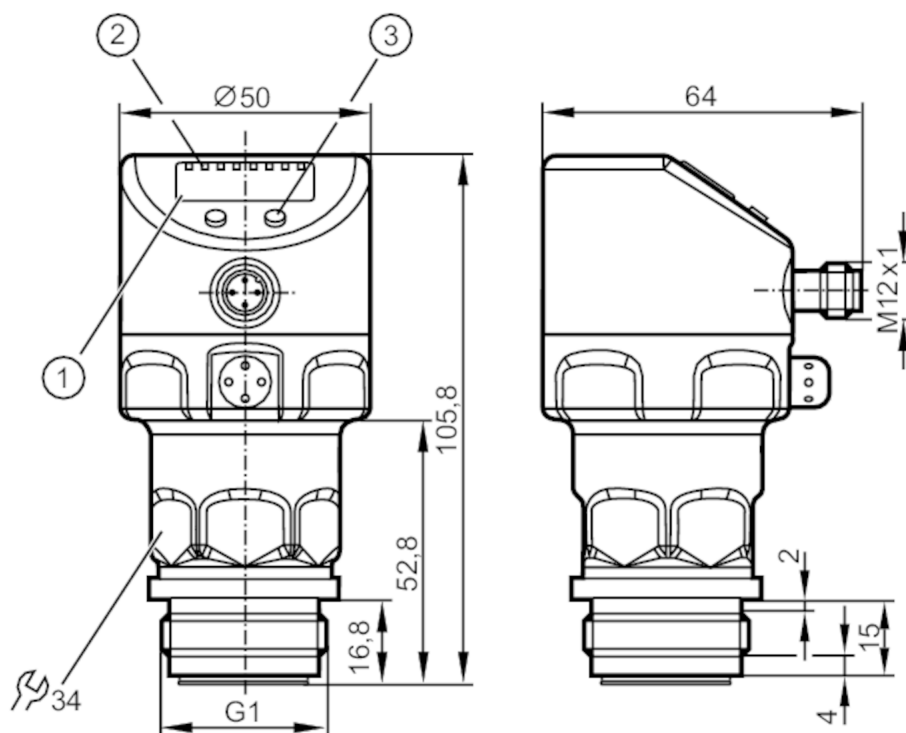




## Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ IP



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



ACS



EC 1935/2004 EHEDG Certified



Reg31

### Application

|                         |                                                                       |         |
|-------------------------|-----------------------------------------------------------------------|---------|
| Application             | hygienic systems                                                      |         |
| Media                   | viscous media and liquids with suspended particles; liquids and gases |         |
| Medium temperature [°C] | -25...125; (145 max. 1h)                                              |         |
| Pressure rating         | 10000 mbar                                                            | 145 psi |
| Min. bursting pressure  | 30000 mbar                                                            | 435 psi |
| Type of pressure        | relative pressure                                                     |         |
| No dead space           | yes                                                                   |         |

### 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...32 DC      |
| Current consumption         | [mA] | 3.6...21        |
| Power-on delay time         | [s]  | 1               |



## Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

|                                                 |      |                                                                                                         |                                |
|-------------------------------------------------|------|---------------------------------------------------------------------------------------------------------|--------------------------------|
| 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                                                                                       |                                |
| Set point SP                                    |      | -998...1000 mbar                                                                                        |                                |
| Reset point rP                                  |      | -1000...998 mbar                                                                                        |                                |
| Analogue start point                            |      | -1000...500 mbar                                                                                        |                                |
| Analogue end point                              |      | -500...1000 mbar                                                                                        |                                |
| In steps of                                     |      | 1 mbar                                                                                                  |                                |
| Factory setting                                 |      | SP1 = -500 mbar                                                                                         |                                |
|                                                 |      | SP2 = 500 mbar                                                                                          |                                |
|                                                 |      | ASP = -1000 mbar                                                                                        |                                |
|                                                 |      | rP1 = -540 mbar                                                                                         |                                |
|                                                 |      | rP2 = 460 mbar                                                                                          |                                |
|                                                 |      | AEP = 1000 mbar                                                                                         |                                |
| Accuracy / deviations                           |      |                                                                                                         |                                |
| Switch point accuracy                           |      | < ± 0,2; (Turn down 1:1)                                                                                |                                |
| [% of the span]                                 |      |                                                                                                         |                                |
| Repeatability                                   |      | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                          |                                |
| [% of the span]                                 |      |                                                                                                         |                                |
| Characteristics deviation                       |      | < ± 0,2; (Turn down 1:1 linearity, incl. hysteresis and repeatability limit value setting to DIN 16086) |                                |
| [% of the span]                                 |      |                                                                                                         |                                |
| Linearity deviation                             |      | < ± 0,15; (Turn down 1:1)                                                                               |                                |
| [% of the span]                                 |      |                                                                                                         |                                |
| Hysteresis deviation                            |      | < ± 0,15; (Turn down 1:1)                                                                               |                                |



## Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

|                                              |                           |                                         |
|----------------------------------------------|---------------------------|-----------------------------------------|
|                                              | [% of the span]           |                                         |
| Long-term stability                          | [% of the span]           | $< \pm 0,1$ ; (Turn down 1:1; per year) |
| Temperature coefficient zero point           | [% of the span / 10 K]    | $< \pm 0,05$ ; (0...70 °C)              |
| Temperature coefficient span                 | [% of the span / 10 K]    | $< \pm 0,15$ ; (0...70 °C)              |
| <b>Response times</b>                        |                           |                                         |
| Damping for the switching output dAP         | [s]                       | 0...30                                  |
| Damping for the analogue output dAA          | [s]                       | 0.01...99.99                            |
| <b>2-wire</b>                                |                           |                                         |
| Step response time analogue output           | [ms]                      | 45                                      |
| <b>3-wire</b>                                |                           |                                         |
| Min. response time of switching output (dAP) | [ms]                      | 3                                       |
| Step response time analogue output           | [ms]                      | 7                                       |
| <b>Interfaces</b>                            |                           |                                         |
| Communication interface                      |                           | IO-Link                                 |
| Transmission type                            |                           | COM2 (38,4 kBaud)                       |
| IO-Link revision                             |                           | 1.0                                     |
| IO-Link device ID                            |                           | 258 d / 00 01 02 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                                     |
| <b>Operating conditions</b>                  |                           |                                         |
| Ambient temperature                          | [°C]                      | -25...80                                |
| Storage temperature                          | [°C]                      | -40...100                               |
| Protection                                   |                           | IP 67; IP 68; IP 69K                    |
| <b>Tests / approvals</b>                     |                           |                                         |
| EMC                                          | EN 61000-4-2 ESD          | 4 kV CD / 8 kV AD                       |
|                                              | EN 61000-4-3 HF radiated  | 10 V/m                                  |
|                                              | EN 61000-4-4 Burst        | 2 kV                                    |
|                                              | EN 61000-4-5 Surge        | 0,5/1 kV                                |
|                                              | EN 61000-4-6 HF conducted | 10 V                                    |
| Shock resistance                             | DIN IEC 68-2-27           | 50 g (11 ms)                            |
| Vibration resistance                         | DIN IEC 68-2-6            | 20 g (10...2000 Hz)                     |
| MTTF                                         | [years]                   | 160                                     |



## Flush pressure sensor with display

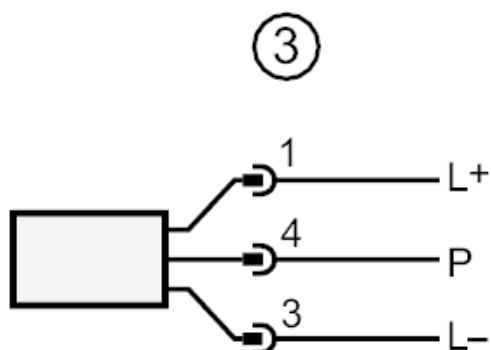
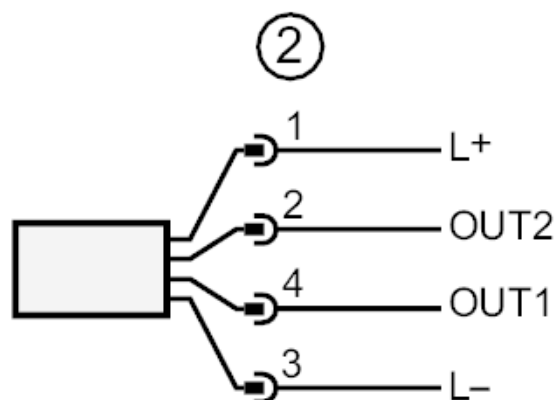
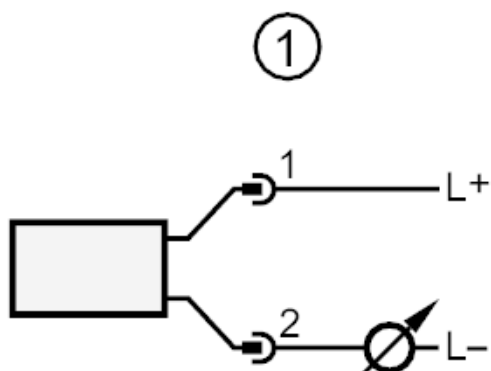
PI-1-1BREA01-MFRKG/US/ /P

| Mechanical data                                                                                |                                                                                                          |                               |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------|
| Weight                                                                                         | [g]                                                                                                      | 356                           |
| Materials                                                                                      | stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA                                                |                               |
| Materials (wetted parts)                                                                       | ceramics (99.9 % Al2O3); PTFE; stainless steel (1.4435 / 316L); surface characteristics: Ra < 0,4 / Rz 4 |                               |
| Min. pressure cycles                                                                           | 100 million                                                                                              |                               |
| 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                                                                                   | 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-1-1BREA01-MFRKG/US/ /P

### Connection



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