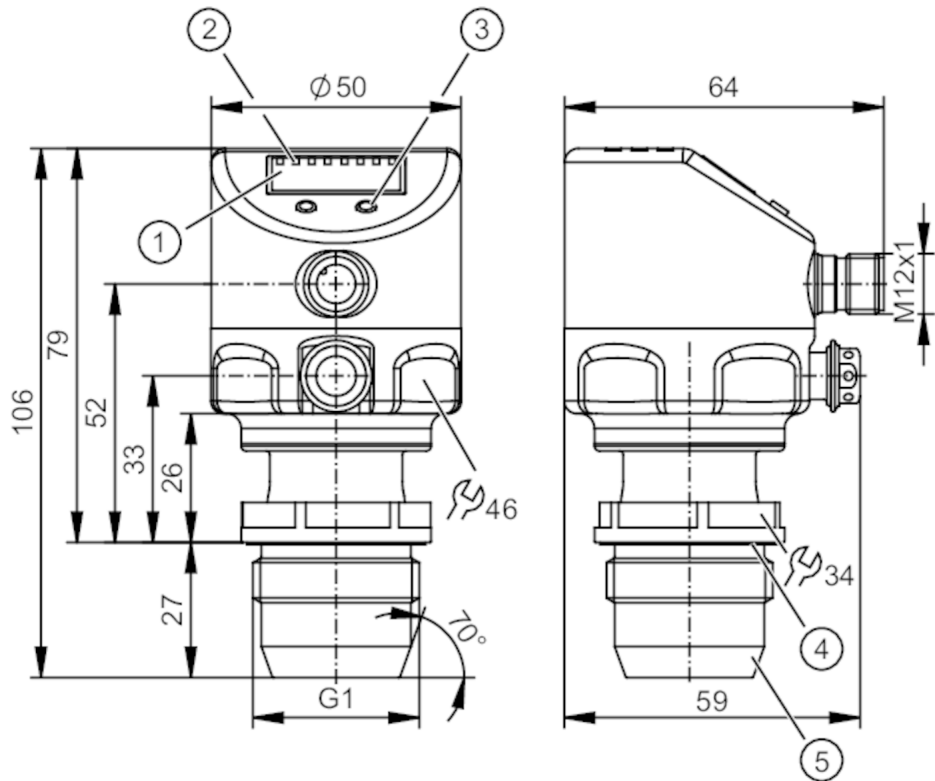




Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ IP

Alternative articles: PI1889  
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 with sealing ring
  - 5 sealing contour external thread G1
- Attention: The unit must only be installed in a process connection for G1 sealing cone.  
The G1A sealing cone of the unit is only suited for adapters with metal end stop.



| Product characteristics      |                                                                                                                                                                                                                                 |               |                  |               |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|---------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1                                                                                                                                                                     |               |                  |               |
| Measuring range              | -0.005...0.1 bar                                                                                                                                                                                                                | -5...100 mbar | -2...40.16 inH2O | -0.5...10 kPa |
| Process connection           | threaded connection G 1 external thread sealing cone Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop. |               |                  |               |
| 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...125; (145 max. 1h)                                                                                                                                                                                                        |               |                  |               |
| Min. bursting pressure       | 30000 mbar                                                                                                                                                                                                                      | 12044 inH2O   | 3000 kPa         |               |
| Pressure rating              | 4000 mbar                                                                                                                                                                                                                       | 1606 inH2O    | 400 kPa          |               |
| Vacuum resistance [mbar]     | -1000                                                                                                                                                                                                                           |               |                  |               |
| Type of pressure             | relative pressure                                                                                                                                                                                                               |               |                  |               |



## Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

|                                                 |       |                                                             |                     |                  |               |
|-------------------------------------------------|-------|-------------------------------------------------------------|---------------------|------------------|---------------|
| MAWP (for applications according to CRN)        | [bar] | 4                                                           |                     |                  |               |
| Electrical data                                 |       |                                                             |                     |                  |               |
| Min. insulation resistance                      | [MΩ]  | 100; (500 V DC)                                             |                     |                  |               |
| Protection class                                |       | III                                                         |                     |                  |               |
| Reverse polarity protection                     |       | yes                                                         |                     |                  |               |
| Measuring principle                             |       | hydrostatic                                                 |                     |                  |               |
| Integrated watchdog                             |       | yes                                                         |                     |                  |               |
| 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]   | (U <sub>b</sub> - 10 V) / 20 mA                             |                     |                  |               |
| Measuring/setting range                         |       |                                                             |                     |                  |               |
| Measuring range                                 |       | -0.005...0.1 bar                                            | -5...100 mbar       | -2...40.16 inH2O | -0.5...10 kPa |
| Set point SP                                    |       | -4.8...100 mbar                                             | -1.92...40.16 inH2O | -0.48...10 kPa   |               |
| Reset point rP                                  |       | -5...99.8 mbar                                              | -2...40.08 inH2O    | -0.5...9.98 kPa  |               |
| Analogue start point                            |       | -5...75 mbar                                                | -2...30.12 inH2O    | -0.5...7.5 kPa   |               |
| Analogue end point                              |       | 20...100 mbar                                               | 8.04...40.16 inH2O  | 2...10 kPa       |               |



## Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

|                 |          |               |                |
|-----------------|----------|---------------|----------------|
| In steps of     | 0.1 mbar | 0.04 inH2O    | 0.01 kPa       |
| Factory setting |          | SP1 = 25 mbar | rP1 = 23 mbar  |
|                 |          | SP2 = 75 mbar | rP2 = 73 mbar  |
|                 |          | ASP = 0 mbar  | AEP = 100 mbar |

## Accuracy / deviations

|                                                              |                                                                                                                    |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Switch point accuracy<br>[% of the span]                     | < ± 0,5; (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]                 | < ± 0,5; (Turn down 1:1, linearity, incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1) |
| Linearity deviation<br>[% of the span]                       | < ± 0,25; (Turn down 1:1)                                                                                          |
| Hysteresis deviation<br>[% of the span]                      | < ± 0,2; (Turn down 1:1)                                                                                           |
| Long-term stability<br>[% of the span]                       | < ± 0,1; (Turn down 1:1; per year)                                                                                 |
| Temperature coefficient zero point<br>[% of the span / 10 K] | < ± 0,1; (0...70 °C)                                                                                               |
| Temperature coefficient span<br>[% of the span / 10 K]       | < ± 0,2; (0...70 °C)                                                                                               |

## Response times

|                                                   |              |
|---------------------------------------------------|--------------|
| Damping process value 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               |          |
| 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               |          |
| Supported DeviceIDs          | Type of operation | DeviceID |
|                              | default           | 259      |

## Operating conditions

|                          |          |
|--------------------------|----------|
| Ambient temperature [°C] | -25...80 |
|--------------------------|----------|



## Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

|                     |                      |           |
|---------------------|----------------------|-----------|
| Storage temperature | [°C]                 | -40...100 |
| Protection          | IP 67; IP 68; IP 69K |           |

## Tests / approvals

|                      |                           |                     |
|----------------------|---------------------------|---------------------|
| 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]                   | 148.85              |

## Mechanical data

|                          |                                                                                                                                                                                                                                 |       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Weight                   | [g]                                                                                                                                                                                                                             | 376.5 |
| 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);<br>surface characteristics: Ra < 0,4 / Rz 4; PTFE                                                                                             |       |
| Min. pressure cycles     | 100 million                                                                                                                                                                                                                     |       |
| Process connection       | threaded connection G 1 external thread sealing cone Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop. |       |

## 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; inH <sub>2</sub> O; mmWS; % of the span |                               |

## Remarks

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

## Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated

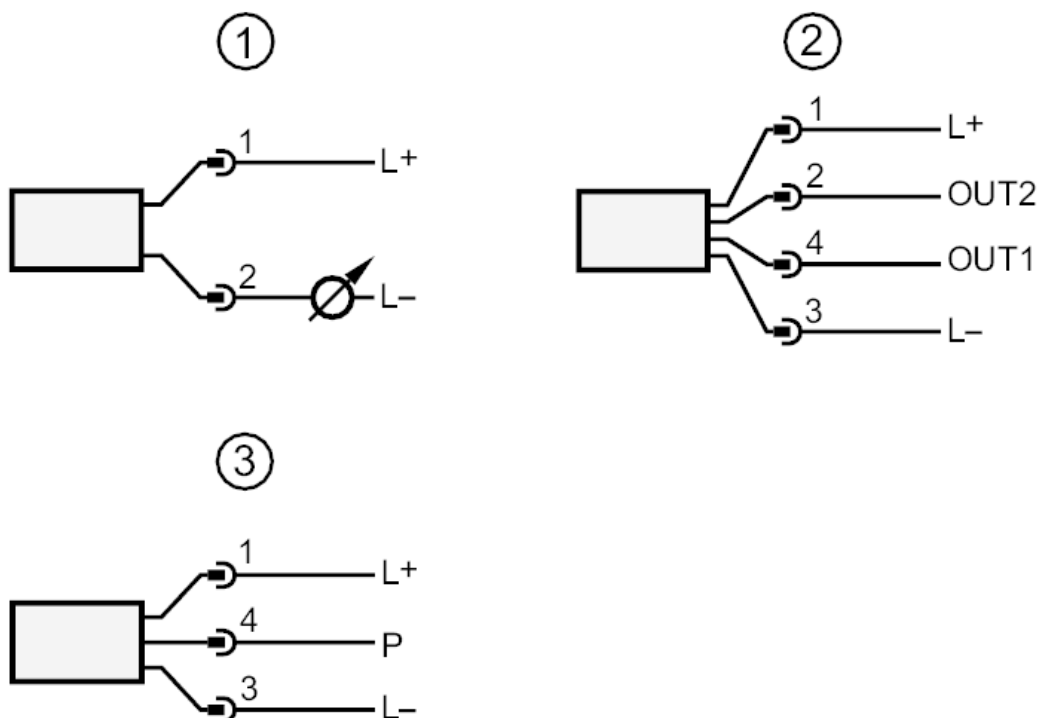




## Flush pressure sensor with display

PI-,10BREA01-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)