

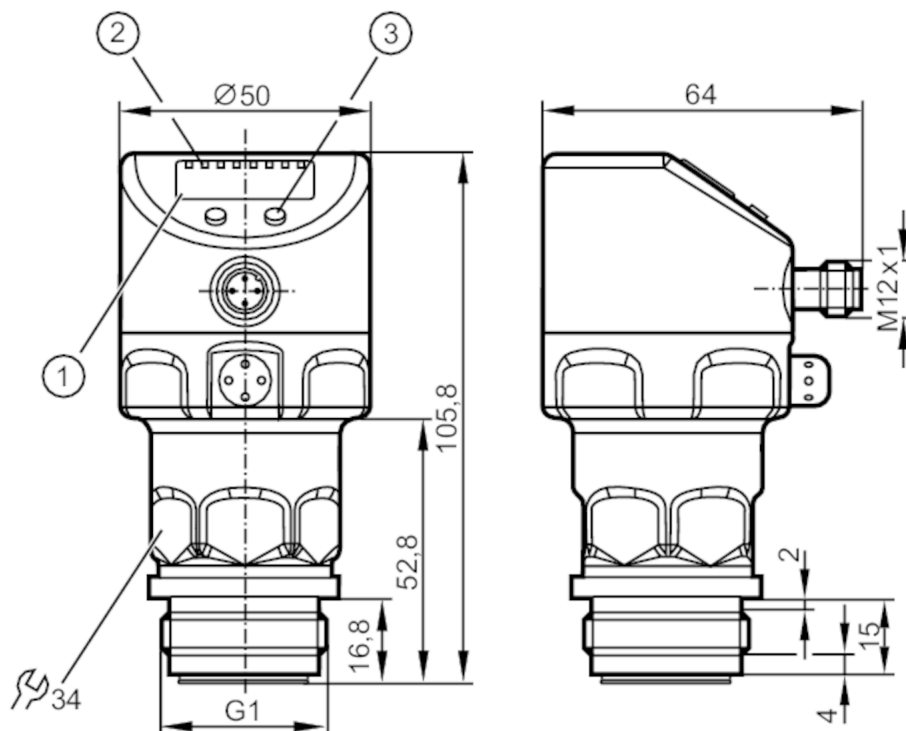


## Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

Alternative articles: PI1708

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



ACS



CRN



EC 1935/2004

EHEDG

Certified

FCM

FDA

IO-Link

NSF

Reg31

UK

CA

## Product characteristics

|                              |                                                           |                  |                               |                |
|------------------------------|-----------------------------------------------------------|------------------|-------------------------------|----------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analog outputs: 1 |                  |                               |                |
| Measuring range              | -0.0124...0.25 bar                                        | -12.4...250 mbar | -5...100.4 inH <sub>2</sub> O | -1.24...25 kPa |
| 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...125; (145 max. 1h)                                              |             |          |
| Min. bursting pressure                         | 30000 mbar                                                            | 12044 inH2O | 3000 kPa |
| Pressure rating                                | 6000 mbar                                                             | 2400 inH2O  | 600 kPa  |
| Vacuum resistance                              | -1000 mbar                                                            | -0.1 MPa    |          |
| Type of pressure                               | relative pressure                                                     |             |          |
| No dead space                                  | yes                                                                   |             |          |
| MAWP (for applications according to CRN) [bar] | 10                                                                    |             |          |



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| 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                                                         |                    |                                    |
| 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 analog outputs: 1 |                    |                                    |
| Outputs                                         |      |                                                           |                    |                                    |
| Total number of outputs                         |      | 2                                                         |                    |                                    |
| Output signal                                   |      | switching signal; analog signal; IO-Link; (configurable)  |                    |                                    |
| 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] | 250                                                       |                    |                                    |
| Switching frequency DC                          | [Hz] | 125                                                       |                    |                                    |
| Max. load                                       | [Ω]  | (Ub - 10 V) / 20 mA                                       |                    |                                    |
| Measuring/setting range                         |      |                                                           |                    |                                    |
| Measuring range                                 |      | -0.0124...0.25 bar                                        | -12.4...250 mbar   | -5...100.4 inH2O    -1.24...25 kPa |
| Set point SP                                    |      | -12...250 mbar                                            | -4.8...100.4 inH2O | -1.2...25 kPa                      |
| Reset point rP                                  |      | -12.4...249.6 mbar                                        | -5...100.2 inH2O   | -1.24...24.96 kPa                  |
| Analog start point                              |      | -12.4...187.4 mbar                                        | -5...75.2 inH2O    | -1.24...18.74 kPa                  |
| Analog end point                                |      | 50...250 mbar                                             | 20.1...100.4 inH2O | 5...25 kPa                         |
| In steps of                                     |      | 0.2 mbar                                                  | 0.1 inH2O          | 0.02 kPa                           |



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|                 |                  |                  |
|-----------------|------------------|------------------|
| Factory setting | SP1 = 62.4 mbar  | rP1 = 57.4 mbar  |
|                 | SP2 = 187.4 mbar | rP2 = 182.4 mbar |
|                 | ASP = 0.0 mbar   | AEP = 250.0 mbar |
|                 | dAP = 0.06 s     | dAA = 0.03 s     |

## Accuracy / deviations

|                                                              |                                                                                                                    |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Switch point accuracy<br>[% of the span]                     | < ± 0,2; (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; (Turn down 1:1, linearity, incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1) |
| Linearity deviation<br>[% of the span]                       | < ± 0,15; (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)                                                                                 |
| Temperature coefficient zero point<br>[% of the span / 10 K] | < ± 0,05; (0...70 °C)                                                                                              |
| Temperature coefficient span<br>[% of the span / 10 K]       | < ± 0,15; (0...70 °C)                                                                                              |

## Reaction times

|                                                   |              |
|---------------------------------------------------|--------------|
| Damping process value dAP [s]                     | 0...30       |
| Damping for the analog output dAA [s]             | 0.01...99.99 |
| 2-wire                                            |              |
| Step response time analog output [ms]             | 45           |
| 3-wire                                            |              |
| Min. response time of switching output (dAP) [ms] | 3            |
| Step response time analog 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 class   | A                 |          |
| Process data analog          | 1                 |          |
| Process data binary          | 2                 |          |
| Min. process cycle time [ms] | 2.3               |          |
| Supported DeviceIDs          | Type of operation | DeviceID |
|                              | default           | 257      |

## Operating conditions

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



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|                     |                      |           |
|---------------------|----------------------|-----------|
| 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]                                                                                                                   | 160                 |
| 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 number                                                                                                        | J018                |
|                      | File number UL                                                                                                            | E174189             |

## Mechanical data

|                          |                                                                                                                                    |                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Weight                   | [g]                                                                                                                                | 354              |
| Housing                  | tubular                                                                                                                            |                  |
| Dimensions               | [mm]                                                                                                                               | Ø 50 / L = 105.8 |
| Material                 | stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA                                                                          |                  |
| Materials (wetted parts) | ceramics (99.9 % Al <sub>2</sub> O <sub>3</sub> ); stainless steel (1.4435 / 316L); surface characteristics: Ra < 0,4 / Rz 4; PTFE |                  |
| 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; 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





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### Connection



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