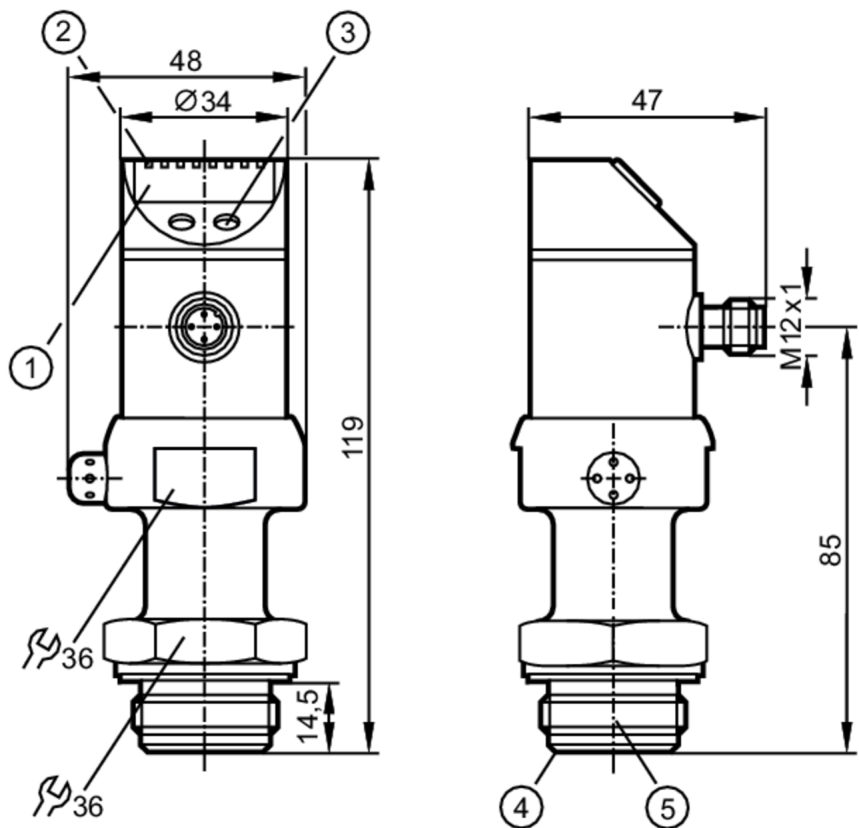


# PI2099



## Flush pressure sensor with display

PI-1-1BRES30-MFRKG/US/ /P



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 programming button
- 4 Aseptoflex sealing edge
- 5 Aseptoflex thread



### Application

|                               |                                                                       |
|-------------------------------|-----------------------------------------------------------------------|
| Application                   | hygienic systems                                                      |
| Installation                  | freely rotatable housing 350°                                         |
| Media                         | viscous media and liquids with suspended particles; liquids and gases |
| Medium temperature [°C]       | -25...125; (145 max. 1h)                                              |
| Pressure rating [mbar]        | 10000                                                                 |
| Min. bursting pressure [mbar] | 30000                                                                 |
| Type of pressure              | relative pressure                                                     |
| No dead space                 | yes                                                                   |



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| Electrical data                                 |                 |                                                                                                         |                 |
|-------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------|-----------------|
| Operating voltage                               | [V]             | 18...32 DC                                                                                              |                 |
| Current consumption                             | [mA]            | < 50                                                                                                    |                 |
| Min. insulation resistance                      | [MΩ]            | 100; (500 V DC)                                                                                         |                 |
| Protection class                                |                 | III                                                                                                     |                 |
| Reverse polarity protection                     |                 | yes                                                                                                     |                 |
| Power-on delay time                             | [s]             | 0.5                                                                                                     |                 |
| Integrated watchdog                             |                 | yes                                                                                                     |                 |
| Inputs / outputs                                |                 |                                                                                                         |                 |
| Number of inputs and outputs                    |                 | Number of digital outputs: 1; Number of analogue outputs: 1                                             |                 |
| Outputs                                         |                 |                                                                                                         |                 |
| Total number of outputs                         |                 | 2                                                                                                       |                 |
| Output signal                                   |                 | switching signal; analogue signal; (configurable)                                                       |                 |
| Electrical design                               |                 | PNP/NPN                                                                                                 |                 |
| Number of digital outputs                       |                 | 1                                                                                                       |                 |
| Output function                                 |                 | normally open / normally closed; (parameterisable)                                                      |                 |
| Max. voltage drop switching output DC           | [V]             | 2                                                                                                       |                 |
| Permanent current rating of switching output DC | [mA]            | 250                                                                                                     |                 |
| Switching frequency DC                          | [Hz]            | 6                                                                                                       |                 |
| Number of analogue outputs                      |                 | 1                                                                                                       |                 |
| Analogue current output                         | [mA]            | 4...20, invertible; (scalable 1:4)                                                                      |                 |
| Max. load                                       | [Ω]             | (Ub - 10 V) / 20 mA                                                                                     |                 |
| Analogue voltage output                         | [V]             | 0...10, invertible; (scalable 1:4)                                                                      |                 |
| Min. load resistance                            | [Ω]             | 2000                                                                                                    |                 |
| Short-circuit protection                        |                 | yes                                                                                                     |                 |
| Type of short-circuit protection                |                 | pulsed                                                                                                  |                 |
| Overload protection                             |                 | yes                                                                                                     |                 |
| Measuring/setting range                         |                 |                                                                                                         |                 |
| Measuring range                                 | [mbar]          | -1000...1000                                                                                            |                 |
| Set point SP                                    | [mbar]          | -998...1000                                                                                             |                 |
| Reset point rP                                  | [mbar]          | -1000...998                                                                                             |                 |
| Analogue start point                            | [mbar]          | -1000...500                                                                                             |                 |
| Analogue end point                              | [mbar]          | -500...1000                                                                                             |                 |
| In steps of                                     | [mbar]          | 1                                                                                                       |                 |
| Factory setting                                 |                 | SP1 = -500 mbar                                                                                         | rP1 = -540 mbar |
|                                                 |                 | ASP = -1000 mbar                                                                                        | AEP = 1000 mbar |
| Accuracy / deviations                           |                 |                                                                                                         |                 |
| Switch point accuracy                           |                 | < ± 0,2; (Turn down 1:1)                                                                                |                 |
|                                                 | [% of the span] |                                                                                                         |                 |
| Repeatability                                   | [% of the span] | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                          |                 |
| Characteristics deviation                       |                 | < ± 0,2; (Turn down 1:1 linearity, incl. hysteresis and repeatability limit value setting to DIN 16086) |                 |



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|                                      |                                                                                                                                                                                                                 |                                    |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
|                                      | [% of the span]                                                                                                                                                                                                 |                                    |
| Linearity deviation                  | [% of the span]                                                                                                                                                                                                 | < ± 0,15; (Turn down 1:1)          |
| Hysteresis deviation                 | [% of the span]                                                                                                                                                                                                 | < ± 0,15; (Turn down 1:1)          |
| Long-term stability                  | [% of the span]                                                                                                                                                                                                 | < ± 0,1; (Turn down 1:1; per year) |
| Temperature coefficient zero point   |                                                                                                                                                                                                                 | < ± 0,05; (0...70 °C)              |
|                                      | [% of the span / 10 K]                                                                                                                                                                                          |                                    |
| Temperature coefficient span         |                                                                                                                                                                                                                 | < ± 0,15; (0...70 °C)              |
|                                      | [% of the span / 10 K]                                                                                                                                                                                          |                                    |
| Response times                       |                                                                                                                                                                                                                 |                                    |
| Response time                        | [ms]                                                                                                                                                                                                            | < 100                              |
| Damping for the switching output dAP | [s]                                                                                                                                                                                                             | 0.1...100                          |
| Damping for the analogue output dAA  | [s]                                                                                                                                                                                                             | 0.1...100                          |
| Step response time analogue output   | [ms]                                                                                                                                                                                                            | 25                                 |
| Software / programming               |                                                                                                                                                                                                                 |                                    |
| Parameter setting options            | hysteresis / window; normally open / normally closed; switching logic; current/voltage output; Damping; adaptation of displayed values; display can be rotated and switched off; Display unit; zero point; span |                                    |
| Operating conditions                 |                                                                                                                                                                                                                 |                                    |
| Ambient temperature                  | [°C]                                                                                                                                                                                                            | -25...80                           |
| Storage temperature                  | [°C]                                                                                                                                                                                                            | -40...100                          |
| Protection                           | IP 67; 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]                                                                                                                                                                                                         | 163                                |
| Mechanical data                      |                                                                                                                                                                                                                 |                                    |
| Weight                               | [g]                                                                                                                                                                                                             | 403.8                              |
| Materials                            | stainless steel (1.4404 / 316L); PC; PBT; PEI; FKM; PTFE                                                                                                                                                        |                                    |
| 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 Aseptoflex external thread Aseptoflex                                                                                                                                                       |                                    |



Flush pressure sensor with display

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| Displays / operating elements |                                           |                               |
|-------------------------------|-------------------------------------------|-------------------------------|
| Display                       | Display unit                              | 6 x, 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 |                               |

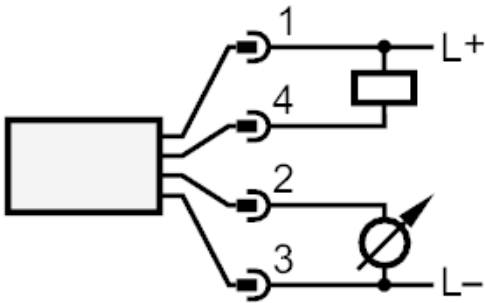
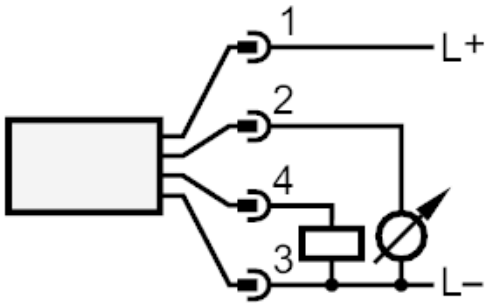
| Remarks       |                                                                                                   |
|---------------|---------------------------------------------------------------------------------------------------|
| Remarks       | The 3-A qualification is only valid if adapters with 3-A qualification are used for installation. |
| Pack quantity | 1 pcs.                                                                                            |

Electrical connection

Connector: 1 x M12; Contacts: gold-plated



Connection



|      |                  |
|------|------------------|
| OUT1 | switching output |
| OUT2 | analogue output  |