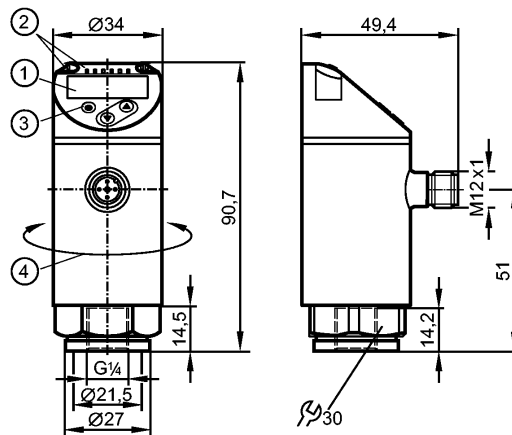


PN2099

PN-1-1BRER14-MFRKG/US/ N

Pressure sensors



- 1: 4-digit alphanumeric display / alternating indication of red and green
- 2: LEDs (display unit / switching status)
- 3: Programming button
- 4: Upper part of the housing can be rotated by 345°



Product characteristics

| |
|--|
| Electronic pressure sensor |
| M12 connector |
| Function programmable |
| Measuring element: ceramic-capacitive pressure measuring cell |
| Process connection: G ¼ I (according to DIN EN ISO 1179-2) |
| 2 outputs OUT1 = switching output OUT2 = switching output or analog output |
| 4-digit alphanumeric display / alternating indication of red and green |
| Measuring range: -1000...1000 mbar / -14.5...14.5 psi |

Application

| | | |
|--------------------------|---|---------|
| Application | Type of pressure: relative pressure Group 2 fluids according to the Pressure Equipment Directive (PED), group 1 fluids on request | |
| Pressure rating | 20000 mbar | 290 psi |
| Bursting pressure min. | 50000 mbar | 725 psi |
| Vacuum resistance [mbar] | -1000 | |
| Medium temperature [°C] | -25...80 | |

Electrical data

| | |
|-----------------------------|--------------------------|
| Electrical design | DC PNP/NPN |
| Operating voltage [V] | 18...30 DC ¹⁾ |
| Current consumption [mA] | < 35 |
| Insulation resistance [MΩ] | > 100 (500 V DC) |
| Protection class | III |
| Reverse polarity protection | yes |

Outputs

| | |
|--------|--|
| Output | 2 outputs OUT1 = switching output OUT2 = switching output or analog output |
|--------|--|

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Pressure sensors

| | | |
|--------------------------|--|--|
| Output function | 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analog (4...20 mA / 0...10 V; programmable 1:5) | |
| Current rating [mA] | 250 | |
| Voltage drop [V] | < 2 | |
| Short-circuit protection | yes (non-latching) | |
| Overload protection | yes | |
| Switching frequency [Hz] | ≤ 500 | |
| Analog output | 4...20 mA; 0...10 V | |
| Max. load [Ω] | 4...20 mA: max. 500 | |
| Min. load resistance [Ω] | 0...10 V: min. 2000 | |

| Measuring / setting range | | |
|---------------------------|-------------------|--------------------|
| Measuring range | -1000...1000 mbar | -14.5...14.5 psi |
| Setting range | | |
| Set point, SP | -990...1000 mbar | -14.4...14.5 psi |
| Reset point, rP | -995...995 mbar | -14.45...14.45 psi |
| Analog start point, ASP | -1000...600 mbar | -14.5...8.7 psi |
| Analog end point, AEP | -600...1000 mbar | -8.7...14.5 psi |
| in steps of | 5 mbar | 0.05 psi |

| Accuracy / deviations | |
|--|--------------------------------|
| Accuracy / deviations (in % of the span) Turn down 1:1 | |
| Switch point accuracy | < ± 0.4 |
| Characteristics deviation *) | < ± 0.25 (BFSL) / < ± 0.5 (LS) |
| Hysteresis | < ± 0.1 |
| Repeatability **) | < ± 0.1 |
| Long-term stability ***) | < ± 0.05 |
| Temperature coefficients (TEMPCO) in the temperature range -25...80° C (in % of the span per 10 K) | |
| Greatest TEMPCO of the zero point | 0.2 |
| Greatest TEMPCO of the span | 0.2 |

| Reaction times | |
|--|--------|
| Power-on delay time [s] | 0.3 |
| Min. response time switching output [ms] | < 1.5 |
| Delay time programmable dS, dr [s] | 0...50 |
| Damping for the switching output (dAP) [s] | 0...4 |
| Damping for the analog output (dAA) [s] | 0...4 |
| Response time analog output [ms] | < 3 |
| Integrated watchdog | yes |

| Software / programming | |
|------------------------|--|
| Programming options | hysteresis / window function; NO / NC; on delay, off delay; damping; display unit; current/ voltage output |

| Interfaces | |
|------------------|------|
| IO-Link Device | |
| Transfer type | COM2 |
| IO-Link revision | 1.1 |

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Pressure sensors

| | |
|------------------------------|--|
| SDCI standard | IEC 61131-9 |
| IO-Link Device ID | 467 d / 00 01 d3 h |
| Profiles | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis |
| SIO mode | yes |
| Required master port class | A |
| Process data analogue | 1 |
| Process data binary | 2 |
| Min. process cycle time [ms] | 2.3 |

| Environment | |
|--------------------------|---------------|
| Ambient temperature [°C] | -25...80 |
| Storage temperature [°C] | -40...100 |
| Protection | IP 65 / IP 67 |

| Tests / approvals | |
|------------------------------|--------------------------------------|
| Pressure equipment directive | sound engineering practice |
| 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] | 138 |
| UL approval number | J012 |

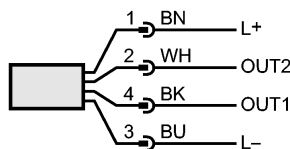
| Mechanical data | |
|--------------------------|--|
| Process connection | G ¼ I (according to DIN EN ISO 1179-2) |
| Materials (wetted parts) | stainless steel (316L / 1.4404); Al2O3 (ceramics); FKM |
| Housing materials | stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC |
| Min. pressure cycles | 100 million |
| Tightening torque [Nm] | 25...35 (recommended tightening torque ²) |
| Weight [kg] | 0.222 |

| Displays / operating elements | |
|-------------------------------|--|
| Display | Display unit 5 x LED green (mbar, psi, kPa, inH2O, inHg) Switching status 2 x LED yellow 4-digit alphanumeric display / alternating indication Measured values of red and green |

| Electrical connection | |
|-----------------------|-------------------------------------|
| Connection | M12 connector; gold-plated contacts |

Wiring

- Core colors
- BK black
- BN brown
- BU blue
- WH white



OUT1: switching output or IO-Link
 OUT2: switching output or 4...20 mA / 0...10 V
 Colours to DIN EN 60947-5-2

| Remarks | |
|---------|---|
| Remarks | *) BFSL = Best Fit Straight Line / LS = Limit Value Setting |

**PN2099**

PN-1-1BRER14-MFRKG/US/ N

Pressure sensors

**) with temperature fluctuations < 10 K

***) in% of the span / 6 months

1) to EN50178, SELV, PELV

2) Depends on lubrication, seal and pressure rating

Pack quantity

[piece]

1