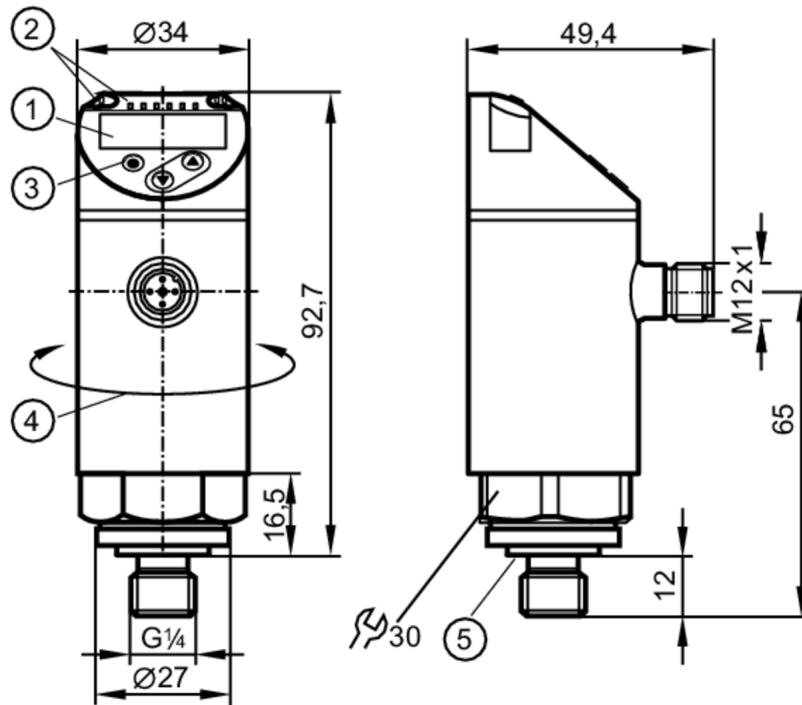


# PN2597



## Pressure sensor with display

PN-001BREG14-MFRKG/US/ IV



- 1 alphanumeric display 4-digit red/green
- 2 LEDs Display unit / switching status
- 3 programming button
- 4 upper part of the housing can be rotated 345°
- 5 Sealing



### Product characteristics

|                              |   |                 |                  |              |
|------------------------------|---|-----------------|------------------|--------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1                       |                 |                  |              |
| Measuring range              | -0.05...1 bar   | -50...1000 mbar | -0.72...14.5 psi | -5...100 kPa |
| Process connection           | threaded connection G 1/4 external thread (DIN EN ISO 1179-2); internal thread:M5 |                 |                  |              |

### Application

|                          |  |         |          |
|--------------------------|--|---------|----------|
| Special feature          | Gold-plated contacts                       |         |          |
| Measuring element        | ceramic-capacitive pressure measuring cell |         |          |
| Application              | for industrial applications                |         |          |
| Media                    | liquids and gases                          |         |          |
| Medium temperature [°C]  | -25...80                                   |         |          |
| Min. bursting pressure   | 30000 mbar                                 | 450 psi | 3000 kPa |
| Pressure rating          | 10000 mbar                                 | 145 psi | 1000 kPa |
| Vacuum resistance [mbar] | -1000                                      |         |          |
| Type of pressure         | relative pressure                          |         |          |

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| Electrical data                                 |                 |  |                 |                  |                 |
|---|-----------------|--|-----------------|------------------|-----------------|
| Operating voltage                               | [V]             | 18...30 DC; (to SELV/PELV)   |                 |                  |                 |
| Current consumption                             | [mA]            | < 35   |                 |                  |                 |
| Min. insulation resistance                      | [MΩ]            | 100; (500 V DC)  |                 |                  |                 |
| Protection class                                |                 | III  |                 |                  |                 |
| Reverse polarity protection                     |                 | yes  |                 |                  |                 |
| Power-on delay time                             | [s]             | 0.3  |                 |                  |                 |
| Integrated watchdog                             |                 | yes  |                 |                  |                 |
| 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)   |                 |                  |                 |
| Max. voltage drop switching output DC           | [V]             | 2  |                 |                  |                 |
| Permanent current rating of switching output DC | [mA]            | 250  |                 |                  |                 |
| Switching frequency DC                          | [Hz]            | < 500  |                 |                  |                 |
| Number of analogue outputs                      |                 | 1  |                 |                  |                 |
| Analogue current output                         | [mA]            | 4...20; (scalable 1:5)   |                 |                  |                 |
| Max. load                                       | [Ω]             | 500  |                 |                  |                 |
| Analogue voltage output                         | [V]             | 0...10; (scalable 1:5)   |                 |                  |                 |
| Min. load resistance                            | [Ω]             | 2000   |                 |                  |                 |
| Short-circuit protection                        |                 | yes  |                 |                  |                 |
| Type of short-circuit protection                |                 | pulsed   |                 |                  |                 |
| Overload protection                             |                 | yes  |                 |                  |                 |
| Measuring/setting range                         |                 |  |                 |                  |                 |
| Measuring range                                 |                 | -0.05...1 bar  | -50...1000 mbar | -0.72...14.5 psi | -5...100 kPa    |
| Set point SP                                    |                 | -44...1000 mbar  |                 | -0.64...14.5 psi | -4.4...100 kPa  |
| Reset point rP                                  |                 | -48...996 mbar   |                 | -0.7...14.44 psi | -4.8...99.6 kPa |
| Analogue start point                            |                 | -50...800 mbar   |                 | -0.72...11.6 psi | -5...80 kPa     |
| Analogue end point                              |                 | 150...1000 mbar  |                 | 2.18...14.5 psi  | 15...100 kPa    |
| In steps of                                     |                 | 2 mbar   |                 | 0.02 psi         | 0.2 kPa         |
| Accuracy / deviations                           |                 |  |                 |                  |                 |
| Notes on the accuracy / deviation               |                 | switch point accuracy, linearity error under DNV GL: < ± 1%; < ± 1%                                      |                 |                  |                 |
| Switch point accuracy                           | [% of the span] | < ± 0,4; (Turn down 1:1)   |                 |                  |                 |
| Repeatability                                   | [% of the span] | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)   |                 |                  |                 |
| Characteristics deviation                       | [% of the span] | < ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting) |                 |                  |                 |
| Hysteresis deviation                            |                 | < ± 0,1; (Turn down 1:1)   |                 |                  |                 |

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|                                    |                        |   |
|------------------------------------|------------------------|---|
|                                    | [% of the span]        |   |
| Long-term stability                | [% of the span]        | < ± 0,05; (Turn down 1:1; per 6 months) |
| Temperature coefficient zero point | [% of the span / 10 K] | < ± 0,2; (-0...80 °C)                   |
| Temperature coefficient span       | [% of the span / 10 K] | < ± 0,2; (-0...80 °C)                   |

### Response times

|                                     |      |        |
|-------------------------------------|------|--------|
| Response time                       | [ms] | < 1.5  |
| Delay time programmable dS, dr      | [s]  | 0...50 |
| Damping process value dAP           | [s]  | 0...4  |
| Damping for the analogue output dAA | [s]  | 0...4  |
| Max. response time analogue output  | [ms] | 3      |

### Software / programming

|                           |  |
|---------------------------|--|
| Parameter setting options | hysteresis / window; normally open / normally closed; switch-on/ switch-off delay; Damping; Display unit; current/voltage output |
|---------------------------|--|

### Interfaces

|                           |  |          |
|---------------------------|--|----------|
| Communication interface   | IO-Link  |          |
| Transmission type         | COM2 (38,4 kBaud)  |          |
| IO-Link revision          | 1.1  |          |
| SDCI standard             | IEC 61131-9  |          |
| Profiles                  | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis |          |
| 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  | 465      |

### Operating conditions

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

### Tests / approvals

|                              |   |                     |
|------------------------------|---|---------------------|
| 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                  | UL Approval no.   | J012                |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                     |

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| Mechanical data               |  |
|-------------------------------|--|
| Weight [g]                    | 263  |
| Materials                     | stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC                                 |
| Materials (wetted parts)      | stainless steel (1.4404 / 316L); Al <sub>2</sub> O <sub>3</sub> (96%; ceramics); FKM       |
| Min. pressure cycles          | 100 million  |
| Tightening torque [Nm]        | 25...35; (recommended tightening torque; depends on lubrication, seal and pressure rating) |
| Process connection            | threaded connection G 1/4 external thread (DIN EN ISO 1179-2); internal thread:M5          |
| Process connection sealing    | FKM (to DIN 3869)  |
| Restrictor element integrated | no (can be retrofitted)  |

| Displays / operating elements |                  |   |
|-------------------------------|------------------|---|
| Display                       | Display unit     | 3 x LED, green (bar, psi, MPa)          |
|                               | switching status | 2 x LED, yellow                         |
|                               | measured values  | alphanumeric display, red/green 4-digit |

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

### Electrical connection

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



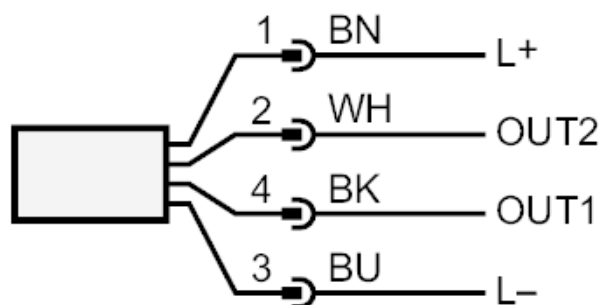
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### Connection



OUT1            switching output

OUT2            switching output

analogue output

Core colours :

BK =            black

BN =            brown

BU =            blue

WH =            white