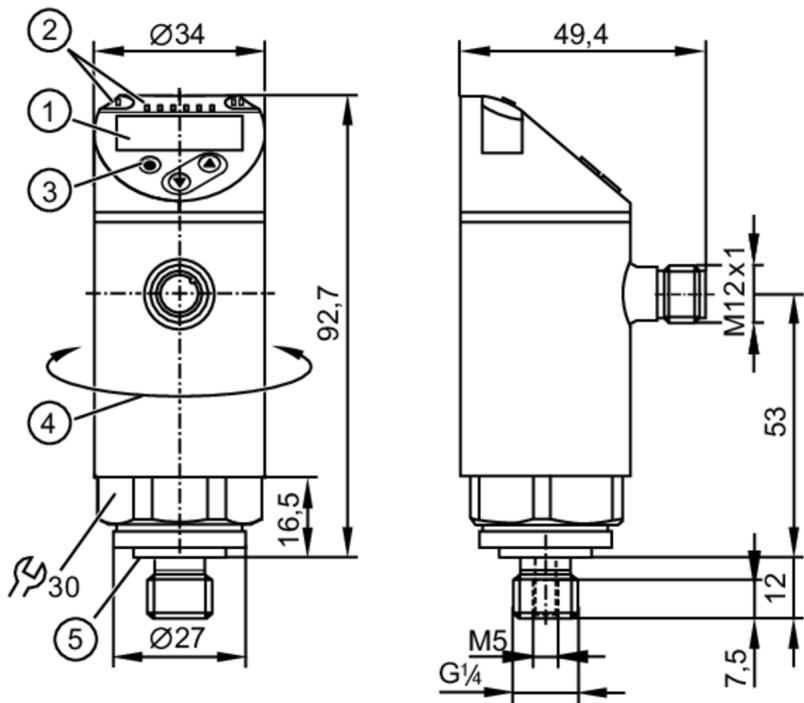




Pressure sensor with display

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 | -20.1...401.5 inH2O | -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; vacuum                  |         |          |

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                        |



## Pressure sensor with display

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|                             |     |
|-----------------------------|-----|
| 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   | -20.1...401.5 inH2O | -5...100 kPa |
| Analogue start point | -50...800 mbar  | -0.72...11.6 psi | -20...321 inH2O    | -5...80 kPa         |              |
| Analogue end point   | 150...1000 mbar | 2.18...14.5 psi  | 60.5...401.5 inH2O | 15...100 kPa        |              |

## Factory setting / CMPT = 2

|                                   |                 |                  |                     |                 |
|-----------------------------------|-----------------|------------------|---------------------|-----------------|
| Set point SP                      | -44...1000 mbar | -0.64...14.5 psi | -17.5...401.5 inH2O | -4.4...100 kPa  |
| Reset point rP                    | -48...996 mbar  | -0.7...14.44 psi | -19...400 inH2O     | -4.8...99.6 kPa |
| Min. difference between SP and rP | 6 mbar          | 0.06 psi         | 2 inH2O             | 0.6 kPa         |
| In steps of                       | 2 mbar          | 0.02 psi         | 0.5 inH2O           | 0.2 kPa         |

## Status\_B High Resolution / CMPT = 3

|                                   |                 |                   |                     |                 |
|-----------------------------------|-----------------|-------------------|---------------------|-----------------|
| Set point SP                      | -44...1000 mbar | -0.63...14.5 psi  | -17.5...401.5 inH2O | -4.4...100 kPa  |
| Reset point rP                    | -48...996 mbar  | -0.69...14.44 psi | -19.2...399.8 inH2O | -4.8...99.6 kPa |
| Min. difference between SP and rP | 5 mbar          | 0.06 psi          | 1.7 inH2O           | 0.5 kPa         |
| In steps of                       | 1 mbar          | 0.01 psi          | 0.1 inH2O           | 0.1 kPa         |

## Accuracy / deviations

|                                       |                                                                |
|---------------------------------------|----------------------------------------------------------------|
| 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) |



## Pressure sensor with display

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|                                                              |                                                                                                                                  |            |
|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------|
| Characteristics deviation<br>[% of the span]                 | < ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting)                         |            |
| Hysteresis deviation<br>[% of the span]                      | < ± 0,1; (Turn down 1:1)                                                                                                         |            |
| Long-term stability<br>[% of the span]                       | < ± 0,05; (Turn down 1:1; per 6 months)                                                                                          |            |
| Temperature coefficient zero point<br>[% of the span / 10 K] | < ± 0,2; (-0...80 °C)                                                                                                            |            |
| Temperature coefficient span<br>[% of the span / 10 K]       | < ± 0,2; (-0...80 °C)                                                                                                            |            |
| Notes on the accuracy / deviation                            | switch point accuracy, linearity error under DNV GL: < ± 1%: < ± 1%                                                              |            |
| 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                                                                                                                      |            |
| SIO mode                                                     | yes                                                                                                                              |            |
| Required master port type                                    | A; (when pin 2 not connected: B)                                                                                                 |            |
| Supported DeviceIDs                                          | Type of operation                                                                                                                | DeviceID   |
|                                                              | Factory setting / CMPT = 2                                                                                                       | 465        |
|                                                              | Status_B High Resolution / CMPT = 3                                                                                              | 976        |
| Note                                                         | For further information please see the IODD PDF file under "Downloads"                                                           |            |
| Factory setting / CMPT = 2                                   |                                                                                                                                  |            |
| Profiles                                                     | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis                                                     |            |
| Min. process cycle time [ms]                                 | 2.3                                                                                                                              |            |
| IO-Link resolution pressure [mbar]                           | 1                                                                                                                                |            |
| IO-Link process data (cyclical)                              | function                                                                                                                         | bit length |
|                                                              | pressure                                                                                                                         | 14         |
|                                                              | binary switching information                                                                                                     | 2          |
| IO-Link functions (acyclical)                                | application specific tag                                                                                                         |            |
| Status_B High Resolution / CMPT = 3                          |                                                                                                                                  |            |
| Profiles                                                     | Smart Sensor ED2: Digital Measuring Sensor (0x000A). Identification and Diagnosis (0x4000)                                       |            |

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## Pressure sensor with display

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|                                    |                              |                   |
|------------------------------------|------------------------------|-------------------|
| Min. process cycle time            | [ms]                         | 3                 |
| IO-Link resolution pressure        | [mbar]                       | 0.5               |
| IO-Link process data<br>(cyclical) | <b>function</b>              | <b>bit length</b> |
|                                    | pressure                     | 16                |
|                                    | device status                | 4                 |
|                                    | binary switching information | 2                 |
| IO-Link functions (acyclical)      | application specific tag     |                   |

| 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 |                     |

| Mechanical data               |                                                                                   |                                                                                            |
|-------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Weight                        | [g]                                                                               | 263                                                                                        |
| Materials                     | stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC                          |                                                                                            |
| Materials (wetted parts)      | stainless steel (316L/1.4404); Al2O3 (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 (DIN EN ISO 1179-2)                                                           |                                                                                            |
| 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



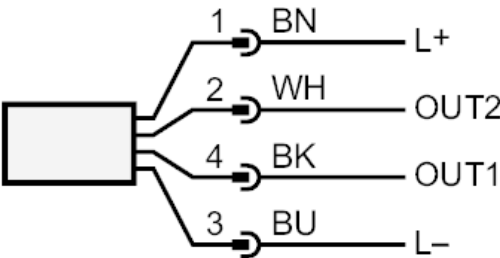
# PN2597



## Pressure sensor with display

PN-001BREG14-MFRKG/US/ IV

### Connection



|      |                  |
|------|------------------|
| OUT1 | switching output |
|      | IO-Link          |
| OUT2 | switching output |
|      | analogue output  |
|      | Core colours :   |
| BK = | black            |
| BN = | brown            |
| BU = | blue             |
| WH = | white            |