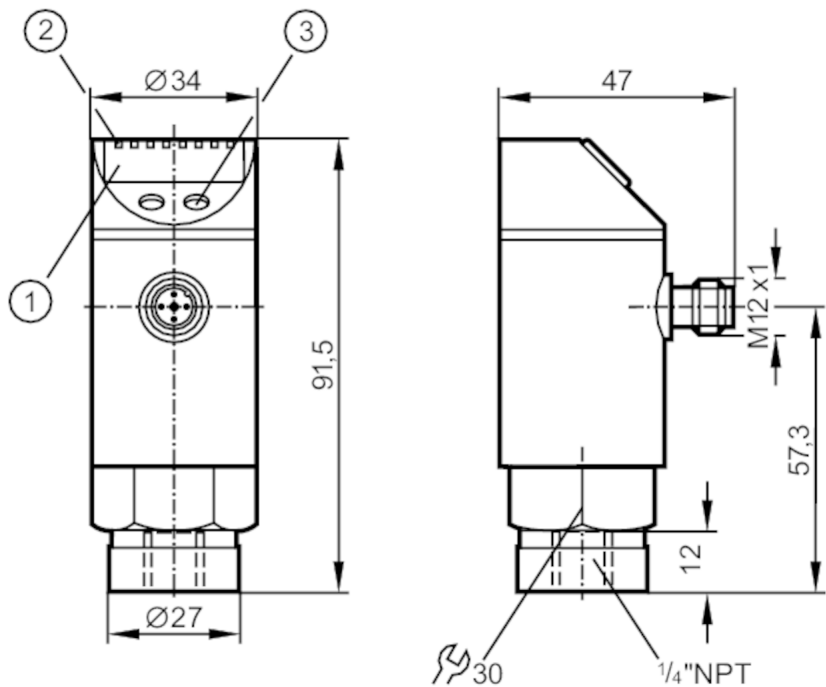


# PY2209



## Pressure sensor with display

PN-1-1BRBN14-MFRKG/US/ IV



- 1 alphanumeric display 4-digit
- 2 LEDs Display unit / switching status
- 3 programming button



### Product characteristics

|                              |                                                             |  |
|------------------------------|-------------------------------------------------------------|--|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |  |
| Measuring range [psi]        | -15...15                                                    |  |
| Process connection           | threaded connection 1/4" NPT internal thread                |  |

### Application

|                         |                             |       |
|-------------------------|-----------------------------|-------|
| Special feature         | Gold-plated contacts        |       |
| Application             | for industrial applications |       |
| Media                   | liquids and gases           |       |
| Medium temperature [°C] | -25...80                    |       |
| Min. bursting pressure  | 725 psi                     | 5 MPa |
| Pressure rating         | 290 psi                     | 2 MPa |
| Type of pressure        | relative pressure           |       |

### Electrical data

|                                 |                            |  |
|---------------------------------|----------------------------|--|
| Operating voltage [V]           | 18...32 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                        |  |



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| 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; (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 1:4)                                                                                   |                |
| Max. load                                       | [Ω]                    | (Ub - 10 V) / 20 mA                                                                                      |                |
| Analogue voltage output                         | [V]                    | 0...10; (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                                 | [psi]                  | -15...15                                                                                                 |                |
| Set point SP                                    | [psi]                  | -14.8...15                                                                                               |                |
| Reset point rP                                  | [psi]                  | -14.9...14.9                                                                                             |                |
| Analogue start point                            | [psi]                  | -15...7.5                                                                                                |                |
| Analogue end point                              | [psi]                  | -7.5...15                                                                                                |                |
| In steps of                                     | [psi]                  | 0.1                                                                                                      |                |
| Factory setting                                 |                        | SP1 = -7.5 psi                                                                                           | rP1 = -8.1 psi |
|                                                 |                        | SP2 = 7.5 psi                                                                                            | rP2 = 6.9 psi  |
|                                                 |                        | ASP = -15 psi                                                                                            | AEP = 15 psi   |
| 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)                                           |                |
| 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                            | [% of the span]        | < ± 0,1; (Turn down 1:1)                                                                                 |                |
| Long-term stability                             | [% of the span]        | < ± 0,1; (Turn down 1:1; per year)                                                                       |                |
| Temperature coefficient zero point              | [% of the span / 10 K] | < ± 0,2; (-25...80 °C)                                                                                   |                |
| Temperature coefficient span                    |                        | < ± 0,2; (-25...80 °C)                                                                                   |                |



## Pressure sensor with display

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|                                     |                                                                                                                                                                                                                 |                               |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| [% of the span / 10 K]              |                                                                                                                                                                                                                 |                               |
| Response times                      |                                                                                                                                                                                                                 |                               |
| Response time                       | [ms]                                                                                                                                                                                                            | < 1.5                         |
| Damping process value dAP           | [s]                                                                                                                                                                                                             | 0.01...4                      |
| Damping for the analogue output dAA | [s]                                                                                                                                                                                                             | 0.01...4                      |
| Max. response time analogue output  | [ms]                                                                                                                                                                                                            | 3                             |
| 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 65                         |
| 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]                                                                                                                                                                                                         | 167.14                        |
| Pressure Equipment Directive        | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request                                                                                                                           |                               |
| Mechanical data                     |                                                                                                                                                                                                                 |                               |
| Weight                              | [g]                                                                                                                                                                                                             | 256.5                         |
| Housing                             |                                                                                                                                                                                                                 | cylindrical                   |
| Dimensions                          | [mm]                                                                                                                                                                                                            | Ø 34 / L = 91.5               |
| Materials                           | stainless steel (304/1.4301); stainless steel (316L/1.4404); PC; PBT; PEI; FKM; PTFE                                                                                                                            |                               |
| Materials (wetted parts)            | stainless steel (303/1.4305); ceramics; FKM                                                                                                                                                                     |                               |
| Min. pressure cycles                | 100 million                                                                                                                                                                                                     |                               |
| Process connection                  | threaded connection 1/4" NPT internal thread                                                                                                                                                                    |                               |
| Restrictor element integrated       | no (can be retrofitted)                                                                                                                                                                                         |                               |
| Displays / operating elements       |                                                                                                                                                                                                                 |                               |
| Display                             | Display unit                                                                                                                                                                                                    | 3 x LED, green                |
|                                     | switching status                                                                                                                                                                                                | 2 x LED, yellow               |
|                                     | function display                                                                                                                                                                                                | alphanumeric display, 4-digit |
|                                     | measured values                                                                                                                                                                                                 | alphanumeric display, 4-digit |
| Display unit                        | mbar; kPa; psi; inH2O; inHg                                                                                                                                                                                     |                               |
| Remarks                             |                                                                                                                                                                                                                 |                               |
| Pack quantity                       | 1 pcs.                                                                                                                                                                                                          |                               |

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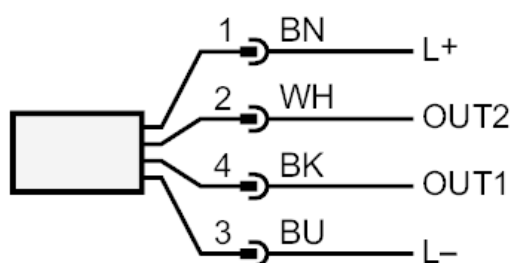
PN-1-1BRBN14-MFRKG/US/ IV

### Electrical connection

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



### Connection



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