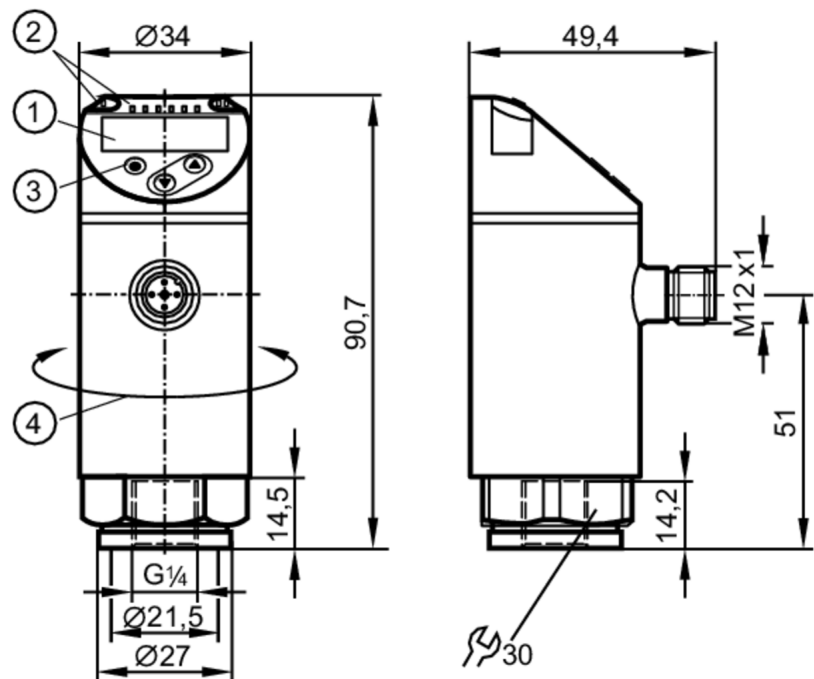




Pressure sensor with display

PN-1-1BRER14-QFRKG/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°



| Product characteristics         |                                            |                   |                  |                   |                |
|---------------------------------|--------------------------------------------|-------------------|------------------|-------------------|----------------|
| Number of inputs and outputs    | Number of digital outputs: 2               |                   |                  |                   |                |
| Measuring range                 | -1...1 bar                                 | -1000...1000 mbar | -14.5...14.5 psi | -29.4...29.4 inHg | -100...100 kPa |
| Process connection              | threaded connection G 1/4 internal thread  |                   |                  |                   |                |
| 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           | 880 inHg         | 3000 kPa          |                |
| Pressure rating                 | 10000 mbar                                 | 145 psi           | 290 inHg         | 1000 kPa          |                |
| Vacuum resistance [mbar]        | -1000                                      |                   |                  |                   |                |
| Vacuum resistance [MPa]         | -0.1                                       |                   |                  |                   |                |
| 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

PN-1-1BRER14-QFRKG/US/ /V

|                             |       |
|-----------------------------|-------|
| 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 |
|------------------------------|------------------------------|

### Outputs

|                                                      |                                                    |
|------------------------------------------------------|----------------------------------------------------|
| Total number of outputs                              | 2                                                  |
| Output signal                                        | switching 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]            | 2.5                                                |
| Permanent current rating of switching output DC [mA] | 150; (200 (...60 °C) 250 (...40 °C))               |
| Switching frequency DC [Hz]                          | < 170                                              |
| Short-circuit protection                             | yes                                                |
| Type of short-circuit protection                     | pulsed                                             |
| Overload protection                                  | yes                                                |

### Measuring/setting range

|                 |            |                   |                  |                   |                |
|-----------------|------------|-------------------|------------------|-------------------|----------------|
| Measuring range | -1...1 bar | -1000...1000 mbar | -14.5...14.5 psi | -29.4...29.4 inHg | -100...100 kPa |
|-----------------|------------|-------------------|------------------|-------------------|----------------|

### Factory setting / CMPT = 2

|                                   |                  |                  |                   |               |
|-----------------------------------|------------------|------------------|-------------------|---------------|
| Set point SP                      | -980...1000 mbar | -14.3...14.5 psi | -29...29.6 inHg   | -98...100 kPa |
| Reset point rP                    | -990...990 mbar  | -14.4...14.4 psi | -29.4...29.2 inHg | -99...99 kPa  |
| Min. difference between SP and rP | 10 mbar          | 0.2 psi          | 0.4 inHg          | 1 kPa         |
| In steps of                       | 10 mbar          | 0.1 psi          | 0.2 inHg          | 0.1 kPa       |

### Status\_B High Resolution / CMPT = 3

|                                   |                  |                  |                   |               |
|-----------------------------------|------------------|------------------|-------------------|---------------|
| Set point SP                      | -983...1000 mbar | -14.3...14.5 psi | -29...29.5 inHg   | -98...100 kPa |
| Reset point rP                    | -993...990 mbar  | -14.4...14.4 psi | -29.3...29.2 inHg | -99...99 kPa  |
| Min. difference between SP and rP | 10 mbar          | 0.2 psi          | 0.3 inHg          | 1 kPa         |
| In steps of                       | 1 mbar           | 0.1 psi          | 0.1 inHg          | 0.1 kPa       |

### Accuracy / deviations

|                                           |                                                                                           |
|-------------------------------------------|-------------------------------------------------------------------------------------------|
| Switch point accuracy [% of the span]     | < ± 0,5                                                                                   |
| Repeatability [% of the span]             | < ± 0,1; (with temperature fluctuations < 10 K)                                           |
| Characteristics deviation [% of the span] | < ± 0,25 (BFSL) / < ± 0,5 (LS); (BFSL = Best Fit Straight Line; LS = limit value setting) |
| Hysteresis deviation [% of the span]      | < ± 0,25                                                                                  |
| Long-term stability [% of the span]       | < ± 0,05; (per 6 months)                                                                  |
| Temperature coefficient zero point        | < ± 0,2; (-25...80 °C)                                                                    |



## Pressure sensor with display

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|                                     |                                                                                                                          |                        |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------|
| [% of the span / 10 K]              |                                                                                                                          |                        |
| Temperature coefficient span        |                                                                                                                          | < ± 0,2; (-25...80 °C) |
| [% of the span / 10 K]              |                                                                                                                          |                        |
| Response times                      |                                                                                                                          |                        |
| Response time                       | [ms]                                                                                                                     | < 3                    |
| Delay time programmable dS, dr      | [s]                                                                                                                      | 0...50                 |
| Software / programming              |                                                                                                                          |                        |
| Parameter setting options           | hysteresis / window; normally open / normally closed; switching logic; switch-on/switch-off delay; Damping; Display unit |                        |
| 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)                                                                                         |                        |
| Process data analogue               | 1                                                                                                                        |                        |
| Process data binary                 | 2                                                                                                                        |                        |
| Supported DeviceIDs                 | Type of operation                                                                                                        | DeviceID               |
|                                     | Factory setting / CMPT = 2                                                                                               | 406                    |
|                                     | PN7009                                                                                                                   | 314                    |
|                                     | Status_B High Resolution / CMPT = 3                                                                                      | 604                    |
| 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 resolution pressure         | [MPa]                                                                                                                    | 0.0001                 |
| 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)                               |                        |
| Min. process cycle time             | [ms]                                                                                                                     | 3                      |
| IO-Link resolution pressure         | [mbar]                                                                                                                   | 1                      |
| IO-Link resolution pressure         | [MPa]                                                                                                                    | 0.0001                 |
| IO-Link process data (cyclical)     | function                                                                                                                 | bit length             |
|                                     | pressure                                                                                                                 | 16                     |
|                                     | device status                                                                                                            | 4                      |
|                                     | binary switching information                                                                                             | 2                      |
| IO-Link functions (acyclical)       | application specific tag                                                                                                 |                        |
| Operating conditions                |                                                                                                                          |                        |
| Ambient temperature                 | [°C]                                                                                                                     | -25...80               |

# PN7099



## Pressure sensor with display

PN-1-1BRER14-QFRKG/US/ /V

|                     |      |              |
|---------------------|------|--------------|
| 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]                                                                               | 260                 |
| UL approval                  | UL Approval no.                                                                       | J001                |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                     |

### Mechanical data

|                               |      |                                                                                            |
|-------------------------------|------|--------------------------------------------------------------------------------------------|
| Weight                        | [g]  | 235.5                                                                                      |
| Housing                       |      | cylindrical                                                                                |
| Dimensions                    | [mm] | Ø 34 / L = 90.7                                                                            |
| Materials                     |      | stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC                                   |
| Materials (wetted parts)      |      | stainless steel (316L/1.4404); 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 internal thread                                                  |
| Restrictor element integrated |      | no (can be retrofitted)                                                                    |

### Displays / operating elements

|         |                  |                                         |
|---------|------------------|-----------------------------------------|
| Display | Display unit     | 4 x LED, green (bar, psi, kPa, inHg)    |
|         | 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



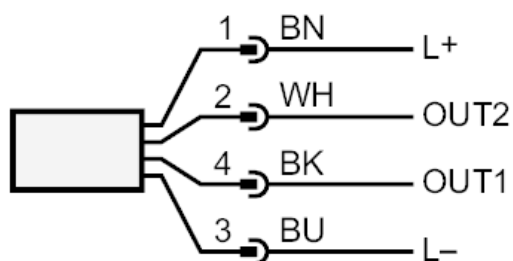
# PN7099



## Pressure sensor with display

PN-1-1BRER14-QFRKG/US/ IV

### Connection



|      |                             |
|------|-----------------------------|
| OUT1 | switching output            |
|      | IO-Link                     |
| OUT2 | switching output            |
|      | colours to DIN EN 60947-5-2 |
|      | Core colours :              |
| BK = | black                       |
| BN = | brown                       |
| BU = | blue                        |
| WH = | white                       |