

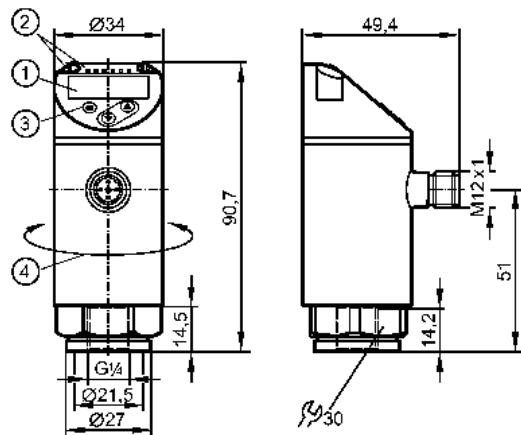


PN2094

PN-010-RER14-MFRKG/US/ /V



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 1/4 I (according to DIN EN ISO 1179-2)                       |
| 2 outputs<br>OUT1 = switching output<br>OUT2 = switching output or analogue output |
| 4-digit alphanumeric display / alternating indication of red and green             |
| Measuring range: -1...10 bar / -14.6...145 psi / -0.1...1 MPa                      |

Application

|                          |                                                                                                                                         |          |         |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------|---------|
| Application              | Type of pressure: relative pressure<br>Group 2 fluids according to the Pressure Equipment Directive (PED),<br>group 1 fluids on request |          |         |
| Pressure rating          | 75 bar                                                                                                                                  | 1087 psi | 7.5 MPa |
| Bursting pressure min.   | 150 bar                                                                                                                                 | 2175 psi | 15 MPa  |
| 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<br>OUT1 = switching output<br>OUT2 = switching output or analogue output |
|--------|------------------------------------------------------------------------------------|



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|                          |                                                                                                                                         |  |  |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Output function          | 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V; scaleable 1:5) |  |  |
| Current rating [mA]      | 250                                                                                                                                     |  |  |
| Voltage drop [V]         | < 2                                                                                                                                     |  |  |
| Short-circuit protection | pulsed                                                                                                                                  |  |  |
| Overload protection      | yes                                                                                                                                     |  |  |
| Switching frequency [Hz] | ≤ 500                                                                                                                                   |  |  |
| Analogue 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           | -1...10 bar      | -14.6...145 psi   | -0.1...1 MPa       |
| Setting range             |                  |                   |                    |
| Set point, SP             | -0.96...10 bar   | -14...145 psi     | -0.096...1 MPa     |
| Reset point, rP           | -0.98...9.98 bar | -14.2...144.8 psi | -0.098...0.998 MPa |
| Analogue start point, ASP | -1...8 bar       | -14.6...116 psi   | -0.1...0.8 MPa     |
| Analogue end point, AEP   | 1...10 bar       | 14.6...145 psi    | 0.1...1 MPa        |
| in steps of               | 0.02 bar         | 0.2 psi           | 0.002 MPa          |

| 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 analogue output (dAA) [s]  | 0...4  |
| Response time analogue 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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|                              |                                                                              |
|------------------------------|------------------------------------------------------------------------------|
| SDCI standard                | IEC 61131-9                                                                  |
| IO-Link device ID            | 463 d / 00 01 cf 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<br>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                                 |

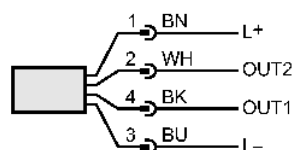
| Mechanical data          |                                                              |
|--------------------------|--------------------------------------------------------------|
| Process connection       | G ¼ I (according to DIN EN ISO 1179-2)                       |
| Materials (wetted parts) | 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 torque²)                     |
| Weight [kg]              | 0.221                                                        |

| Displays / operating elements |                                                                                                                                                                            |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display                       | Display unit 3 x LED green (bar, psi, MPa)<br>Switching status 2 x LED yellow<br>4-digit alphanumeric display / alternating indication<br>Measured values of red and green |

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

## Wiring

Core colours  
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 |



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**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 |
|---------------|---------|---|