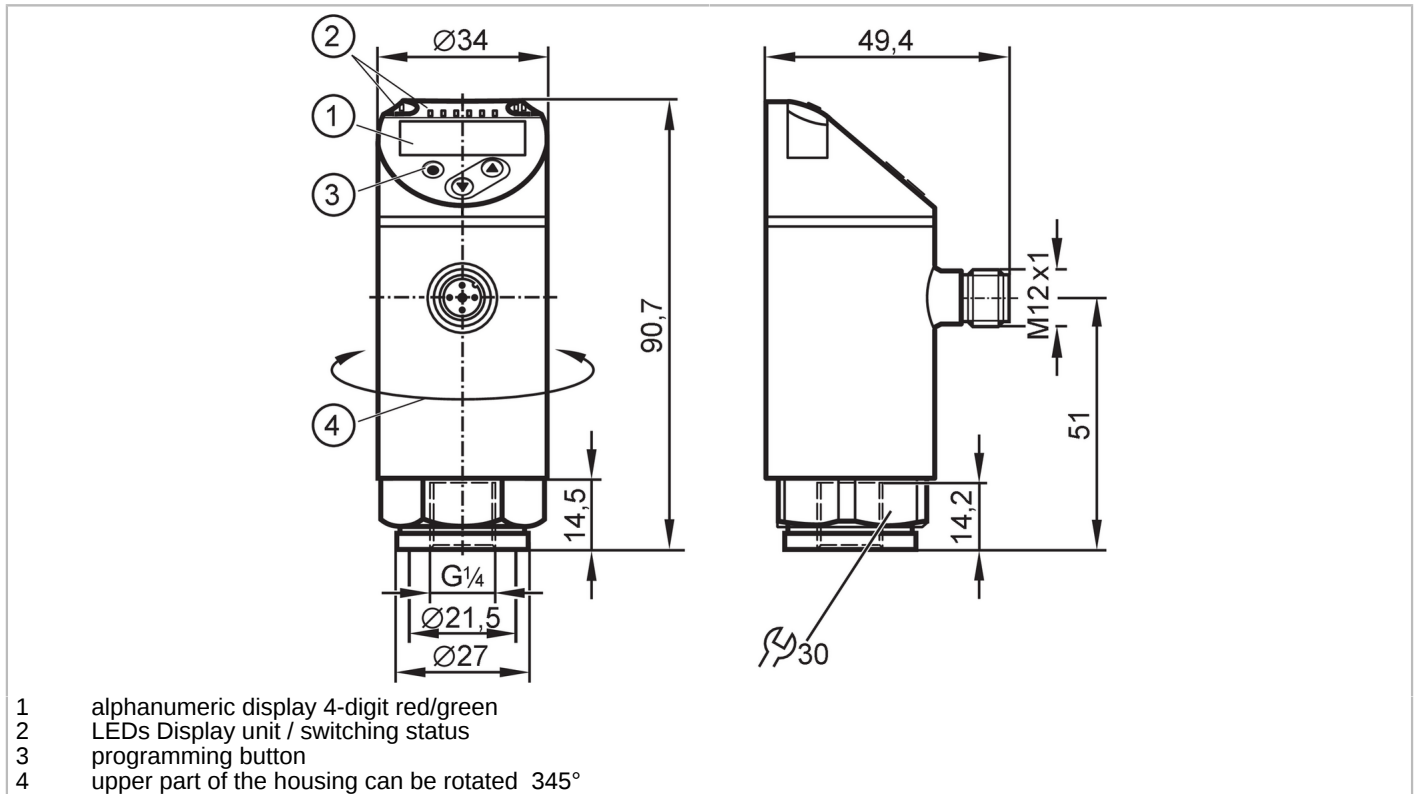


# PN3094



## Pressure sensor with display

PN-010-RER14-MFRKG/US/ IV



| Product characteristics         |   |                 |              |
|---------------------------------|---|-----------------|--------------|
| Number of inputs and outputs    | Number of digital outputs: 1; Number of analogue outputs: 1 |                 |              |
| Measuring range                 | -1...10 bar   | -14.5...145 psi | -0.1...1 MPa |
| Process connection              | threaded connection G 1/4 internal thread M6 I              |                 |              |
| Application                     |   |                 |              |
| Special feature                 | Gold-plated contacts  |                 |              |
| Measuring element               | ceramic-capacitive pressure measuring cell                  |                 |              |
| Media                           | liquids and gases   |                 |              |
| Medium temperature [°C]         | -25...80  |                 |              |
| Min. burst pressure             | 150 bar   | 2175 psi        | 15 MPa       |
| Pressure rating                 | 75 bar  | 1087 psi        | 7.5 MPa      |
| Vacuum resistance               | -1000 mbar  | -0.1 MPa        |              |
| 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   |                 |              |
| Reverse polarity protection     | yes   |                 |              |
| Power-on delay time [s]         | < 0.3   |                 |              |
| Integrated watchdog             | yes   |                 |              |



## Pressure sensor with display

PN-010-RER14-MFRKG/US/ IV

| Inputs / outputs                                     |   |
|--|---|
| Number of inputs and outputs                         | Number of digital outputs: 1; Number of analogue outputs: 1                               |
| Outputs  |   |
| Total number of outputs                              | 2   |
| Output signal  | switching signal; analogue signal; IO-Link; (configurable)                                |
| Electrical design                                    | PNP   |
| Number of digital outputs                            | 1   |
| 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   |
| Number of analogue outputs                           | 1   |
| Analogue current output [mA]                         | 4...20; (0 bar = 4 mA; 10 bar = 20 mA)  |
| Max. load [Ω]  | 500   |
| Analogue voltage output [V]                          | 0...10; (0 bar = 0 V; 10 bar = 10 V)  |
| Min. load resistance [Ω]                             | 2000  |
| Short-circuit protection                             | yes   |
| Type of short-circuit protection                     | pulsed  |
| Overload protection                                  | yes   |
| Measuring/setting range                              |   |
| Measuring range                                      | -1...10 bar      -14.5...145 psi      -0.1...1 MPa  |
| Factory setting / CMPT = 2                           |   |
| Set point SP   | -0.9...10 bar      -13.5...145 psi      -0.09...1 MPa                                     |
| Reset point rP                                       | -0.95...9.95 bar      -14...144.5 psi      -0.095...0.995 MPa                             |
| Min. difference between SP and rP                    | 0.05 bar      1 psi      0.005 MPa  |
| In steps of  | 0.05 bar      0.5 psi      0.005 MPa  |
| Status_B High Resolution / CMPT = 3                  |   |
| Set point SP   | -0.92...10 bar      -13.3...145 psi      -0.092...1 MPa                                   |
| Reset point rP                                       | -0.97...9.95 bar      -14...144.3 psi      -0.097...0.995 MPa                             |
| Min. difference between SP and rP                    | 0.05 bar      0.8 psi      0.005 MPa  |
| In steps of  | 0.01 bar      0.1 psi      0.001 MPa  |
| 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)  |

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## Pressure sensor with display

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|  |                        |
|--|------------------------|
| Temperature coefficient zero point<br>[% of the span / 10 K] | < ± 0,2; (-25...80 °C) |
| Temperature coefficient span<br>[% of the span / 10 K]       | < ± 0,2; (-25...80 °C) |

### Response times

|   |        |
|---|--------|
| Response time [ms]                      | < 3    |
| 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  |                   |          |                            |     |                                     |     |
| Process data analogue               | 1  |                   |          |                            |     |                                     |     |
| Process data binary                 | 1  |                   |          |                            |     |                                     |     |
| Supported DeviceIDs                 | <table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>Factory setting / CMPT = 2</td> <td>431</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>615</td> </tr> </tbody> </table> | Type of operation | DeviceID | Factory setting / CMPT = 2 | 431 | Status_B High Resolution / CMPT = 3 | 615 |
| Type of operation                   | DeviceID   |                   |          |                            |     |                                     |     |
| Factory setting / CMPT = 2          | 431  |                   |          |                            |     |                                     |     |
| Status_B High Resolution / CMPT = 3 | 615  |                   |          |                            |     |                                     |     |
| Note                                | For further information please see the IODD PDF file under "Downloads"   |                   |          |                            |     |                                     |     |

### Factory setting / CMPT = 2

|                                 |                              |                         |
|---------------------------------|------------------------------|-------------------------|
| Profiles                        | Smart Sensor - SSP 0         | Generic Profiled Sensor |
|                                 | Function                     | Device identification   |
|                                 | Function                     | Process data variable   |
|                                 | Function                     | Device diagnosis        |
| Min. process cycle time [ms]    | 2.3                          |                         |
| IO-Link resolution pressure     | 0.01 bar                     | 0.001 MPa               |
| IO-Link process data (cyclical) | <b>function</b>              | <b>bit length</b>       |
|                                 | pressure                     | 14                      |
|                                 | binary switching information | 1                       |
| IO-Link functions (acyclical)   | application specific tag     |                         |

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

|                              |                        |                              |
|------------------------------|------------------------|------------------------------|
| Profiles                     | Smart Sensor - SSP 3.1 | Measuring Sensor             |
|                              | Common - I&D           | Identification and Diagnosis |
| Min. process cycle time [ms] | 3                      |                              |
| IO-Link resolution pressure  | 0.005 bar              | 0.0005 MPa                   |

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## Pressure sensor with display

PN-010-RER14-MFRKG/US/ IV

| IO-Link process data (cyclical) | function                     | bit length |
|---------------------------------|------------------------------|------------|
|                                 | pressure                     | 16         |
|                                 | device status                | 4          |
|                                 | binary switching information | 1          |
| 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]   | 226                 |
| UL approval                  | UL approval no.   | J004                |
| 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); Al2O3 (ceramics); FKM   |
| Min. pressure cycles          |      | 100 million  |
| Tightening torque             | [Nm] | 25...35; (recommended tightening torque; depends on the lubrication, the seal and the pressure load) |
| Process connection            |      | threaded connection G 1/4 internal thread M6 I   |
| Restrictor element integrated |      | no (can be retrofitted)  |

### Displays / operating elements

|         |                  |   |
|---------|------------------|---|
| Display | Display unit     | 3 x LED, green (bar, psi, MPa)          |
|         | switching status | 1 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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## Pressure sensor with display

PN-010-RER14-MFRKG/US/ IV

### Connection



OUT1            switching output

IO-Link

OUT2            analogue output

colours to DIN EN 60947-5-2

Core colours :

BK =            black

BN =            brown

BU =            blue

WH =            white