

## Pressure sensor with display

PN-010-RER14-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              | -100...1000 kPa                           | -0.1...1 MPa |
| 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 [MPa] | 15                                         |
| Pressure rating [MPa]        | 7.5                                        |
| 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                      |



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|                                                           |                                                                                           |              |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------|
| 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                                           | -100...1000 kPa                                                                           | -0.1...1 MPa |
| Factory setting / CMPT = 2                                |                                                                                           |              |
| Set point SP [MPa]                                        | -0.09...1                                                                                 |              |
| Reset point rP [MPa]                                      | -0.095...0.995                                                                            |              |
| Min. difference between SP and rP [MPa]                   | 0.005                                                                                     |              |
| In steps of [MPa]                                         | 0.005                                                                                     |              |
| Status_B High Resolution / CMPT = 3                       |                                                                                           |              |
| Set point SP [MPa]                                        | -0.092...1                                                                                |              |
| Reset point rP [MPa]                                      | -0.097...0.995                                                                            |              |
| Min. difference between SP and rP [MPa]                   | 0.005                                                                                     |              |
| In steps of [MPa]                                         | 0.001                                                                                     |              |
| 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 [% of the span / 10 K] | < ± 0,2; (-0...80 °C)                                                                     |              |
| Temperature coefficient span                              | < ± 0,2; (-0...80 °C)                                                                     |              |



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| [% of the span / 10 K]                     |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------|----------------------------|-----|-------------------------------------|-----|------------------------------|---|
| <b>Response times</b>                      |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Response time [ms]                         | < 3                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| Delay time programmable dS, dr [s]         | 0...50                                                                                                                                                                                                      |                   |            |                            |     |                                     |     |                              |   |
| <b>Software / programming</b>              |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Parameter setting options                  | hysteresis / window; normally open / normally closed; switching logic; switch-on/switch-off delay; Damping; Display unit                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| <b>Interfaces</b>                          |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| 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                        | <table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>Factory setting / CMPT = 2</td><td>439</td></tr> <tr> <td>Status_B High Resolution / CMPT = 3</td><td>624</td></tr> </table>         | Type of operation | DeviceID   | Factory setting / CMPT = 2 | 439 | Status_B High Resolution / CMPT = 3 | 624 |                              |   |
| Type of operation                          | DeviceID                                                                                                                                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| Factory setting / CMPT = 2                 | 439                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| Status_B High Resolution / CMPT = 3        | 624                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| Note                                       | For further information please see the IODD PDF file under "Downloads"                                                                                                                                      |                   |            |                            |     |                                     |     |                              |   |
| <b>Factory setting / CMPT = 2</b>          |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Profiles                                   | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis                                                                                                                                |                   |            |                            |     |                                     |     |                              |   |
| Min. process cycle time [ms]               | 2.3                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| IO-Link resolution pressure [MPa]          | 0.001                                                                                                                                                                                                       |                   |            |                            |     |                                     |     |                              |   |
| IO-Link resolution pressure [MPa]          | 0.001                                                                                                                                                                                                       |                   |            |                            |     |                                     |     |                              |   |
| IO-Link process data (cyclical)            | <table> <tr> <th>function</th><th>bit length</th></tr> <tr> <td>pressure</td><td>14</td></tr> <tr> <td>binary switching information</td><td>2</td></tr> </table>                                            | function          | bit length | pressure                   | 14  | binary switching information        | 2   |                              |   |
| function                                   | bit length                                                                                                                                                                                                  |                   |            |                            |     |                                     |     |                              |   |
| pressure                                   | 14                                                                                                                                                                                                          |                   |            |                            |     |                                     |     |                              |   |
| binary switching information               | 2                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| IO-Link functions (acyclical)              | application specific tag                                                                                                                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| <b>Status_B High Resolution / CMPT = 3</b> |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Profiles                                   | Smart Sensor ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000)                                                                                                                  |                   |            |                            |     |                                     |     |                              |   |
| Min. process cycle time [ms]               | 3                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| IO-Link resolution pressure [MPa]          | 0.001                                                                                                                                                                                                       |                   |            |                            |     |                                     |     |                              |   |
| IO-Link resolution pressure [MPa]          | 0.001                                                                                                                                                                                                       |                   |            |                            |     |                                     |     |                              |   |
| IO-Link process data (cyclical)            | <table> <tr> <th>function</th><th>bit length</th></tr> <tr> <td>pressure</td><td>16</td></tr> <tr> <td>device status</td><td>4</td></tr> <tr> <td>binary switching information</td><td>2</td></tr> </table> | function          | bit length | pressure                   | 16  | device status                       | 4   | binary switching information | 2 |
| function                                   | bit length                                                                                                                                                                                                  |                   |            |                            |     |                                     |     |                              |   |
| pressure                                   | 16                                                                                                                                                                                                          |                   |            |                            |     |                                     |     |                              |   |
| device status                              | 4                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| binary switching information               | 2                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| IO-Link functions (acyclical)              | application specific tag                                                                                                                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| <b>Operating conditions</b>                |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Ambient temperature [°C]                   | -25...80                                                                                                                                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| Storage temperature [°C]                   | -40...100                                                                                                                                                                                                   |                   |            |                            |     |                                     |     |                              |   |
| Protection                                 | IP 65; IP 67                                                                                                                                                                                                |                   |            |                            |     |                                     |     |                              |   |

# PN7034



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| 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]                                                                                     | 226.5                                                                                      |                                         |
| 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                                                                               | 3 x LED, green (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                                           |                                                                                            |                                         |
| <div></div> |                                                                                            |                                         |

# PN7034



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### Connection



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