



Pressure sensor with display

PE-010-RER14-MFRKG/US/ /E



- 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; Number of analogue outputs: 1 |                 |              |
| Measuring range              | -1...10 bar                                                 | -14.6...145 psi | -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   | 150 bar                                    | 2175 psi | 15 MPa  |
| Pressure rating          | 75 bar                                     | 1087 psi | 7.5 MPa |
| Vacuum resistance [mbar] | -1000                                      |          |         |
| Type of pressure         | relative pressure                          |          |         |

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; Number of analogue outputs: 1                                              |                   |                    |
| Outputs                                              |                                                                                                          |                   |                    |
| Total number of outputs                              | 2                                                                                                        |                   |                    |
| Output signal                                        | switching signal; analogue 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                                                                                                        |                   |                    |
| 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 1:5)                                                                                   |                   |                    |
| Max. load [Ω]                                        | 500                                                                                                      |                   |                    |
| Analogue voltage output [V]                          | 0...10; (scalable 1:5)                                                                                   |                   |                    |
| 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                                                                                              | -14.6...145 psi   | -0.1...1 MPa       |
| Set point SP                                         | -0.94...10 bar                                                                                           | -13.6...145 psi   | -0.094...1 MPa     |
| Reset point rP                                       | -0.98...9.96 bar                                                                                         | -14.2...144.4 psi | -0.098...0.996 MPa |
| Analogue start point                                 | -1...8 bar                                                                                               | -14.6...116 psi   | -0.1...0.8 MPa     |
| Analogue end point                                   | 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                                |                                                                                                          |                   |                    |
| Switch point accuracy [X21]                          | < ± 0,4; (Turn down 1:1)                                                                                 |                   |                    |
| Repeatability [X21]                                  | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                           |                   |                    |
| Characteristics deviation [X21]                      | < ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting) |                   |                    |
| Hysteresis deviation [X21]                           | < ± 0,1; (Turn down 1:1)                                                                                 |                   |                    |
| Long-term stability [X21]                            | < ± 0,05; (Turn down 1:1; per 6 months)                                                                  |                   |                    |
| Temperature coefficient zero point [X22]             | 0,2; (-25...80 °C)                                                                                       |                   |                    |
| Temperature coefficient span [X22]                   | 0,2; (-25...80 °C)                                                                                       |                   |                    |
| Notes on the accuracy / deviation                    | switch point accuracy, linearity error under DNV GL: < ± 1%: < ± 1%                                      |                   |                    |
| Response times                                       |                                                                                                          |                   |                    |
| Response time [ms]                                   | < 1.5                                                                                                    |                   |                    |
| Delay time programmable dS, dr [s]                   | 0...50                                                                                                   |                   |                    |



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|                                     |      |       |
|-------------------------------------|------|-------|
| 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                                                                                                   |                   |          |         |     |
| Profiles                  | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis                                  |                   |          |         |     |
| SIO mode                  | yes                                                                                                           |                   |          |         |     |
| Required master port type | A                                                                                                             |                   |          |         |     |
| Process data analogue     | 1                                                                                                             |                   |          |         |     |
| Process data binary       | 2                                                                                                             |                   |          |         |     |
| Min. process cycle time   | [ms] 2.3                                                                                                      |                   |          |         |     |
| Supported DeviceIDs       | <table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>default</td><td>463</td></tr> </table> | Type of operation | DeviceID | default | 463 |
| Type of operation         | DeviceID                                                                                                      |                   |          |         |     |
| default                   | 463                                                                                                           |                   |          |         |     |

### 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                         | [ANN]                                                                                 | 161                 |
| UL approval                  | UL Approval no.                                                                       | J012                |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                     |

### Mechanical data

|                               |                                                                |                                                                                            |
|-------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Weight                        | [g]                                                            | 236.5                                                                                      |
| Materials                     | stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC     |                                                                                            |
| Materials (wetted parts)      | stainless steel (1.4404 / 316L); Al2O3 (99.9%; ceramics); EPDM |                                                                                            |
| 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 (bar, psi, MPa)          |
|         | switching status | 2 x LED, yellow                         |
|         | measured values  | alphanumeric display, red/green 4-digit |

# PE2094



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### Remarks

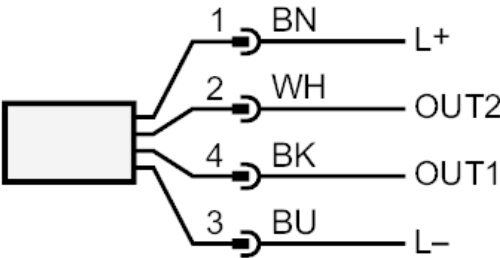
|               |        |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

### Electrical connection

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



### Connection



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