

PE2096



Pressure sensor with display

PE-2,5-MFR14-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 analog outputs: 1 |                  |                  |                 |
| Measuring range              | -0.125...2.5 bar                                          | -125...2500 mbar | -1.8...36.25 psi | -12.5...250 kPa |
| Process connection           | threaded connection G 1/4 Internal thread                 |                  |                  |                 |

Application

|                         |                                            |          |          |
|-------------------------|--------------------------------------------|----------|----------|
| System                  | 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  | 50 bar                                     | 725 psi  | 5000 kPa |
| Pressure rating         | 20 bar                                     | 290 psi  | 2000 kPa |
| Vacuum resistance       | -1000 mbar                                 | -0.1 MPa |          |
| 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                        |  |  |



## Pressure sensor with display

PE-2,5-RER14-MFRKG/US/ /E

|                                                           |                                                                                                          |                  |                  |                 |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------|------------------|-----------------|
| Integrated watchdog                                       | yes                                                                                                      |                  |                  |                 |
| Inputs / outputs                                          |                                                                                                          |                  |                  |                 |
| Number of inputs and outputs                              | Number of digital outputs: 2; Number of analog outputs: 1                                                |                  |                  |                 |
| Outputs                                                   |                                                                                                          |                  |                  |                 |
| Total number of outputs                                   | 2                                                                                                        |                  |                  |                 |
| Output signal                                             | switching signal; analog signal; IO-Link; (configurable)                                                 |                  |                  |                 |
| Electrical design                                         | PNP/NPN                                                                                                  |                  |                  |                 |
| Number of digital outputs                                 | 2                                                                                                        |                  |                  |                 |
| Output function                                           | normally open / closed; (configurable)                                                                   |                  |                  |                 |
| Max. voltage drop switching output DC [V]                 | 2                                                                                                        |                  |                  |                 |
| Permanent current rating of switching output DC [mA]      | 250                                                                                                      |                  |                  |                 |
| Switching frequency DC [Hz]                               | < 500                                                                                                    |                  |                  |                 |
| Number of analog outputs                                  | 1                                                                                                        |                  |                  |                 |
| Analog current output [mA]                                | 4...20; (scalable 1:5)                                                                                   |                  |                  |                 |
| Max. load [Ω]                                             | 500                                                                                                      |                  |                  |                 |
| Analog voltage output [V]                                 | 0...10; (scalable 1:5)                                                                                   |                  |                  |                 |
| Min. load resistance [Ω]                                  | 2000                                                                                                     |                  |                  |                 |
| Short-circuit protection                                  | yes                                                                                                      |                  |                  |                 |
| Type of short-circuit protection                          | yes (non-latching)                                                                                       |                  |                  |                 |
| Overload protection                                       | yes                                                                                                      |                  |                  |                 |
| Measuring/setting range                                   |                                                                                                          |                  |                  |                 |
| Measuring range                                           | -0.125...2.5 bar                                                                                         | -125...2500 mbar | -1.8...36.25 psi | -12.5...250 kPa |
| Set point SP                                              | -0.11...2.5 bar                                                                                          | -1.6...36.25 psi |                  | -11...250 kPa   |
| Reset point rP                                            | -0.12...2.49 bar                                                                                         | -1.75...36.1 psi |                  | -12...249 kPa   |
| Analog start point                                        | -0.125...2 bar                                                                                           | -1.8...29 psi    |                  | -12.5...200 kPa |
| Analog end point                                          | 0.375...2.5 bar                                                                                          | 5.45...36.25 psi |                  | 37.5...250 kPa  |
| In steps of                                               | 0.005 bar                                                                                                | 0.05 psi         |                  | 0.5 kPa         |
| Accuracy / deviations                                     |                                                                                                          |                  |                  |                 |
| Switch point accuracy [% of the span]                     | < ± 0,4; (Turn down 1:1)                                                                                 |                  |                  |                 |
| Repeatability [% of the span]                             | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                           |                  |                  |                 |
| Characteristics deviation [% of the span]                 | < ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting) |                  |                  |                 |
| Hysteresis deviation [% of the span]                      | < ± 0,1; (Turn down 1:1)                                                                                 |                  |                  |                 |
| Long-term stability [% of the span]                       | < ± 0,05; (Turn down 1:1; per 6 months)                                                                  |                  |                  |                 |
| Temperature coefficient zero point [% of the span / 10 K] | 0,2; (-25...80 °C)                                                                                       |                  |                  |                 |
| Temperature coefficient span [% of the span / 10 K]       | 0,2; (-25...80 °C)                                                                                       |                  |                  |                 |
| Notes on the accuracy / deviation                         | switch point accuracy, linearity error under DNV GL: < ± 1%: < ± 1%                                      |                  |                  |                 |

# PE2096



## Pressure sensor with display

PE-2,5-RER14-MFRKG/US/ /E

| Reaction times                    |                                                                                                                         |                                                                                            |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Response time                     | [ms]                                                                                                                    | < 1.5                                                                                      |
| Delay time programmable dS, dr    | [s]                                                                                                                     | 0...50                                                                                     |
| Damping process value dAP         | [s]                                                                                                                     | 0...4                                                                                      |
| Damping for the analog output dAA | [s]                                                                                                                     | 0...4                                                                                      |
| Max. response time analog output  | [ms]                                                                                                                    | 3                                                                                          |
| Software / programming            |                                                                                                                         |                                                                                            |
| Parameter setting options         | hysteresis / window; normally open / 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 class        | A                                                                                                                       |                                                                                            |
| Process data analog               | 1                                                                                                                       |                                                                                            |
| Process data binary               | 2                                                                                                                       |                                                                                            |
| Min. process cycle time           | [ms]                                                                                                                    | 2.3                                                                                        |
| Supported DeviceIDs               | Type of operation                                                                                                       | DeviceID                                                                                   |
|                                   | default                                                                                                                 | 464                                                                                        |
| 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]                                                                                                                 | 171                                                                                        |
| UL approval                       | UL approval number                                                                                                      | J012                                                                                       |
| 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                           | tubular                                                                                                                 |                                                                                            |
| Dimensions                        | [mm]                                                                                                                    | Ø 34 / L = 90.7                                                                            |
| Material                          | 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) |

PE2096



Pressure sensor with display

PE-2,5-RER14-MFRKG/US/ /E

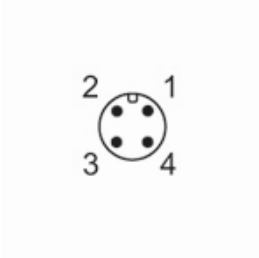
|                               |                                           |
|-------------------------------|-------------------------------------------|
| Process connection            | threaded connection G 1/4 Internal thread |
| Restrictor element integrated | no (can be retrofitted)                   |

| Displays / operating elements |                  |                                         |
|-------------------------------|------------------|-----------------------------------------|
| Display                       | Display unit     | 3 x LED, green (bar, psi, kPa)          |
|                               | Switching status | 2 x LED, yellow                         |
|                               | Measured values  | alphanumeric display, red/green 4-digit |

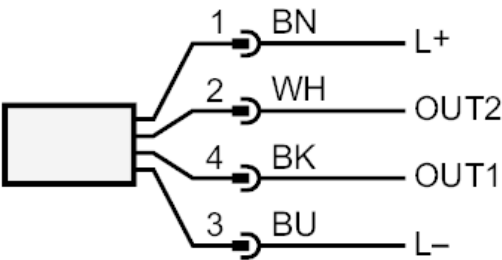
| Remarks       |        |
|---------------|--------|
| Pack quantity | 1 pcs. |

Electrical connection

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



Connection



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