

# PE2091



## Pressure sensor with display

PE-250-SER14-MFRKG/US/ E



| Product characteristics         |   |              |            |
|---------------------------------|---|--------------|------------|
| Number of inputs and outputs    | Number of digital outputs: 2; Number of analogue outputs: 1 |              |            |
| Measuring range                 | 0...250 bar   | 0...3625 psi | 0...25 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   |              |            |
| Conditionally suitable for      | use in gases at pressures > 25 bar only on request          |              |            |
| Medium temperature [°C]         | -25...80  |              |            |
| Min. burst pressure             | 1000 bar  | 14500 psi    | 100 MPa    |
| Pressure rating                 | 500 bar   | 7250 psi     | 50 MPa     |
| 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   |              |            |

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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      | 0...250 bar   | 0...3625 psi   | 0...25 MPa      |
| Set point SP         | 1.5...250 bar | 25...3625 psi  | 0.15...25 MPa   |
| Reset point rP       | 0.5...249 bar | 10...3610 psi  | 0.05...24.9 MPa |
| Analogue start point | 0...200 bar   | 0...2900 psi   | 0...20 MPa      |
| Analogue end point   | 50...250 bar  | 725...3625 psi | 5...25 MPa      |
| In steps of          | 0.5 bar       | 5 psi          | 0.05 MPa        |

### 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%                                      |

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| Response times                      |   |                         |
|-------------------------------------|---|-------------------------|
| Response time                       | [ms]  | < 1.5                   |
| 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   |                         |
| Profiles                            | Smart Sensor - SSP 0  | Generic Profiled Sensor |
|                                     | Function  | Device identification   |
|                                     | Function  | Process data variable   |
|                                     | Function  | 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                 | <b>Type of operation</b>  | <b>DeviceID</b>         |
|                                     | default   | 460                     |
| 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]   | 161                     |
| Pressure Equipment Directive        | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request   |                         |
| Mechanical data                     |   |                         |
| Weight                              | [g]   | 276.5                   |
| 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); EPDM   |                         |
| Min. pressure cycles                | 100 million   |                         |

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|                               |  |
|-------------------------------|--|
| 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  |
| 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 |

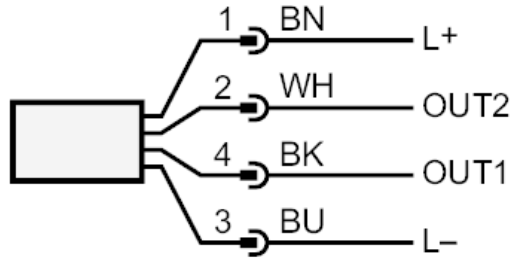
| Remarks       |        |
|---------------|--------|
| Pack quantity | 1 pcs. |

### Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, 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