

PN7093



Pressure sensor with display

PN-025-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              | 0...25 bar                                | 0...362 psi | 0...2.5 MPa |
| 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                                            |          |        |
| Conditionally suitable for | For gaseous media the application is limited to max. 25 bar. |          |        |
| Medium temperature [°C]    | -25...80                                                     |          |        |
| Min. burst pressure        | 350 bar                                                      | 5075 psi | 35 MPa |
| Pressure rating            | 150 bar                                                      | 2175 psi | 15 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                        |  |  |



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|                                                 |                        |                                                                                           |             |                 |
|-------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------|-------------|-----------------|
| Power-on delay time                             | [s]                    | < 0.3                                                                                     |             |                 |
| 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 / closed; (configurable)                                                    |             |                 |
| 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                |                        | yes (non-latching)                                                                        |             |                 |
| Overload protection                             |                        | yes                                                                                       |             |                 |
| Measuring/setting range                         |                        |                                                                                           |             |                 |
| Measuring range                                 |                        | 0...25 bar                                                                                | 0...362 psi | 0...2.5 MPa     |
| Factory setting / CMPT = 2                      |                        |                                                                                           |             |                 |
| Set point SP                                    |                        | 0.2...25 bar                                                                              | 4...362 psi | 0.02...2.5 MPa  |
| Reset point rP                                  |                        | 0.1...24.9 bar                                                                            | 2...360 psi | 0.01...2.49 MPa |
| Min. difference between SP and rP               |                        | 0.2 bar                                                                                   | 2 psi       | 0.02 MPa        |
| In steps of                                     |                        | 0.1 bar                                                                                   | 2 psi       | 0.01 MPa        |
| Status_B High Resolution / CMPT = 3             |                        |                                                                                           |             |                 |
| Set point SP                                    |                        | 0.2...25 bar                                                                              | 3...363 psi | 0.02...2.5 MPa  |
| Reset point rP                                  |                        | 0.1...24.9 bar                                                                            | 1...361 psi | 0.01...2.49 MPa |
| Min. difference between SP and rP               |                        | 0.2 bar                                                                                   | 2 psi       | 0.02 MPa        |
| In steps of                                     |                        | 0.1 bar                                                                                   | 1 psi       | 0.01 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)                                                                  |             |                 |
| 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]

| Reaction times                      |                                                                                                                 |                              |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|
| Response time                       | [ms]                                                                                                            | < 3                          |
| Delay time programmable dS, dr      | [s]                                                                                                             | 0...50                       |
| Software / programming              |                                                                                                                 |                              |
| Parameter setting options           | hysteresis / window; normally open / closed; switching logic; switch-on/switch-off delay; Damping; Display unit |                              |
| 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 class          | A; (when pin 2 not connected: B)                                                                                |                              |
| Process data analog                 | 1                                                                                                               |                              |
| Process data binary                 | 2                                                                                                               |                              |
| Supported DeviceIDs                 | Type of operation                                                                                               | DeviceID                     |
|                                     | Factory setting / CMPT = 2                                                                                      | 402                          |
|                                     | Status_B High Resolution / CMPT = 3                                                                             | 600                          |
| Note                                | For further information please see the IODD PDF file at "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         | 0.1 bar                                                                                                         | 0.01 MPa                     |
| IO-Link process data (cyclical)     | Function                                                                                                        | bit length                   |
|                                     | pressure                                                                                                        | 14                           |
|                                     | binary switching information                                                                                    | 2                            |
| 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         | 0.01 bar                                                                                                        | 0.001 MPa                    |
| IO-Link process data (cyclical)     | Function                                                                                                        | bit length                   |
|                                     | pressure                                                                                                        | 16                           |
|                                     | device status                                                                                                   | 4                            |
|                                     | binary switching information                                                                                    | 2                            |
| IO-Link functions (acyclical)       | application specific tag                                                                                        |                              |
| Operating conditions                |                                                                                                                 |                              |
| Ambient temperature                 | [°C]                                                                                                            | -25...80                     |
| Storage temperature                 | [°C]                                                                                                            | -40...100                    |
| Protection                          | IP 65; IP 67                                                                                                    |                              |

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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 number                                                                            | J001                                    |
| Pressure equipment directive                                                                   | sound engineering practice; can be used for group 2 fluids; group 1 fluids on request         |                                         |
| Mechanical data                                                                                |                                                                                               |                                         |
| Weight [g]                                                                                     | 235                                                                                           |                                         |
| 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); ceramics; FKM                                                |                                         |
| Min. pressure cycles                                                                           | 100 million                                                                                   |                                         |
| Tightening torque [Nm]                                                                         | 25...35; (recommended tightening torque;<br>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 |
| Remarks                                                                                        |                                                                                               |                                         |
| Pack quantity                                                                                  | 1 pcs.                                                                                        |                                         |
| Electrical connection                                                                          |                                                                                               |                                         |
| Connector: 1 x M12; coding: A; Contacts: gold-plated                                           |                                                                                               |                                         |
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### Connection



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