

# PN2071



## Pressure sensor with display

PN-250-SER14-MFRKG/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

|                    |   |              |            |
|--------------------|---|--------------|------------|
| Output signal      | switching signal; analogue signal; IO-Link; (configurable)    |              |            |
| Measuring range    | 0...250 bar   | 0...3625 psi | 0...25 MPa |
| Process connection | threaded connection G 1/4 internal thread (DIN EN ISO 1179-2) |              |            |

### Application

|                          |                             |           |         |
|--------------------------|-----------------------------|-----------|---------|
| Special feature          | Gold-plated contacts        |           |         |
| Measuring element        | metallic thin film cell     |           |         |
| Application              | for industrial applications |           |         |
| Media                    | liquids and gases           |           |         |
| Medium temperature [°C]  | -25...80                    |           |         |
| Pressure rating          | 500 bar                     | 7250 psi  | 50 MPa  |
| Min. bursting pressure   | 1200 bar                    | 17400 psi | 120 MPa |
| Vacuum resistance [mbar] | -1000                       |           |         |
| Type of pressure         | relative pressure           |           |         |



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| Electrical data                                 |                 |  |                |                  |
|---|-----------------|--|----------------|------------------|
| Operating voltage                               | [V]             | 18...30 DC; (according to EN 50178 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  |                |                  |
| 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...250 bar  | 15...3625 psi  | 0.1...25 MPa     |
| Reset point rP                                  |                 | 0.5...249.5 bar  | 10...3620 psi  | 0.05...24.95 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                             |                 | < ± 0,05; (Turn down 1:1; per 6 months)  |                |                  |

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|                                    |                        |                    |
|------------------------------------|------------------------|--------------------|
|                                    | [% of the span]        |                    |
| Temperature coefficient zero point |                        | 0,2; (-25...80 °C) |
|                                    | [% of the span / 10 K] |                    |
| Temperature coefficient span       |                        | 0,2; (-25...80 °C) |
|                                    | [% of the span / 10 K] |                    |

| Response times                       |      |        |
|--------------------------------------|------|--------|
| Response time                        | [ms] | < 1.5  |
| Delay time programmable dS, dr       | [s]  | 0...50 |
| Damping for the switching output 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   |
| IO-Link revision          | 1.1  |
| SDCI standard             | IEC 61131-9  |
| IO-Link device ID         | 460 d / 00 01 cc h   |
| 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   |

| 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]           |  | 129   |
| UL approval                  | UL Approval no.   |  | J014  |
| Pressure Equipment Directive |                   |  | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |

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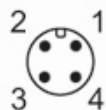
| Mechanical data               |  |
|-------------------------------|--|
| Weight [g]                    | 234.5  |
| Materials                     | 1.4542 (17-4 PH / 630); stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC         |
| Materials (wetted parts)      | 1.4542 (17-4 PH / 630)   |
| 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 (DIN EN ISO 1179-2)                              |
| 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; Contacts: gold-plated



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### Connection



OUT1            switching output

OUT2            switching output

analogue output

Core colours :

BK =            black

BN =            brown

BU =            blue

WH =            white