

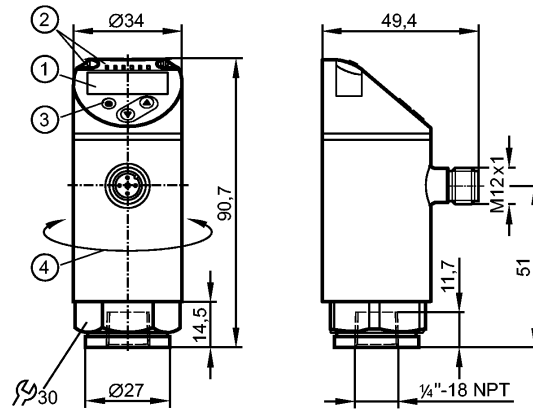


# PN2271

PN-250-SEN14-MFRKG/US/ IV



Pressure sensors



- 1: 4-digit alphanumeric display / alternating indication of red and green
- 2: LEDs (display unit / switching status)
- 3: Programming button
- 4: Upper part of the housing can be rotated by 345°



## Product characteristics

Electronic pressure sensor

M12 connector

Function programmable

Measuring element: metal thin film cell

Process connection:  $\frac{1}{4}$ " NPT

2 outputs

OUT1 = switching output

OUT2 = switching output or analog output

4-digit alphanumeric display / alternating indication of red and green

Measuring range: 0...3625 psi / 0...250 bar / 0...25 MPa

## Application

|                          |   |          |         |
|--------------------------|---|----------|---------|
| Application              | Type of pressure: relative pressure<br>Group 2 fluids according to the Pressure Equipment Directive (PED),<br>group 1 fluids on request |          |         |
| Pressure rating          | 7250 psi  | 500 bar  | 50 MPa  |
| Bursting pressure min.   | 17400 psi   | 1200 bar | 120 MPa |
| Vacuum resistance [mbar] | -1000   |          |         |
| Medium temperature [°C]  | -25...80  |          |         |

## Electrical data

|                             |                          |
|-----------------------------|--------------------------|
| Electrical design           | DC PNP/NPN               |
| Operating voltage [V]       | 18...30 DC <sup>1)</sup> |
| Current consumption [mA]    | < 35                     |
| Insulation resistance [MΩ]  | > 100 (500 V DC)         |
| Protection class            | III                      |
| Reverse polarity protection | yes                      |

## Outputs

|        |  |
|--------|--|
| Output | 2 outputs<br>OUT1 = switching output<br>OUT2 = switching output or analog output |
|--------|--|



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|                          |  |  |  |
|--------------------------|--|--|--|
| Output function          | 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analog (4...20 mA / 0...10 V; programmable 1:5) |  |  |
| Current rating [mA]      | 250  |  |  |
| Voltage drop [V]         | < 2  |  |  |
| Short-circuit protection | yes (non-latching)   |  |  |
| Overload protection      | yes  |  |  |
| Switching frequency [Hz] | ≤ 500  |  |  |
| Analog output            | 4...20 mA; 0...10 V  |  |  |
| Max. load [Ω]            | 4...20 mA: max. 500  |  |  |
| Min. load resistance [Ω] | 0...10 V: min. 2000  |  |  |

| Measuring / setting range |                |               |                 |
|---------------------------|----------------|---------------|-----------------|
| Measuring range           | 0...3625 psi   | 0...250 bar   | 0...25 MPa      |
| Setting range             |                |               |                 |
| Set point, SP             | 25...3625 psi  | 1.5...250 bar | 0.15...25 MPa   |
| Reset point, rP           | 10...3610 psi  | 0.5...249 bar | 0.05...24.9 MPa |
| Analog start point, ASP   | 0...2900 psi   | 0...200 bar   | 0...20 MPa      |
| Analog end point, AEP     | 725...3625 psi | 50...250 bar  | 5...25 MPa      |
| in steps of               | 5 psi          | 0.5 bar       | 0.05 MPa        |

| Accuracy / deviations  |                                |
|--|--------------------------------|
| Accuracy / deviations (in % of the span) Turn down 1:1   |                                |
| Switch point accuracy  | < ± 0.4                        |
| Characteristics deviation *)   | < ± 0.25 (BFSL) / < ± 0.5 (LS) |
| Hysteresis   | < ± 0.1                        |
| Repeatability **)  | < ± 0.1                        |
| Long-term stability ***)   | < ± 0.05                       |
| Temperature coefficients (TEMPCO) in the temperature range -25...80° C (in % of the span per 10 K) |                                |
| Greatest TEMPCO of the zero point  | 0.2                            |
| Greatest TEMPCO of the span  | 0.2                            |

| Reaction times                             |        |
|--|--------|
| Power-on delay time [s]                    | 0.3    |
| Min. response time switching output [ms]   | < 1.5  |
| Delay time programmable dS, dr [s]         | 0...50 |
| Damping for the switching output (dAP) [s] | 0...4  |
| Damping for the analog output (dAA) [s]    | 0...4  |
| Response time analog output [ms]           | < 3    |
| Integrated watchdog                        | yes    |

| Software / programming |  |
|------------------------|--|
| Programming options    | hysteresis / window function; NO / NC; on delay, off delay; damping; display unit; current/ voltage output |

| Interfaces       |      |
|------------------|------|
| IO-Link Device   |      |
| Transfer type    | COM2 |
| IO-Link revision | 1.1  |



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|                              |  |
|------------------------------|--|
| SDCI standard                | IEC 61131-9  |
| IO-Link Device ID            | 470 d / 00 01 d6 h   |
| Profiles                     | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis |
| SIO mode                     | yes  |
| Required master port class   | A  |
| Process data analogue        | 1  |
| Process data binary          | 2  |
| Min. process cycle time [ms] | 2.3  |

| Environment              |               |
|--------------------------|---------------|
| Ambient temperature [°C] | -25...80      |
| Storage temperature [°C] | -40...100     |
| Protection               | IP 65 / IP 67 |

| Tests / approvals            |                                      |
|------------------------------|--------------------------------------|
| Pressure equipment directive | 97/23/EG: sound engineering practice |
| EMC                          | DIN EN 61000-6-2<br>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]                 | 124                                  |
| UL approval number           | J014                                 |

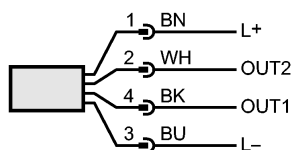
| Mechanical data               |  |
|-------------------------------|--|
| Process connection            | ¼" NPT   |
| Materials (wetted parts)      | 1.4542 (17-4 PH / 630) <sup>2</sup>  |
| Housing materials             | 1.4542 (17-4 PH / 630) <sup>2</sup> ; stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC |
| Min. pressure cycles          | 100 million  |
| Tightening torque [Nm]        | 50 <sup>3)</sup>   |
| Restrictor element integrated | no (can be retrofitted)  |
| Weight [kg]                   | 0.219  |

| Displays / operating elements |  |
|-------------------------------|--|
| Display                       | Display unit 3 x LED green (bar, psi, MPa)<br>Switching status 2 x LED yellow<br>4-digit alphanumeric display / alternating indication<br>Measured values of red and green |

| Electrical connection |                                     |
|-----------------------|-------------------------------------|
| Connection            | M12 connector; gold-plated contacts |

### Wiring

- Core colors
- BK black
- BN brown
- BU blue
- WH white



OUT1: switching output or IO-Link  
 OUT2: switching output or 4...20 mA / 0...10 V  
 Colours to DIN EN 60947-5-2



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Pressure sensors

## Remarks

Remarks

- \*) BFSL = Best Fit Straight Line / LS = Limit Value Setting
- \*\*\*) with temperature fluctuations < 10 K
- \*\*\*) in% of the span / 6 months
- 1) to EN50178, SELV, PELV
- 2) Characteristics similar to stainless steel (e.g. 304/1.4301) but higher strength.
- 3) Depends on lubrication, seal and pressure rating

Pack quantity

[piece]

1