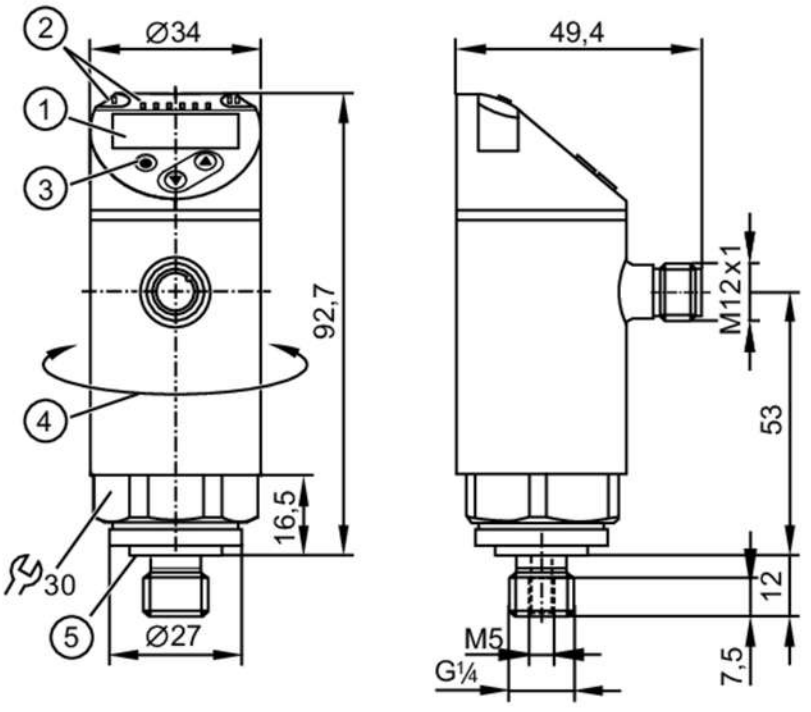
# PN2512

## Pressure sensor with display

PN-160-SEG14-MFRKG/US/ /V




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°
5 Sealing

| | | | |
|---|---|---|---|
| **Product characteristics** | | | |
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 | | |
| Measuring range | 0...160 bar | 0...2320 psi | 0...16 MPa |
| Process connection | threaded connection G 1/4 external thread (DIN EN ISO 1179-2); internal thread:M5 | | |
| **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. bursting pressure | 750 bar | 10900 psi | 75 MPa |
| Pressure rating | 350 bar | 5100 psi | 35 MPa |
| Vacuum resistance [mbar] | -1000 | | |
| Vacuum resistance [MPa] | -0.1 | | |
| 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) | | |

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| | | | | |
|---|---|---|---|---|
| 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...160 bar | 0...2320 psi | 0...16 MPa |
| Set point SP | | 1.3...160 bar | 19...2321 psi | 0.13...16 MPa |
| Reset point rP | | 0.5...159.2 bar | 7...2309 psi | 0.05...15.92 MPa |
| Analogue start point | | 0...128 bar | 0...1856 psi | 0...12.8 MPa |
| Analogue end point | | 32...160 bar | 464...2321 psi | 3.2...16 MPa |
| Min. difference between SP and rP | | 0.8 bar | 12 psi | 0.08 MPa |
| In steps of | | 0.1 bar | 1 psi | 0.01 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 | | < ± 0,2; (-0...80 °C) | | |

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| | | | |
|---|---|---|---|
| [% of the span / 10 K] | | | |
| Temperature coefficient span [% of the span / 10 K] | | < ± 0,2; (-0...80 °C) | |
| Notes on the accuracy / deviation | | switch point accuracy, linearity error under DNV GL: < ± 1%: < ± 1% | |
| **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 ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000) | |
| SIO mode | | yes | |
| Required master port type | | A; (when pin 2 not connected: B) | |
| Min. process cycle time | [ms] | 3 | |
| IO-Link resolution pressure | [bar] | 0.05 | |
| IO-Link process data (cyclical) | | **function** | **bit length** |
| | | pressure | 16 |
| | | device status | 4 |
| | | binary switching information | 2 |
| IO-Link functions (acyclical) | | application specific tag | |
| Supported DeviceIDs | | **Type of operation** | **DeviceID** |
| | | default | 1200 |
| Note | | For further information please see the IODD PDF file under "Downloads" | |
| **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) |
| UL approval | | UL Approval no. | J020 |
| | | File number UL | E174189 |

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| | | |
|---|---|---|
| Pressure Equipment Directive | | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |
| **Mechanical data** | | |
| Weight | [g] | 309 |
| Housing | | cylindrical |
| Dimensions | [mm] | Ø 34 / L = 92.7 |
| Materials | | stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC |
| Materials (wetted parts) | | stainless steel (316L/1.4404); Al2O3 (ceramics); FKM |
| 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 external thread (DIN EN ISO 1179-2); internal thread:M5 |
| Process connection sealing | | FKM (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; coding: A; Contacts: gold-plated

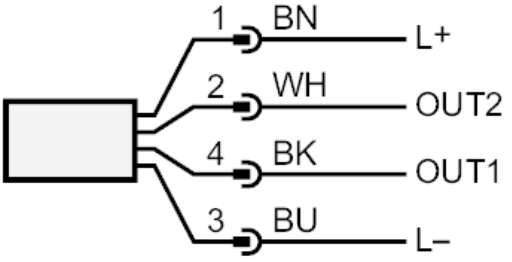


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### Connection




| | |
|---|---|
| OUT1 | switching output<br>IO-Link |
| OUT2 | switching output<br>analogue output |
| | Core colours : |
| BK = | black |
| BN = | brown |
| BU = | blue |
| WH = | white |