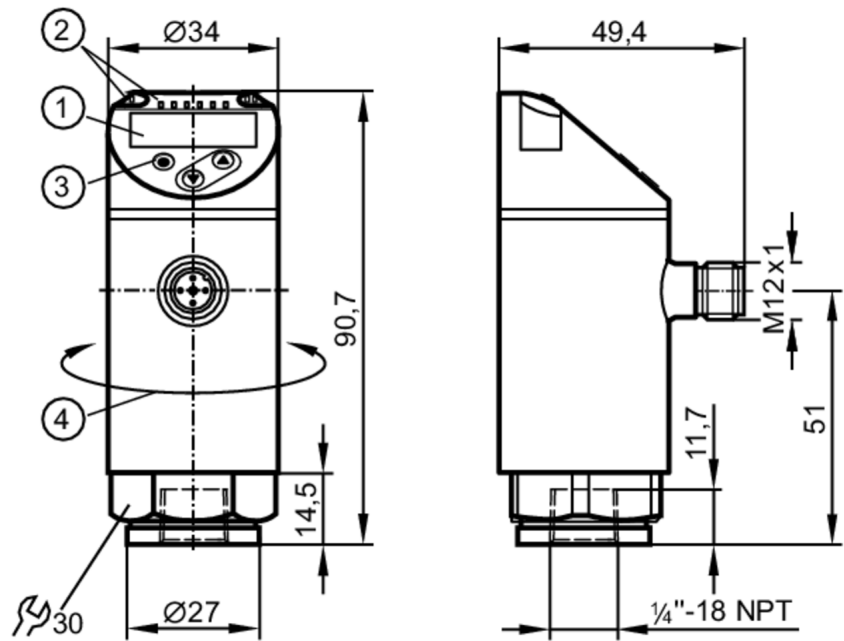


PN7271



Pressure sensor with display

PN-250-SEN14-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...250 bar                                  | 0...3620 psi | 0...25 MPa |
| Process connection                       | threaded connection 1/4" NPT internal thread |              |            |
| 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                                     |              |            |
| Min. bursting pressure                   | 1100 bar                                     | 15950 psi    | 110 MPa    |
| Pressure rating                          | 500 bar                                      | 7250 psi     | 50 MPa     |
| Type of pressure                         | relative pressure                            |              |            |
| MAWP (for applications according to CRN) | 500 bar                                      | 7250 psi     | 50 MPa     |
| 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                                          |              |            |



## Pressure sensor with display

PN-250-SEN14-QFRKG/US/ IV

|                                                 |                        |                                                                                           |               |                |
|-------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------|---------------|----------------|
| 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 / normally closed; (parameterisable)                                        |               |                |
| 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                |                        | pulsed                                                                                    |               |                |
| Overload protection                             |                        | yes                                                                                       |               |                |
| Measuring/setting range                         |                        |                                                                                           |               |                |
| Measuring range                                 |                        | 0...250 bar                                                                               | 0...3620 psi  | 0...25 MPa     |
| Factory setting / CMPT = 2                      |                        |                                                                                           |               |                |
| Set point SP                                    |                        | 2...250 bar                                                                               | 40...3620 psi | 0.2...25 MPa   |
| Reset point rP                                  |                        | 1...249 bar                                                                               | 20...3600 psi | 0.1...24.9 MPa |
| Min. difference between SP and rP               |                        | 1 bar                                                                                     | 20 psi        | 0.1 MPa        |
| In steps of                                     |                        | 2 bar                                                                                     | 20 psi        | 0.1 MPa        |
| Status_B High Resolution / CMPT = 3             |                        |                                                                                           |               |                |
| Set point SP                                    |                        | 2...250 bar                                                                               | 30...3626 psi | 0.2...25 MPa   |
| Reset point rP                                  |                        | 1...249 bar                                                                               | 12...3608 psi | 0.1...24.9 MPa |
| Min. difference between SP and rP               |                        | 1 bar                                                                                     | 1 psi         | 0.1 MPa        |
| In steps of                                     |                        | 1 bar                                                                                     | 1 psi         | 0.1 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; (-25...80 °C)                                                                        |               |                |
| Temperature coefficient span                    |                        | 0,2; (-25...80 °C)                                                                        |               |                |



## Pressure sensor with display

PN-250-SEN14-QFRKG/US/ IV

| [% of the span / 10 K]                     |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------|----------------------------|-----|-------------------------------------|-----|------------------------------|---|
| <b>Response times</b>                      |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Response time [ms]                         | < 3                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| Delay time programmable dS, dr [s]         | 0...50                                                                                                                                                                                                      |                   |            |                            |     |                                     |     |                              |   |
| <b>Software / programming</b>              |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Parameter setting options                  | hysteresis / window; normally open / normally closed; switching logic; switch-on/switch-off delay; Damping; Display unit                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| <b>Interfaces</b>                          |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| 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 type                  | A; (when pin 2 not connected: B)                                                                                                                                                                            |                   |            |                            |     |                                     |     |                              |   |
| Supported DeviceIDs                        | <table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>Factory setting / CMPT = 2</td><td>451</td></tr> <tr> <td>Status_B High Resolution / CMPT = 3</td><td>628</td></tr> </table>         | Type of operation | DeviceID   | Factory setting / CMPT = 2 | 451 | Status_B High Resolution / CMPT = 3 | 628 |                              |   |
| Type of operation                          | DeviceID                                                                                                                                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| Factory setting / CMPT = 2                 | 451                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| Status_B High Resolution / CMPT = 3        | 628                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| Note                                       | For further information please see the IODD PDF file under "Downloads"                                                                                                                                      |                   |            |                            |     |                                     |     |                              |   |
| <b>Factory setting / CMPT = 2</b>          |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Profiles                                   | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis                                                                                                                                |                   |            |                            |     |                                     |     |                              |   |
| Min. process cycle time [ms]               | 2.3                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| IO-Link resolution pressure [bar]          | 1                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| IO-Link resolution pressure [MPa]          | 0.1                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| IO-Link process data (cyclical)            | <table> <tr> <th>function</th><th>bit length</th></tr> <tr> <td>pressure</td><td>14</td></tr> <tr> <td>binary switching information</td><td>2</td></tr> </table>                                            | function          | bit length | pressure                   | 14  | binary switching information        | 2   |                              |   |
| function                                   | bit length                                                                                                                                                                                                  |                   |            |                            |     |                                     |     |                              |   |
| pressure                                   | 14                                                                                                                                                                                                          |                   |            |                            |     |                                     |     |                              |   |
| binary switching information               | 2                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| IO-Link functions (acyclical)              | application specific tag                                                                                                                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| <b>Status_B High Resolution / CMPT = 3</b> |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Profiles                                   | Smart Sensor ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000)                                                                                                                  |                   |            |                            |     |                                     |     |                              |   |
| Min. process cycle time [ms]               | 3                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| IO-Link resolution pressure [bar]          | 0.1                                                                                                                                                                                                         |                   |            |                            |     |                                     |     |                              |   |
| IO-Link resolution pressure [MPa]          | 0.01                                                                                                                                                                                                        |                   |            |                            |     |                                     |     |                              |   |
| IO-Link process data (cyclical)            | <table> <tr> <th>function</th><th>bit length</th></tr> <tr> <td>pressure</td><td>16</td></tr> <tr> <td>device status</td><td>4</td></tr> <tr> <td>binary switching information</td><td>2</td></tr> </table> | function          | bit length | pressure                   | 16  | device status                       | 4   | binary switching information | 2 |
| function                                   | bit length                                                                                                                                                                                                  |                   |            |                            |     |                                     |     |                              |   |
| pressure                                   | 16                                                                                                                                                                                                          |                   |            |                            |     |                                     |     |                              |   |
| device status                              | 4                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| binary switching information               | 2                                                                                                                                                                                                           |                   |            |                            |     |                                     |     |                              |   |
| IO-Link functions (acyclical)              | application specific tag                                                                                                                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| <b>Operating conditions</b>                |                                                                                                                                                                                                             |                   |            |                            |     |                                     |     |                              |   |
| Ambient temperature [°C]                   | -25...80                                                                                                                                                                                                    |                   |            |                            |     |                                     |     |                              |   |
| Storage temperature [°C]                   | -40...100                                                                                                                                                                                                   |                   |            |                            |     |                                     |     |                              |   |
| Protection                                 | IP 65; IP 67                                                                                                                                                                                                |                   |            |                            |     |                                     |     |                              |   |



## Pressure sensor with display

PN-250-SEN14-QFRKG/US/ IV

| 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]                                                                                   | 214                                                                                                               |                                         |
| UL approval                                                                                    | UL Approval no.                                                                                                   | J003                                    |
| Pressure Equipment Directive                                                                   | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request                             |                                         |
| Mechanical data                                                                                |                                                                                                                   |                                         |
| Weight [g]                                                                                     | 219.5                                                                                                             |                                         |
| Housing                                                                                        | cylindrical                                                                                                       |                                         |
| Dimensions [mm]                                                                                | Ø 34 / L = 90.7                                                                                                   |                                         |
| Materials                                                                                      | stainless steel (630/1.4542/17-4 PH); stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC                    |                                         |
| Materials (wetted parts)                                                                       | stainless steel (630/1.4542/17-4 PH)                                                                              |                                         |
| Min. pressure cycles                                                                           | 100 million                                                                                                       |                                         |
| Tightening torque [Nm]                                                                         | 2...3 turns after hand-fastening; recommended tightening torque; depends on lubrication, seal and pressure rating |                                         |
| Process connection                                                                             | threaded connection 1/4" NPT 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                                           |                                                                                                                   |                                         |
| <div></div> |                                                                                                                   |                                         |

# PN7271



## Pressure sensor with display

PN-250-SEN14-QFRKG/US/ IV

### Connection



OUT1 switching output  
IO-Link

OUT2 switching output  
colours to DIN EN 60947-5-2  
Core colours :

BK = black  
BN = brown  
BU = blue  
WH = white