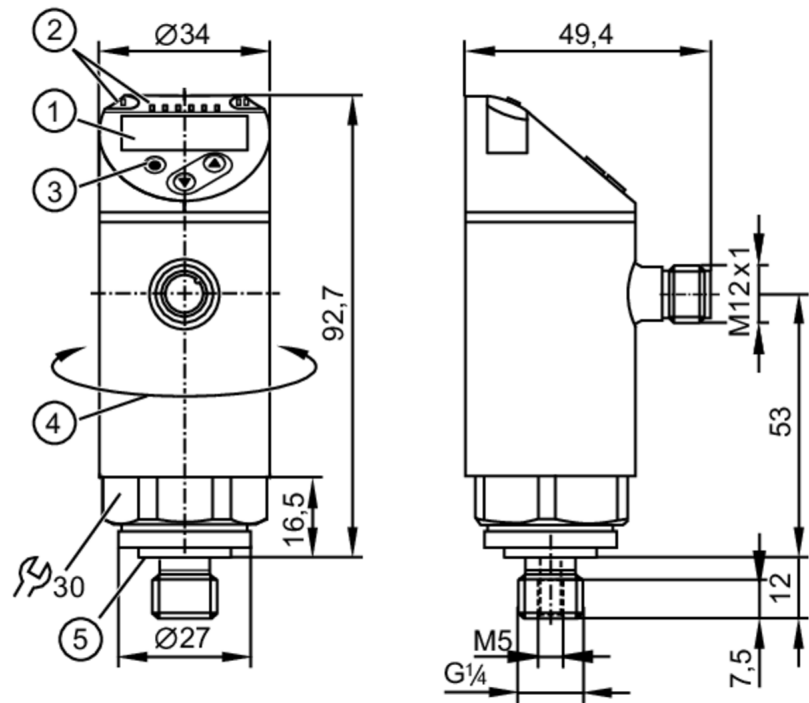


# PN2570



## Pressure sensor with display

PN-400-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 analog outputs: 1                         |              |            |
| Measuring range              | 0...400 bar                                                                       | 0...5800 psi | 0...40 MPa |
| Process connection           | threaded connection G 1/4 external thread (DIN EN ISO 1179-2); Internal thread:M5 |              |            |

### Application

|                         |                             |           |         |
|-------------------------|-----------------------------|-----------|---------|
| System                  | 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  | 1700 bar                    | 24650 psi | 170 MPa |
| Pressure rating         | 800 bar                     | 11580 psi | 80 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; Number of analog outputs: 1 |
|------------------------------|-----------------------------------------------------------|

### Outputs

|                                                 |                                                          |
|-------------------------------------------------|----------------------------------------------------------|
| Total number of outputs                         | 2                                                        |
| Output signal                                   | switching signal; analog 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]<br>2                                                 |
| Permanent current rating of switching output DC | [mA]<br>250                                              |
| Switching frequency DC                          | [Hz]<br>< 500                                            |
| Number of analog outputs                        | 1                                                        |
| Analog current output                           | [mA]<br>4...20; (scalable 1:5)                           |
| Max. load                                       | [Ω]<br>500                                               |
| Analog voltage output                           | [V]<br>0...10; (scalable 1:5)                            |
| Min. load resistance                            | [Ω]<br>2000                                              |
| Short-circuit protection                        | yes                                                      |
| Type of short-circuit protection                | yes (non-latching)                                       |
| Overload protection                             | yes                                                      |

### Measuring/setting range

|                    |              |                 |            |
|--------------------|--------------|-----------------|------------|
| Measuring range    | 0...400 bar  | 0...5800 psi    | 0...40 MPa |
| Analog start point | 0...320 bar  | 0...4640 psi    | 0...32 MPa |
| Analog end point   | 80...400 bar | 1160...5800 psi | 8...40 MPa |

#### Factory setting / CMPT = 2

|                                   |               |               |                 |
|-----------------------------------|---------------|---------------|-----------------|
| Set point SP                      | 2.5...400 bar | 40...5800 psi | 0.25...40 MPa   |
| Reset point rP                    | 1...398.5 bar | 10...5780 psi | 0.1...39.85 MPa |
| Min. difference between SP and rP | 2 bar         | 30 psi        | 0.2 MPa         |
| In steps of                       | 0.5 bar       | 10 psi        | 0.05 MPa        |

#### Status\_B High Resolution / CMPT = 3

|                                   |                 |               |                  |
|-----------------------------------|-----------------|---------------|------------------|
| Set point SP                      | 2.5...400 bar   | 37...5802 psi | 0.25...40 MPa    |
| Reset point rP                    | 0.9...398.4 bar | 13...5778 psi | 0.09...39.84 MPa |
| Min. difference between SP and rP | 1.7 bar         | 24 psi        | 0.17 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) |



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|                                                              |                                                                                                                         |            |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------|
| Hysteresis deviation<br>[% of the span]                      | < ± 0,1; (Turn down 1:1)                                                                                                |            |
| Long-term stability<br>[% of the span]                       | < ± 0,05; (Turn down 1:1; per 6 months)                                                                                 |            |
| Temperature coefficient zero point<br>[% of the span / 10 K] | 0,2; (-25...80 °C)                                                                                                      |            |
| Temperature coefficient span<br>[% of the span / 10 K]       | 0,2; (-25...80 °C)                                                                                                      |            |
| Notes on the accuracy / deviation                            | switch point accuracy, linearity error under DNV GL: < ± 1%: < ± 1%                                                     |            |
| Reaction times                                               |                                                                                                                         |            |
| Response time [ms]                                           | < 1.5                                                                                                                   |            |
| Delay time programmable dS, dr [s]                           | 0...50                                                                                                                  |            |
| Damping process value dAP [s]                                | 0...4                                                                                                                   |            |
| Damping for the analog output dAA [s]                        | 0...4                                                                                                                   |            |
| Max. response time analog output [ms]                        | 3                                                                                                                       |            |
| Software / programming                                       |                                                                                                                         |            |
| Parameter setting options                                    | hysteresis / window; normally open / 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                                                                                                             |            |
| SIO mode                                                     | yes                                                                                                                     |            |
| Required master port class                                   | A; (when pin 2 not connected: B)                                                                                        |            |
| Supported DeviceIDs                                          | Type of operation                                                                                                       | DeviceID   |
|                                                              | Factory setting / CMPT = 2                                                                                              | 459        |
|                                                              | Status_B High Resolution / CMPT = 3                                                                                     | 637        |
| Note                                                         | For further information please see the IODD PDF file at "Downloads"                                                     |            |
| Factory setting / CMPT = 2                                   |                                                                                                                         |            |
| Profiles                                                     | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis                                            |            |
| Min. process cycle time [ms]                                 | 2.3                                                                                                                     |            |
| IO-Link resolution pressure [bar]                            | 0.1                                                                                                                     |            |
| 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 ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000)                              |            |
| Min. process cycle time [ms]                                 | 3                                                                                                                       |            |
| IO-Link resolution pressure [bar]                            | 0.2                                                                                                                     |            |

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| IO-Link process data<br>(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 |

### 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 number                                                                    | J014                |
| Pressure equipment directive | sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                     |

### Mechanical data

|                               |      |                                                                                                  |
|-------------------------------|------|--------------------------------------------------------------------------------------------------|
| Weight                        | [g]  | 260.5                                                                                            |
| Housing                       |      | tubular                                                                                          |
| Dimensions                    | [mm] | Ø 34 / L = 92.7                                                                                  |
| Material                      |      | stainless steel (630/1.4542/17-4 PH); stainless steel (1.4404 / 316L); 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] | 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



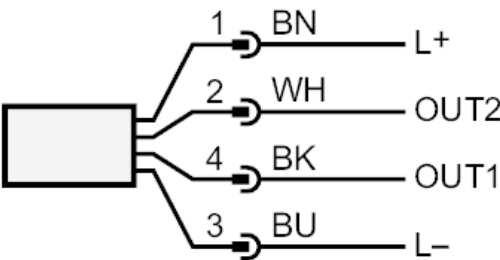
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### Connection



|      |                  |
|------|------------------|
| OUT1 | Switching output |
|      | IO-Link          |
| OUT2 | Switching output |
|      | analog output    |
|      | Core colors :    |
| BK = | black            |
| BN = | brown            |
| BU = | blue             |
| WH = | white            |