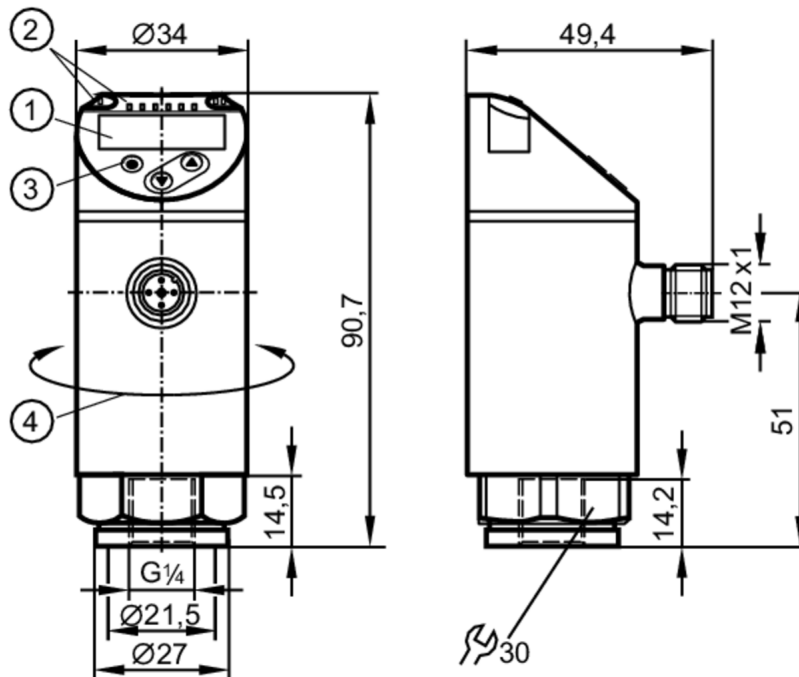


# PN3070



## Pressure sensor with display

PN-400-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  $345^\circ$



### Product characteristics

|                              |   |              |            |
|------------------------------|---|--------------|------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |              |            |
| Measuring range              | 0...400 bar   | 0...5800 psi | 0...40 MPa |
| Process connection           | threaded connection G 1/4 Internal thread M6 I            |              |            |

### 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 [mbar] | -1000                       |           |         |
| Type of pressure         | relative pressure           |           |         |

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PN-400-SER14-MFRKG/US/ IV

| 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   |               |
| Power-on delay time                             | [s]  | < 0.3   |               |
| Integrated watchdog                             |      | yes   |               |
| Inputs / outputs                                |      |   |               |
| Number of inputs and outputs                    |      | Number of digital outputs: 1; Number of analog outputs: 1 |               |
| Outputs   |      |   |               |
| Total number of outputs                         |      | 2   |               |
| Output signal                                   |      | switching signal; analog signal; IO-Link; (configurable)  |               |
| Electrical design                               |      | PNP   |               |
| Number of digital outputs                       |      | 1   |               |
| Output function                                 |      | normally open / closed; (configurable)                    |               |
| 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   |               |
| Number of analog outputs                        |      | 1   |               |
| Analog current output                           | [mA] | 4...20  |               |
| Max. load                                       | [Ω]  | 500   |               |
| Analog voltage output                           | [V]  | 0...10  |               |
| Min. load resistance                            | [Ω]  | 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    |
| Factory setting / CMPT = 2                      |      |   |               |
| Set point SP                                    |      | 4...400 bar   | 40...5800 psi |
| Reset point rP                                  |      | 2...398 bar   | 20...5780 psi |
| Min. difference between SP and rP               |      | 2 bar   | 40 psi        |
| In steps of                                     |      | 2 bar   | 20 psi        |
|   |      |   | 0.2 MPa       |
| Status_B High Resolution / CMPT = 3             |      |   |               |
| Set point SP                                    |      | 3...400 bar   | 49...5802 psi |
| Reset point rP                                  |      | 1...398 bar   | 20...5773 psi |
| Min. difference between SP and rP               |      | 2 bar   | 30 psi        |
| In steps of                                     |      | 1 bar   | 1 psi         |
|   |      |   | 0.1 MPa       |
| Accuracy / deviations                           |      |   |               |
| Switch point accuracy                           |      | < ± 0,5   |               |

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## Pressure sensor with display

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|                                    |                        |   |
|------------------------------------|------------------------|---|
|                                    | [% of the span]        |   |
| Repeatability                      | [% of the span]        | $< \pm 0,1$ ; (with temperature fluctuations $< 10$ K)  |
| Characteristics deviation          | [% of the span]        | $< \pm 0,25$ (BFSL) / $< \pm 0,5$ (LS); (BFSL = Best Fit Straight Line; LS = limit value setting) |
| Hysteresis deviation               | [% of the span]        | $< \pm 0,25$  |
| Long-term stability                | [% of the span]        | $< \pm 0,05$ ; (per 6 months)   |
| Temperature coefficient zero point | [% of the span / 10 K] | 0,2; (-25...80 °C)  |
| Temperature coefficient span       | [% of the span / 10 K] | 0,2; (-25...80 °C)  |

### Reaction times

|                                   |      |        |
|-----------------------------------|------|--------|
| Response time                     | [ms] | $< 3$  |
| 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   |          |
| Process data analog        | 1   |          |
| Process data binary        | 1   |          |
| Supported DeviceIDs        | Type of operation   | DeviceID |
|                            | Factory setting / CMPT = 2  | 427      |
|                            | Status_B High Resolution / CMPT = 3                                 | 606      |
| 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]  | 1          |
| IO-Link resolution pressure     | [MPa]  | 0.1        |
| IO-Link process data (cyclical) | Function   | bit length |
|                                 | pressure   | 14         |
|                                 | binary switching information   | 1          |
| IO-Link functions (acyclical)   | application specific tag   |            |

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## Pressure sensor with display

PN-400-SER14-MFRKG/US/ IV

| 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  |   |
| IO-Link resolution pressure [MPa]                    | 0.02   |   |
| IO-Link process data (cyclical)                      | Function   | bit length                              |
|  | pressure   | 16                                      |
|  | device status  | 4                                       |
|  | binary switching information   | 1                                       |
| 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]   | 190  |   |
| UL approval  | UL approval number   | J006                                    |
| Pressure equipment directive                         | sound engineering practice; can be used for group 2 fluids; group 1 fluids on request      |   |
| Mechanical data                                      |  |   |
| Weight [g]   | 231.5  |   |
| Material   | 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 M6 I   |   |
| Restrictor element integrated                        | no (can be retrofitted)  |   |
| Displays / operating elements                        |  |   |
| Display  | Display unit   | 3 x LED, green (bar, psi, MPa)          |
|  | Switching status   | 1 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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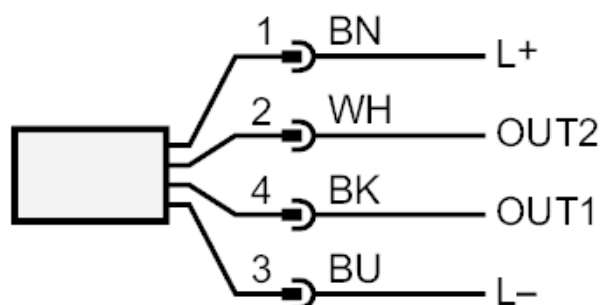


## Pressure sensor with display

PN-400-SER14-MFRKG/US/ IV



### Connection



OUT1            Switching output  
                  IO-Link

OUT2            analog output  
                  Core colors :

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