

# PN7160



## Pressure sensor with display

PN-600-SER14-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°



### Application

|                         |                             |           |         |
|-------------------------|-----------------------------|-----------|---------|
| Measuring element       | metallic thin film cell     |           |         |
| Application             | for industrial applications |           |         |
| Media                   | liquids and gases           |           |         |
| Medium temperature [°C] | -25...80                    |           |         |
| Pressure rating         | 800 bar                     | 11580 psi | 80 MPa  |
| Min. bursting pressure  | 2500 bar                    | 36250 psi | 250 MPa |
| Type of pressure        | relative pressure           |           |         |

### Electrical data

|                                 |                                               |  |  |
|---------------------------------|-----------------------------------------------|--|--|
| Operating voltage [V]           | 18...30 DC; (according to EN 50178 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                                           |  |  |



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| 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...600 bar                                                                                                              | 0...8700 psi  | 0...60 MPa     |
| Set point SP                                              | 4...600 bar                                                                                                              | 40...8700 psi | 0.4...60 MPa   |
| Reset point rP                                            | 2...598 bar                                                                                                              | 20...8680 psi | 0.2...59.8 MPa |
| In steps of                                               | 2 bar                                                                                                                    | 20 psi        | 0.2 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 [% of the span / 10 K]       | 0,2; (-25...80 °C)                                                                                                       |               |                |
| Response times                                            |                                                                                                                          |               |                |
| Response time [ms]                                        | < 3                                                                                                                      |               |                |
| Delay time programmable dS, dr [s]                        | 0...50                                                                                                                   |               |                |
| Software / programming                                    |                                                                                                                          |               |                |
| Parameter setting options                                 | hysteresis / window; normally open / normally closed; switching logic; switch-on/switch-off delay; Damping; Display unit |               |                |



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| Interfaces                                |                                                                                    |                                                                                            |
|-------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Communication interface                   | IO-Link                                                                            |                                                                                            |
| Transmission type                         | COM2 (38,4 kBaud)                                                                  |                                                                                            |
| IO-Link revision                          | 1.1                                                                                |                                                                                            |
| SDCI standard                             | IEC 61131-9                                                                        |                                                                                            |
| IO-Link device ID                         | 398 d / 00 01 8e h                                                                 |                                                                                            |
| Profiles                                  | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis       |                                                                                            |
| SIO mode                                  | yes                                                                                |                                                                                            |
| Required master port type                 | A                                                                                  |                                                                                            |
| Process data analogue                     | 1                                                                                  |                                                                                            |
| Process data binary                       | 2                                                                                  |                                                                                            |
| Min. process cycle time                   | [ms]                                                                               | 2.3                                                                                        |
| 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]                                                                            | 210                                                                                        |
| UL approval                               | UL Approval no.                                                                    | J003                                                                                       |
| Pressure Equipment Directive              | Modul A; can be used for group 2 fluids; group 1 fluids on request                 |                                                                                            |
| Mechanical data                           |                                                                                    |                                                                                            |
| Weight                                    | [g]                                                                                | 229.5                                                                                      |
| Materials                                 | 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                                          |                                                                                            |
| 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; Contacts: gold-plated |                                                                                    |                                                                                            |

# PN7160

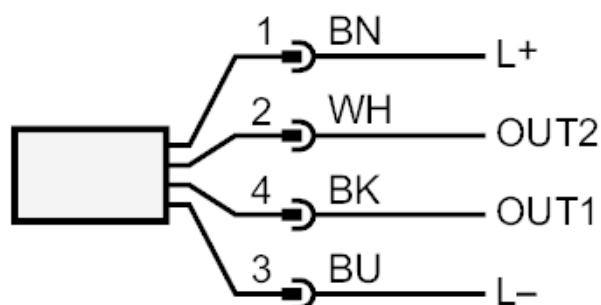


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### Connection



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