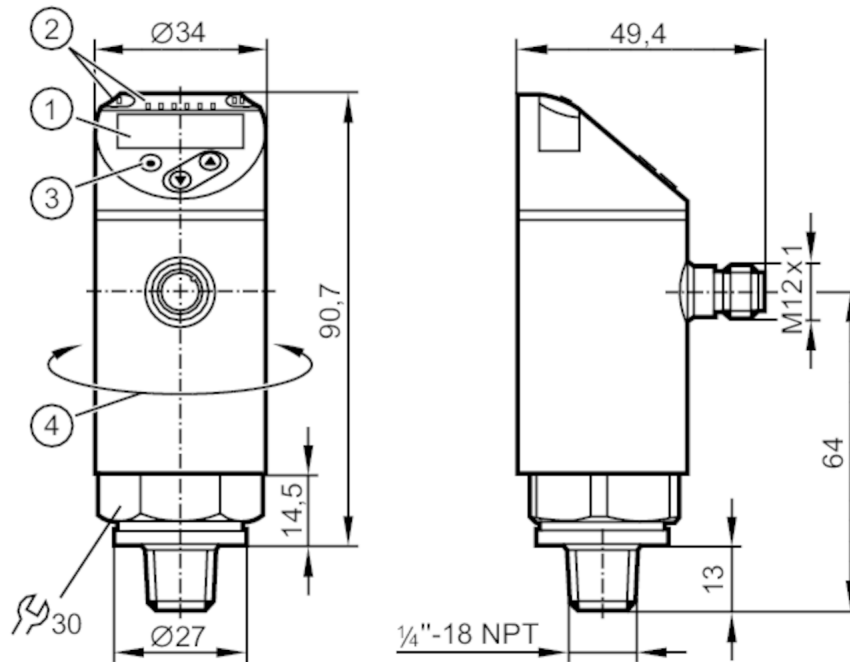


# PN7696



## Pressure sensor with display

PN-2,5-REN14-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...2.5 bar                                  | 0...2500 mbar | 0...36.2 psi |
| Process connection           | threaded connection 1/4" NPT external thread |               |              |

### Application

|  |  |         |          |
|--|--|---------|----------|
| System                                   | gold-plated contacts                       |         |          |
| Measuring element                        | ceramic-capacitive pressure measuring cell |         |          |
| Application                              | for industrial applications                |         |          |
| Media                                    | liquids and gases                          |         |          |
| Medium temperature [°C]                  | -25...80                                   |         |          |
| Min. bursting pressure                   | 50 bar                                     | 725 psi | 5000 kPa |
| Pressure rating                          | 20 bar                                     | 290 psi | 2000 kPa |
| Type of pressure                         | relative pressure                          |         |          |
| MAWP (for applications according to CRN) | 20 bar                                     | 290 psi | 2000 kPa |

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| 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: 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 / 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   |                |              |             |
| Short-circuit protection                        |                 | yes   |                |              |             |
| Type of short-circuit protection                |                 | yes (non-latching)  |                |              |             |
| Overload protection                             |                 | yes   |                |              |             |
| Measuring/setting range                         |                 |   |                |              |             |
| Measuring range                                 |                 | 0...2.5 bar   | 0...2500 mbar  | 0...36.2 psi | 0...250 kPa |
| Factory setting / CMPT = 2                      |                 |   |                |              |             |
| Set point SP                                    |                 | 0.02...2.5 bar  | 0.4...36.2 psi | 2...250 kPa  |             |
| Reset point rP                                  |                 | 0.01...2.49 bar   | 0.2...36 psi   | 1...249 kPa  |             |
| Min. difference between SP and rP               |                 | 0.02 bar  | 0.2 psi        | 2 kPa        |             |
| In steps of                                     |                 | 0.01 bar  | 0.2 psi        | 1 kPa        |             |
| Status_B High Resolution / CMPT = 3             |                 |   |                |              |             |
| Set point SP                                    |                 | 0.02...2.5 bar  | 0.3...36.3 psi | 2...250 kPa  |             |
| Reset point rP                                  |                 | 0.01...2.49 bar   | 0.1...36.1 psi | 1...249 kPa  |             |
| Min. difference between SP and rP               |                 | 0.02 bar  | 0.2 psi        | 2 kPa        |             |
| In steps of                                     |                 | 0.01 bar  | 0.1 psi        | 1 kPa        |             |
| Accuracy / deviations                           |                 |   |                |              |             |
| Switch point accuracy                           |                 | < ± 0,5   |                |              |             |
|   | [% of the span] |   |                |              |             |
| Repeatability                                   |                 | < ± 0,1; (with temperature fluctuations < 10 K)   |                |              |             |
|   | [% of the span] |   |                |              |             |
| Characteristics deviation                       |                 | < ± 0,25 (BFSL) / < ± 0,5 (LS); (BFSL = Best Fit Straight Line; LS = limit value setting) |                |              |             |
|   | [% of the span] |   |                |              |             |
| Hysteresis deviation                            |                 | < ± 0,25  |                |              |             |

# PN7696



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|                                    |                        |                          |
|------------------------------------|------------------------|--------------------------|
|                                    | [% of the span]        |                          |
| Long-term stability                | [% of the span]        | < ± 0,05; (per 6 months) |
| Temperature coefficient zero point | [% of the span / 10 K] | < ± 0,2; (-0...80 °C)    |
| Temperature coefficient span       | [% of the span / 10 K] | < ± 0,2; (-0...80 °C)    |

### Reaction times

|                                |      |        |
|--------------------------------|------|--------|
| Response time                  | [ms] | < 3    |
| Delay time programmable dS, dr | [s]  | 0...50 |

### Software / programming

|                           |   |
|---------------------------|---|
| Parameter setting options | hysteresis / window; normally open / closed; switching logic; switch-on/switch-off delay; Damping; Display unit |
|---------------------------|---|

### 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  | 455      |
|                            | Status_B High Resolution / CMPT = 3                                 | 634      |
| 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]  | 0.01       |
| IO-Link resolution pressure     | [MPa]  | 0.001      |
| 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

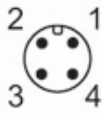
|                                 |  |            |
|---------------------------------|--|------------|
| Profiles                        | Smart Sensor ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000) |            |
| Min. process cycle time         | [ms]   | 3          |
| IO-Link resolution pressure     | [bar]  | 0.001      |
| IO-Link resolution pressure     | [MPa]  | 0.0001     |
| IO-Link process data (cyclical) | Function   | bit length |
|                                 | pressure   | 16         |
|                                 | device status  | 4          |
|                                 | binary switching information   | 2          |
| IO-Link functions (acyclical)   | application specific tag   |            |

# PN7696



## Pressure sensor with display

PN-2,5-REN14-QFRKG/US/ IV

| 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]   | 260   |
| UL approval   | UL approval number  | J001  |
| Pressure equipment directive  | sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |   |
| Mechanical data   |   |   |
| Weight  | [g]   | 243.5   |
| Material  | stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC                            |   |
| Materials (wetted parts)  | stainless steel (1.4404 / 316L); ceramics; FKM  |   |
| 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 external thread  |   |
| Restrictor element integrated   | no (can be retrofitted)   |   |
| Displays / operating elements   |   |   |
| Display   | Display unit  | 3 x LED, green (bar, psi, kPa)  |
|   | 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                                |   |   |
|  |   |   |

# PN7696



## Pressure sensor with display

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### Connection



|      |   |
|------|---|
| OUT1 | Switching output<br>IO-Link                                     |
| OUT2 | Switching output<br>Colors to DIN EN 60947-5-2<br>Core colors : |
| BK = | black   |
| BN = | brown   |
| BU = | blue  |
| WH = | white   |