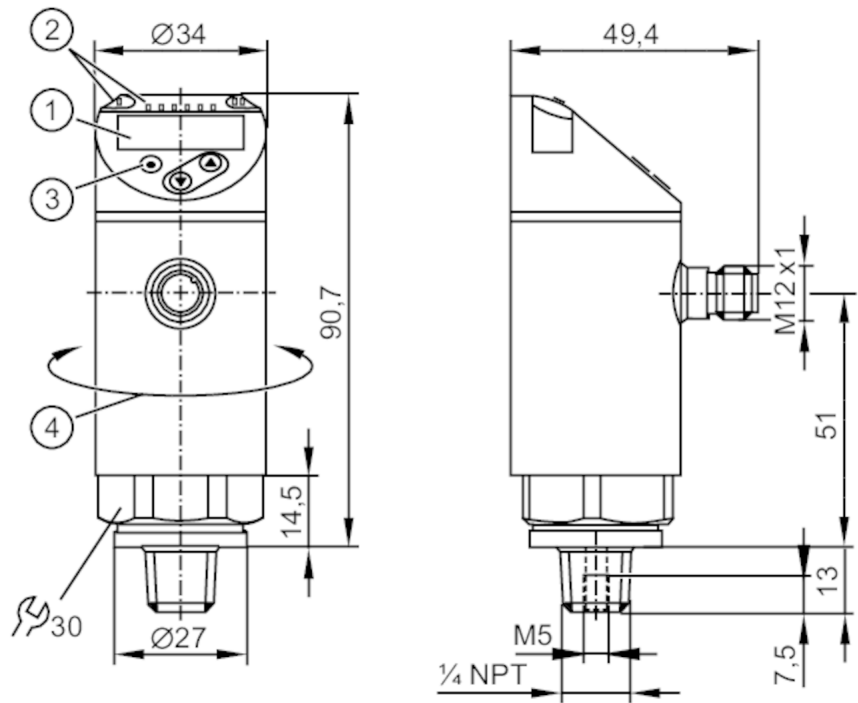


PN7696



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 | 0...250 kPa |
| 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     |             |
| 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                                                              |                |              |             |
| 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                           | [% 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; (-0...80 °C)                                                                     |                |              |             |
| Temperature coefficient span                    |                        | < ± 0,2; (-0...80 °C)                                                                     |                |              |             |



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|                                     |                                                                                                                 |                     |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------|
| [% of the span / 10 K]              |                                                                                                                 |                     |
| 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         | 0.01 bar                                                                                                        | 0.001 MPa           |
| 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         | 0.001 bar                                                                                                       | 0.0001 MPa          |
| IO-Link process data (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) |

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## Pressure sensor with display

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

|                              |                                                                                       |      |
|------------------------------|---------------------------------------------------------------------------------------|------|
| 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                                                                                                             |
| Housing                       |      | tubular                                                                                                           |
| Dimensions                    | [mm] | Ø 34 / L = 90.7                                                                                                   |
| 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



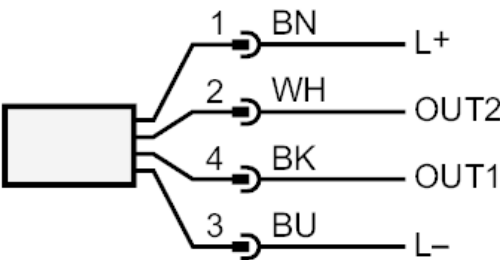
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### Connection



|      |                                                                 |
|------|-----------------------------------------------------------------|
| 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                                                           |