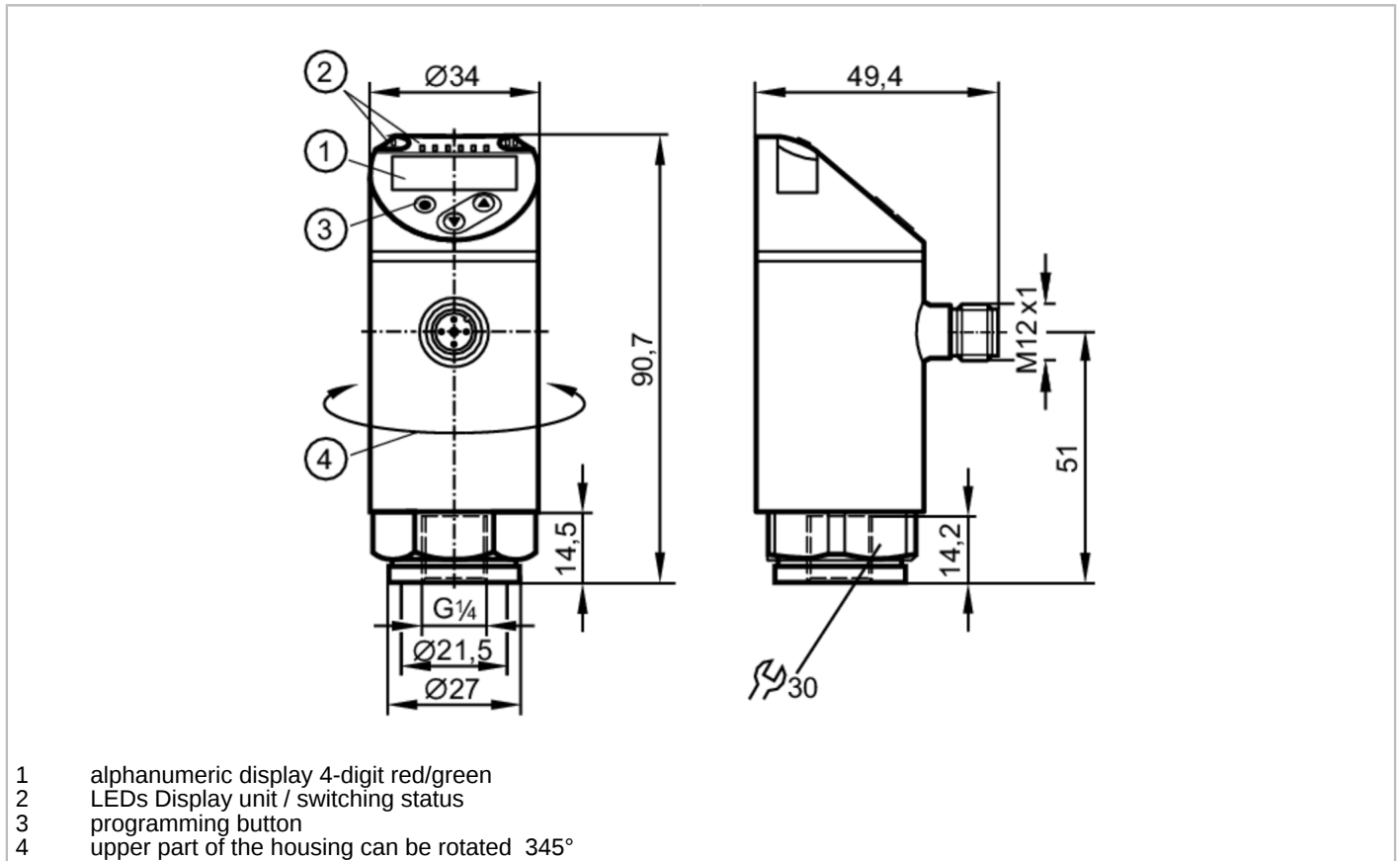


# PN7096



## Pressure sensor with display

PN-2,5-RER14-QFRKG/US/ IV



### 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 G 1/4 internal thread |               |              |             |

### Application

|                          |  |         |          |
|--------------------------|--|---------|----------|
| Special feature          | 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 |
| Vacuum resistance [mbar] | -1000                                      |         |          |
| 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                        |  |  |
| Power-on delay time [s]         | < 0.3                      |  |  |

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|   |   |                |              |             |
|---|---|----------------|--------------|-------------|
| Integrated watchdog                                       | yes   |                |              |             |
| <b>Inputs / outputs</b>                                   |   |                |              |             |
| Number of inputs and outputs                              | Number of digital outputs: 2  |                |              |             |
| <b>Outputs</b>  |   |                |              |             |
| 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   |                |              |             |
| <b>Measuring/setting range</b>                            |   |                |              |             |
| 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        |             |
| <b>Accuracy / deviations</b>                              |   |                |              |             |
| 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 [% of the span / 10 K]       | < ± 0,2; (-0...80 °C)   |                |              |             |



## Pressure sensor with display

PN-2,5-RER14-QFRKG/US/ IV

| 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   |                   |            |                            |     |                              |     |                                     |     |
| 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 type           | A; (when pin 2 not connected: B)   |                   |            |                            |     |                              |     |                                     |     |
| Process data analogue               | 1  |                   |            |                            |     |                              |     |                                     |     |
| Process data binary                 | 2  |                   |            |                            |     |                              |     |                                     |     |
| Supported DeviceIDs                 | <table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>Factory setting / CMPT = 2</td> <td>404</td> </tr> <tr> <td>PN7006</td> <td>312</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>602</td> </tr> </tbody> </table> | Type of operation | DeviceID   | Factory setting / CMPT = 2 | 404 | PN7006                       | 312 | Status_B High Resolution / CMPT = 3 | 602 |
| Type of operation                   | DeviceID   |                   |            |                            |     |                              |     |                                     |     |
| Factory setting / CMPT = 2          | 404  |                   |            |                            |     |                              |     |                                     |     |
| PN7006                              | 312  |                   |            |                            |     |                              |     |                                     |     |
| Status_B High Resolution / CMPT = 3 | 602  |                   |            |                            |     |                              |     |                                     |     |
| Note                                | For further information please see the IODD PDF file under "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]   | 0.0001   |                   |            |                            |     |                              |     |                                     |     |
| IO-Link process data (cyclical)     | <table border="1"> <thead> <tr> <th>function</th> <th>bit length</th> </tr> </thead> <tbody> <tr> <td>pressure</td> <td>14</td> </tr> <tr> <td>binary switching information</td> <td>2</td> </tr> </tbody> </table>  | function          | bit length | pressure                   | 14  | binary switching information | 2   |                                     |     |
| 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)     | <table border="1"> <thead> <tr> <th>function</th> <th>bit length</th> </tr> </thead> <tbody> <tr> <td>pressure</td> <td>16</td> </tr> <tr> <td>device status</td> <td>4</td> </tr> <tr> <td>binary switching information</td> <td>2</td> </tr> </tbody> </table>                               | function          | bit length | pressure                   | 16  | device status                | 4   | binary switching information        | 2   |
| 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   |                   |            |                            |     |                              |     |                                     |     |

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## Pressure sensor with display

PN-2,5-RER14-QFRKG/US/ IV

| 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 no.   | J001                |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                     |

| Mechanical data               |  |  |
|-------------------------------|--|--|
| Weight [g]                    | 234.5  |  |
| Materials                     | stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC                                   |  |
| Materials (wetted parts)      | stainless steel (316L/1.4404); ceramics; FKM   |  |
| 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  |  |
| 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



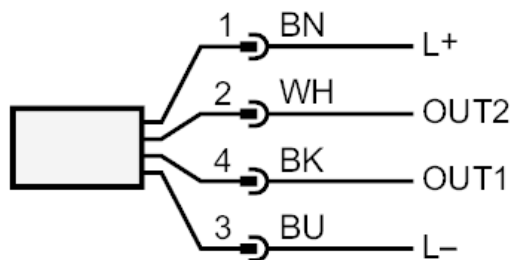
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## Pressure sensor with display

PN-2,5-RER14-QFRKG/US/ IV

### 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