



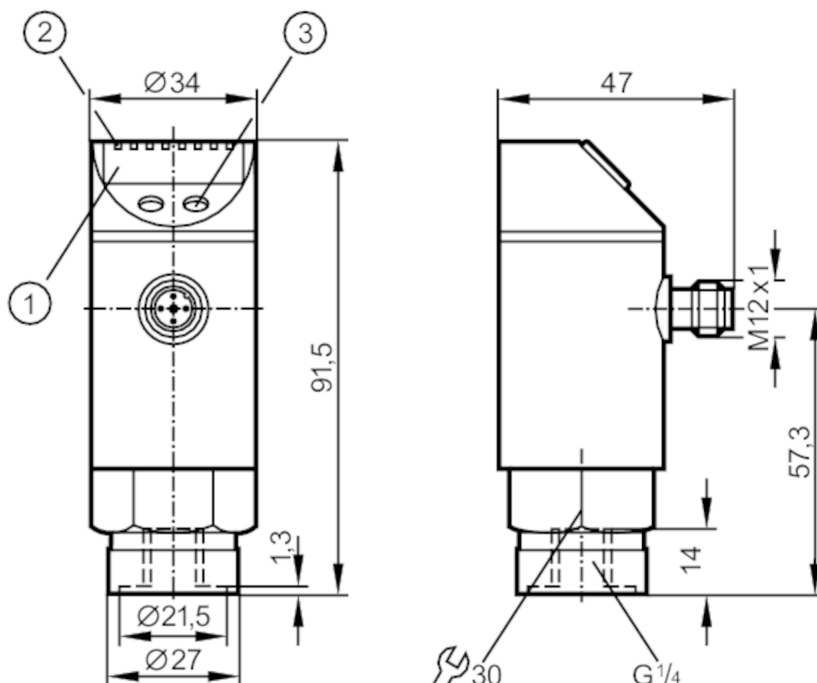
## Pressure sensor with display

PN-2,5-RBR14-MFRKG/US/ IV

phase-out article

Alternative articles: PN2096

When selecting an alternative article and accessories please note that technical data may differ!



- 1 alphanumeric display 4-digit
- 2 LEDs Display unit / switching status
- 3 programming button



### Product characteristics

|                              |                                                             |                  |                   |                 |
|------------------------------|-------------------------------------------------------------|------------------|-------------------|-----------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |                  |                   |                 |
| Measuring range              | -0.13...2.5 bar                                             | -130...2500 mbar | -1.45...36.25 psi | -12.5...250 kPa |
| Process connection           | threaded connection G 1/4 internal thread                   |                  |                   |                 |

### Application

|                         |                             |         |          |
|-------------------------|-----------------------------|---------|----------|
| Special feature         | Gold-plated contacts        |         |          |
| 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           |         |          |

### Electrical data

|                                 |                            |
|---------------------------------|----------------------------|
| Operating voltage [V]           | 18...32 DC; (to SELV/PELV) |
| Current consumption [mA]        | < 35                       |
| Min. insulation resistance [MΩ] | 100; (500 V DC)            |
| Protection class                | III                        |



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|                             |     |
|-----------------------------|-----|
| 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; Number of analogue outputs: 1 |
|------------------------------|-------------------------------------------------------------|

## Outputs

|                                                      |                                                            |
|------------------------------------------------------|------------------------------------------------------------|
| Total number of outputs                              | 2                                                          |
| Output signal                                        | switching signal; analogue 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                                                          |
| Permanent current rating of switching output DC [mA] | 250                                                        |
| Switching frequency DC [Hz]                          | < 500                                                      |
| Number of analogue outputs                           | 1                                                          |
| Analogue current output [mA]                         | 4...20; (scalable 1:4)                                     |
| Max. load [Ω]                                        | (U <sub>b</sub> - 10 V) / 20 mA                            |
| Analogue voltage output [V]                          | 0...10; (scalable 1:4)                                     |
| Min. load resistance [Ω]                             | 2000                                                       |
| Short-circuit protection                             | yes                                                        |
| Type of short-circuit protection                     | pulsed                                                     |
| Overload protection                                  | yes                                                        |

## Measuring/setting range

|                      |                  |                  |                   |                 |
|----------------------|------------------|------------------|-------------------|-----------------|
| Measuring range      | -0.13...2.5 bar  | -130...2500 mbar | -1.45...36.25 psi | -12.5...250 kPa |
| Set point SP         | -0.11...2.5 bar  | -1.5...36.25 psi | -10.5...250 kPa   |                 |
| Reset point rP       | -0.12...2.49 bar | -1.65...36.1 psi | -11.5...249 kPa   |                 |
| Analogue start point | -0.13...1.88 bar | -1.8...27.2 psi  | -12.5...187.5 kPa |                 |
| Analogue end point   | 0.5...2.5 bar    | 7.25...36.25 psi | 50...250 kPa      |                 |
| In steps of          | 0.01 bar         | 0.05 psi         | 0.5 kPa           |                 |
| Factory setting      |                  | SP1 = 0.63 bar   | rP1 = 0.58 bar    |                 |
|                      |                  | SP2 = 1.88 bar   | rP2 = 1.83 bar    |                 |
|                      |                  | ASP = 0.00 bar   | AEP = 2.50 bar    |                 |

## Accuracy / deviations

|                                           |                                                                                                          |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Switch point accuracy [% of the span]     | < ± 0,4; (Turn down 1:1)                                                                                 |
| Repeatability [% of the span]             | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                           |
| Characteristics deviation [% of the span] | < ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting) |
| Hysteresis deviation [% of the span]      | < ± 0,1; (Turn down 1:1)                                                                                 |
| Long-term stability [% of the span]       | < ± 0,1; (Turn down 1:1; per year)                                                                       |



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|                                                              |                                                                                                                                                                                                                 |                     |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Temperature coefficient zero point<br>[% of the span / 10 K] | < ± 0,2; (0...80 °C)                                                                                                                                                                                            |                     |
| Temperature coefficient span<br>[% of the span / 10 K]       | < ± 0,2; (0...80 °C)                                                                                                                                                                                            |                     |
| Response times                                               |                                                                                                                                                                                                                 |                     |
| Response time [ms]                                           | < 1.5                                                                                                                                                                                                           |                     |
| Damping process value dAP [s]                                | 0.01...4                                                                                                                                                                                                        |                     |
| Damping for the analogue output dAA [s]                      | 0.01...4                                                                                                                                                                                                        |                     |
| Max. response time analogue output [ms]                      | 3                                                                                                                                                                                                               |                     |
| Software / programming                                       |                                                                                                                                                                                                                 |                     |
| Parameter setting options                                    | hysteresis / window; normally open / normally closed; switching logic; current/voltage output; Damping; adaptation of displayed values; display can be rotated and switched off; Display unit; zero point; span |                     |
| Interfaces                                                   |                                                                                                                                                                                                                 |                     |
| Communication interface                                      | IO-Link                                                                                                                                                                                                         |                     |
| Transmission type                                            | COM2 (38,4 kBaud)                                                                                                                                                                                               |                     |
| IO-Link revision                                             | 1.0                                                                                                                                                                                                             |                     |
| Profiles                                                     | no profile                                                                                                                                                                                                      |                     |
| SIO mode                                                     | yes                                                                                                                                                                                                             |                     |
| Required master port type                                    | A                                                                                                                                                                                                               |                     |
| Process data analogue                                        | 1                                                                                                                                                                                                               |                     |
| Process data binary                                          | 2                                                                                                                                                                                                               |                     |
| Min. process cycle time [ms]                                 | 2.3                                                                                                                                                                                                             |                     |
| Supported DeviceIDs                                          | Type of operation                                                                                                                                                                                               | DeviceID            |
|                                                              | default                                                                                                                                                                                                         | 61                  |
| Operating conditions                                         |                                                                                                                                                                                                                 |                     |
| Ambient temperature [°C]                                     | -25...80                                                                                                                                                                                                        |                     |
| Storage temperature [°C]                                     | -40...100                                                                                                                                                                                                       |                     |
| Protection                                                   | IP 65                                                                                                                                                                                                           |                     |
| Tests / approvals                                            |                                                                                                                                                                                                                 |                     |
| EMC                                                          | EN 61000-4-2 ESD                                                                                                                                                                                                | 4 kV CD / 8 kV AD   |
|                                                              | EN 61000-4-3 HF radiated                                                                                                                                                                                        | 10 V/m              |
|                                                              | EN 61000-4-4 Burst                                                                                                                                                                                              | 2 kV                |
|                                                              | EN 61000-4-5 Surge                                                                                                                                                                                              | 0,5/1 kV            |
|                                                              | EN 61000-4-6 HF conducted                                                                                                                                                                                       | 10 V                |
| Shock resistance                                             | DIN IEC 68-2-27                                                                                                                                                                                                 | 50 g (11 ms)        |
| Vibration resistance                                         | DIN IEC 68-2-6                                                                                                                                                                                                  | 20 g (10...2000 Hz) |
| MTTF [years]                                                 | 131                                                                                                                                                                                                             |                     |
| Pressure Equipment Directive                                 | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request                                                                                                                           |                     |
| Mechanical data                                              |                                                                                                                                                                                                                 |                     |
| Weight [g]                                                   | 261                                                                                                                                                                                                             |                     |
| Materials                                                    | stainless steel (304/1.4301); stainless steel (316L/1.4404); PC; PBT; PEI; FKM; PTFE                                                                                                                            |                     |
| Materials (wetted parts)                                     | stainless steel (303/1.4305); ceramics; FKM                                                                                                                                                                     |                     |



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|                               |                                           |
|-------------------------------|-------------------------------------------|
| Min. pressure cycles          | 100 million                               |
| 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                |
|         | switching status | 2 x LED, yellow               |
|         | function display | alphanumeric display, 4-digit |
|         | measured values  | alphanumeric display, 4-digit |

Remarks

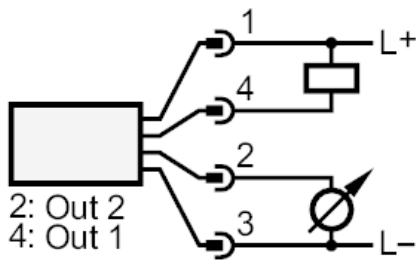
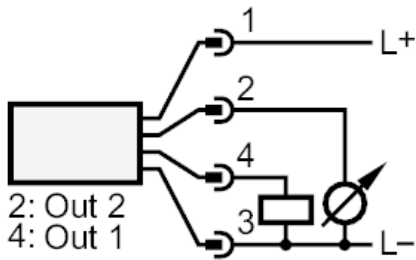
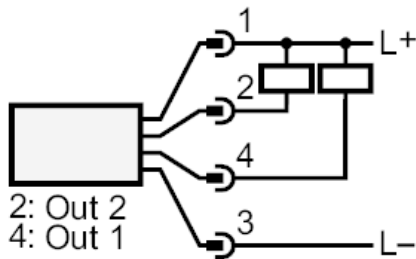
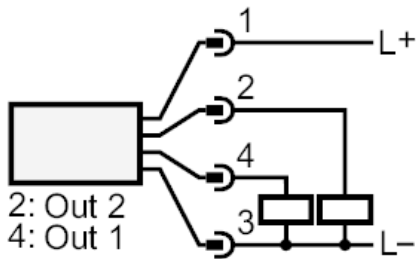
|               |        |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



|      |                  |
|------|------------------|
| OUT1 | switching output |
|      | IO-Link          |
| OUT2 | switching output |
|      | analogue output  |