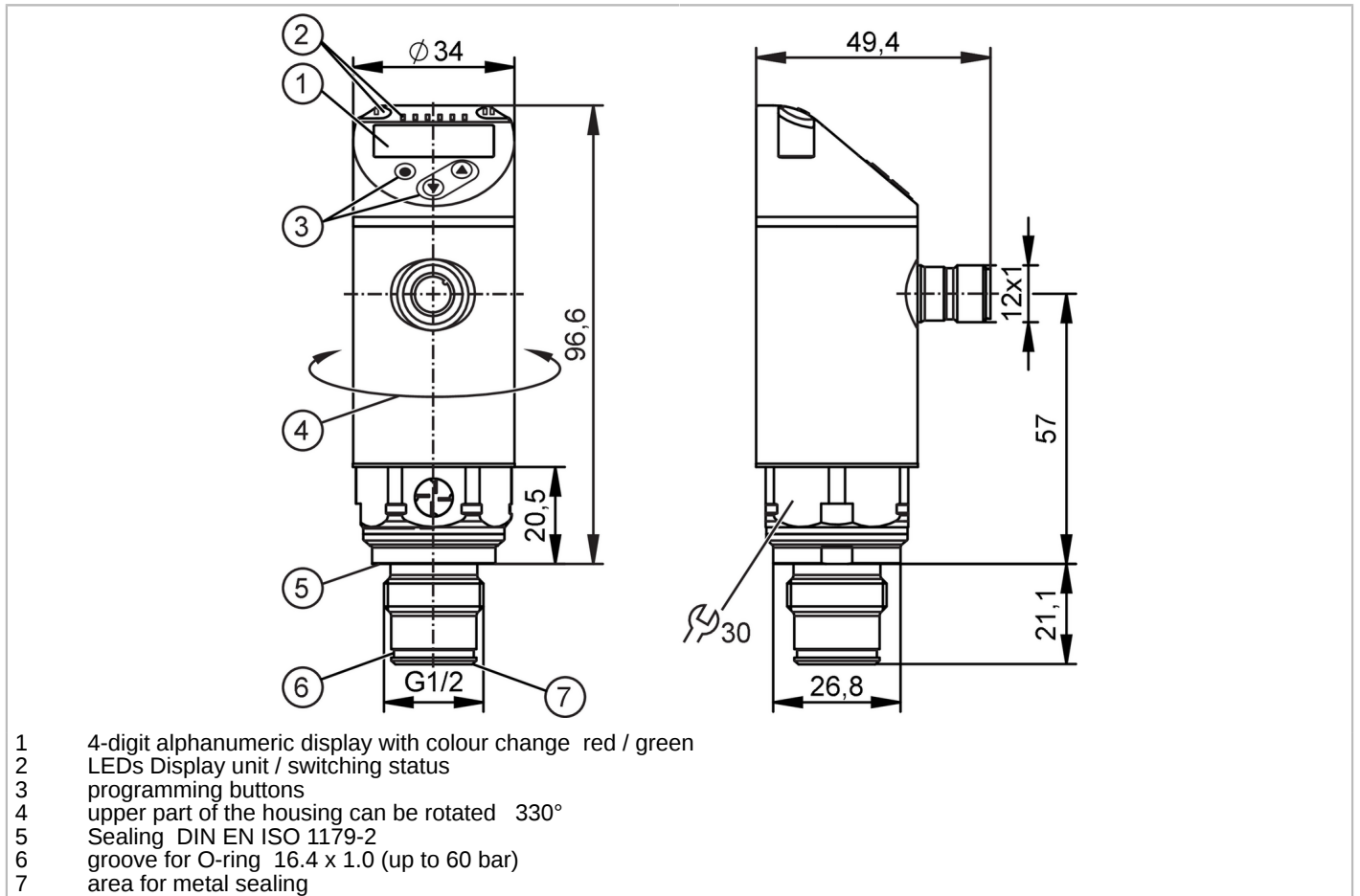


PF1503



Pressure sensor with display

PF-025-REA12-MFRKG/US//P



Product characteristics

| | | |
|------------------------------|---|----------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 | |
| Measuring range | -1...25 bar | -0.1...2.5 MPa |
| Process connection | threaded connection G 1/2 external thread - 21 mm | |

Application

| | | |
|-------------------------|--|----------|
| Special feature | Gold-plated contacts | |
| Measuring element | ceramic-capacitive pressure measuring cell | |
| Temperature monitoring | yes | |
| Application | flush mountable for industrial applications; for industrial applications | |
| Media | viscous media and liquids with suspended particles; Liquids; other media on request | |
| Medium temperature [°C] | -25...80; (flush mount zero-leak using metal-to-metal seal. for permissible temperatures of other sealing versions, see sealing materials under "Accessories") | |
| Min. burst pressure | 280 bar | 28 MPa |
| Pressure rating | 130 bar | 13 MPa |
| Vacuum resistance | -1000 mbar | -0.1 MPa |
| Type of pressure | relative pressure; vacuum | |
| No dead space | yes | |

Electrical data

| | |
|-----------------------|------------|
| Operating voltage [V] | 18...32 DC |
|-----------------------|------------|

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| | | |
|-----------------------------|------|-------------------------------------|
| Current consumption | [mA] | 15...40; (240 at max. load current) |
| Min. insulation resistance | [MΩ] | 100; (500 V DC) |
| Protection class | | III |
| Reverse polarity protection | | yes |
| Power-on delay time | [s] | 0.5 |
| 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] | 100 |
| Switching frequency DC | [Hz] | < 170 |
| Number of analogue outputs | | 1 |
| Analogue current output | [mA] | 4...20; (scalable 1:10) |
| Max. load | [Ω] | 500 |
| Analogue voltage output | [V] | 0...10; (scalable 1:10) |
| Min. load resistance | [Ω] | 2000 |
| Short-circuit protection | | yes |
| Type of short-circuit protection | | pulsed |
| Overload protection | | yes |

Measuring/setting range

| | | |
|----------------------|---------------|-----------------|
| Measuring range | -1...25 bar | -0.1...2.5 MPa |
| Set point SP | -1...25 bar | -0.1...2.5 MPa |
| Analogue start point | -1...22.5 bar | -0.1...2.25 MPa |
| Analogue end point | 1.5...25 bar | 0.15...2.5 MPa |
| In steps of | 0.01 bar | 0.001 MPa |

Measuring range (MPa)

| | | |
|-----------------|------------------------|------------------------|
| Factory setting | SSC1.1 SP1 = 0.625 MPa | SSC1.1 SP2 = 0.575 MPa |
| | SSC1.2 SP1 = 1.875 MPa | SSC1.2 SP2 = 1.825 MPa |
| | ASP = 0.00 MPa | AEP = 2.5 MPa |
| | dAP = 0.06 s | dAA = 0.06 s |

Measuring range (bar)

| | | |
|-----------------|------------------------|------------------------|
| Factory setting | SSC1.1 SP1 = 6.25 bar | SSC1.1 SP2 = 5.75 bar |
| | SSC1.2 SP1 = 18.75 bar | SSC1.2 SP2 = 18.25 bar |
| | ASP = 0.00 bar | AEP = 25 bar |
| | dAP = 0.06 s | dAA = 0.06 s |

Accuracy / deviations

| | |
|-----------------------|--|
| Switch point accuracy | < ± 0,5; (DIN EN IEC 62828-1; Turn down 1:1) |
|-----------------------|--|

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| | | |
|---|--------------------------|--|
| | [% of the span] | |
| Repeatability | [% of the span] | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1) |
| Characteristics deviation | [% of the span] | < ± 0,5; (DIN IEC EN 62828-1; incl. zero point and span error, non-linearity, hysteresis; Turn down 1:1) |
| Linearity deviation | [% of the span] | < ± 0,15; (Turn down 1:1) |
| Zero-point stabilisation | [% of the span] | IO-Link, analogue output 0,25; (see operating instructions zero-point behaviour) display, switching output 0,5 |
| Hysteresis deviation | [% of the span] | < ± 0,15; (Turn down 1:1) |
| Long-term stability | | < ± 0,1; (turn down 1:1; per year) |
| Temperature coefficient zero point and span | [% of the span / 10 K] | < ± 0,1; (-25...80 °C) |
| Temperature monitoring | | |
| Accuracy | [K] | ± 2 + (0,045 x (Ambient temperature - Medium temperature)) |
| Repeatability | [K] | ± 0,2 |
| Response times | | |
| Response time | [ms] | < 3 |
| Damping process value dAP | [s] | 0...99.99 |
| Damping for the analogue output dAA | [s] | 0...99.99 |
| Step response time analogue output | [ms] | 3 |
| Temperature monitoring | | |
| Dynamic response T05 / T09 | [s] | < 10 / < 45; (DIN EN 60751 water; > 0,9 m/s) |
| Software / programming | | |
| Parameter setting options | | hysteresis / window; normally open / normally closed; switch-on/ switch-off delay; Damping; Display unit; current/voltage output |
| Interfaces | | |
| Communication interface | | IO-Link |
| Transmission type | | COM3 (230,4 kBaud) |
| IO-Link revision | | 1.1 |
| SDCI standard | | IEC 61131-9 |
| Profiles | Smart Sensor - SSP 4.1.2 | Measuring and Switching Sensor, 2 channel |
| | Common - I&D | Identification and Diagnosis |
| | Extension | Quantity detection, switches when value exceeds the setpoint |
| | Function | Locator |
| | Function | ProductURI |
| SIO mode | | yes |
| Required master port type | | A |
| Min. process cycle time | [ms] | 1 |
| IO-Link resolution pressure | [bar] | 0.005 |
| IO-Link resolution temperature | [K] | 0.2 |

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| | | |
|------------------------------------|--|-------------------|
| IO-Link process data (cyclical) | function | bit length |
| | pressure | 16 |
| | temperature | 16 |
| | device status | 4 |
| | binary switching information pressure | 2 |
| | binary switching information temperature | 2 |
| IO-Link functions (acyclical) | application specific tag; internal temperature; operating hours counter; switching cycles counter; Pressure peak counter; Temperature peak counter | |
| Supported DeviceIDs | Type of operation | DeviceID |
| | default | 1977 |
| Note | For further information please see the IODD PDF file under "Downloads" | |

| Operating conditions | | |
|----------------------|------|--|
| Ambient temperature | [°C] | -25...80 |
| Storage temperature | [°C] | -40...100 |
| Protection | | IP 65; IP 67; IP 69; (to DIN EN 60529) |

| Tests / approvals | | |
|----------------------------|-------------------|---------------------|
| EMC | DIN EN 61326-1 | |
| Shock resistance | DIN EN 60068-2-27 | 50 g (11 ms) |
| Vibration resistance | DIN EN 60068-2-6 | 10 g (10...2000 Hz) |
| MTTF | [years] | 245 |
| Embedded software included | | yes |

| Mechanical data | | |
|--------------------------|------|---|
| Weight | [g] | 215 |
| Housing | | cylindrical |
| Dimensions | [mm] | Ø 34 / L = 117.8 |
| Materials | | Housing: stainless steel (316L/1.4404); Operating units: PBT, PC; sealings: FKM; pressure compensation element: PTFE |
| Materials (wetted parts) | | measuring cell: Al ₂ O ₃ (ceramics); Process connection: stainless steel (316L/1.4435) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; Sealing: PTFE; (FKM for sealing with seal DIN EN ISO 1179-2, see operating instructions) |
| Min. pressure cycles | | 100 million |
| Tightening torque | [Nm] | 25 |
| Process connection | | threaded connection G 1/2 external thread - 21 mm |

| Displays / operating elements | | |
|-------------------------------|------------------|---|
| Display | Display unit | 2x LED, green (bar, MPa) |
| | switching status | 2 x LED, yellow |
| | measured values | alphanumeric display, red/green 4-digit |
| Operating elements | | 3 pushbuttons |

| Accessories | | |
|------------------------|--|--|
| Items supplied | Gasket: G1/2, FKM DIN EN ISO1179-2 (-15...80°C), E30492 | |
| Accessories (optional) | Gasket: G1/2, EPDM DIN EN ISO1179-2 (-25...80°C), E30451 | |
| | Gasket: G1/2, FFKM DIN EN ISO1179-2 (-5...80°C), E30513 | |
| | O-ring: 16,4 x 1, FKM (-15...80°C), E30510 | |
| | O-ring: 16,4 x 1, EPDM (-25...80°C), E30511 | |
| | O-ring: 16,4 x 1, FFKM (-5...80°C), E30512 | |
| | cover for filter system: E30605 | |

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Remarks

Pack quantity

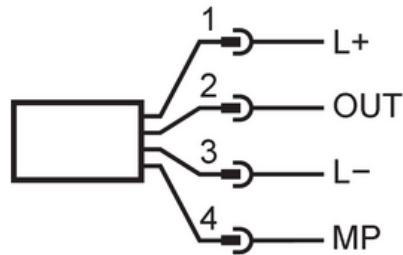
1 pcs.

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



Connection



plug

| | | |
|---|-----|----------------------|
| 1 | L+ | |
| 2 | OUT | DO2 (NO/NC), AO |
| 3 | L- | |
| 4 | MP | DO1 (NO/NC), IO-Link |