

PN2698



Pressure sensor with display

PN-,25-REN14-MFRKG/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; Number of analogue outputs: 1 | | | | |
| Measuring range | -0.0125...0.25 bar | -12.5...250 mbar | -5...100.4 inH2O | -1.25...25 kPa | -127...2549 mmWS |
| Process connection | threaded connection 1/4" NPT external 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. burst pressure | 30000 mbar | 12000 inH2O | 3000 kPa | 306000 mmWS |
| Pressure rating | 10000 mbar | 4000 inH2O | 1000 kPa | 102000 mmWS |
| Vacuum resistance | -1000 mbar | | -0.1 MPa | |
| Type of pressure | relative pressure | | | |
| MAWP for applications according to CRN | 10 bar | 10000 mbar | 4000 inH2O | 1000 kPa |

Electrical data

| | | | | |
|---------------------------------|----------------------------|--|--|--|
| Operating voltage [V] | 18...30 DC; (to SELV/PELV) | | | |
| Current consumption [mA] | < 35 | | | |
| Min. insulation resistance [MΩ] | 100; (500 V DC) | | | |

PN2698



Pressure sensor with display

PN-,25-REN14-MFRKG/US/IV

| | |
|-----------------------------|-----|
| 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; 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 1:5) |
| Max. load [Ω] | 500 |
| Analogue voltage output [V] | 0...10; (scalable 1:5) |
| Min. load resistance [Ω] | 2000 |
| Short-circuit protection | yes |
| Type of short-circuit protection | pulsed |
| Overload protection | yes |

Measuring/setting range

| | | | | | |
|-------------------------------------|--------------------|--------------------|------------------|------------------|------------------|
| Measuring range | -0.0125...0.25 bar | -12.5...250 mbar | -5...100.4 inH2O | -1.25...25 kPa | -127...2549 mmWS |
| Analogue start point | -12.5...200 mbar | -5...80.2 inH2O | -1.25...20 kPa | -125...2040 mmWS | |
| Analogue end point | 37.5...250 mbar | 15...100.4 inH2O | 3.75...25 kPa | 385...2550 mmWS | |
| Factory setting / CMPT = 2 | | | | | |
| Set point SP | -11...250 mbar | -4.4...100.4 inH2O | -1.09...25 kPa | -110...2550 mmWS | |
| Reset point rP | -12...249 mbar | -4.8...100 inH2O | -1.2...24.9 kPa | -120...2540 mmWS | |
| Min. difference between SP and rP | 1.5 mbar | 0.6 inH2O | 0.15 kPa | 15 mmWS | |
| In steps of | 0.5 mbar | 0.2 inH2O | 0.05 kPa | 5 mmWS | |
| Status_B High Resolution / CMPT = 3 | | | | | |
| Set point SP | -10.9...250 mbar | -4.4...100.4 inH2O | -1.09...25 kPa | -112...2550 mmWS | |
| Reset point rP | -12...249 mbar | -4.8...100 inH2O | -1.2...24.9 kPa | -122...2539 mmWS | |
| Min. difference between SP and rP | 1.1 mbar | 0.5 inH2O | 0.11 kPa | 11 mmWS | |
| In steps of | 0.1 mbar | 0.1 inH2O | 0.01 kPa | 1 mmWS | |

Accuracy / deviations

| | |
|---------------------------------------|--------------------------|
| Switch point accuracy [% of the span] | < ± 0,4; (Turn down 1:1) |
|---------------------------------------|--------------------------|

PN2698



Pressure sensor with display

PN-,25-REN14-MFRKG/US/IV

| | | |
|------------------------------------|------------------------|--|
| 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] | < ± 0,05; (Turn down 1:1; 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) |
| Notes on the accuracy / deviation | | switch point accuracy, linearity error under DNV GL: < ± 1%: < ± 1% |

Response times

| | | |
|-------------------------------------|------|--------|
| Response time | [ms] | < 1.5 |
| Delay time programmable dS, dr | [s] | 0...50 |
| Damping process value dAP | [s] | 0...4 |
| Damping for the analogue output dAA | [s] | 0...4 |
| Max. response time analogue output | [ms] | 3 |

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 | 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) | |
| Supported DeviceIDs | Type of operation | DeviceID |
| | Factory setting / CMPT = 2 | 476 |
| | Status_B High Resolution / CMPT = 3 | 992 |
| Note | For further information please see the IODD PDF file under "Downloads" | |

Factory setting / CMPT = 2

| | | |
|---------------------------------|------------------------------|-------------------------|
| Profiles | Smart Sensor - SSP 0 | Generic Profiled Sensor |
| | Function | Device identification |
| | Function | Process data variable |
| | Function | Device diagnosis |
| Min. process cycle time | [ms] | 2.3 |
| IO-Link resolution pressure | [mbar] | 0.1 |
| IO-Link process data (cyclical) | function | bit length |
| | pressure | 14 |
| | binary switching information | 2 |

PN2698



Pressure sensor with display

PN-,25-REN14-MFRKG/US/ IV

| | | |
|-------------------------------------|------------------------------|------------------------------|
| IO-Link functions (acyclical) | application specific tag | |
| Status_B High Resolution / CMPT = 3 | | |
| Profiles | Smart Sensor - SSP 3.1 | Measuring Sensor |
| | Common - I&D | Identification and Diagnosis |
| Min. process cycle time [ms] | 3 | |
| IO-Link resolution pressure [mbar] | 0.1 | |
| 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) |
| MTTF [years] | 145 | |
| UL approval | UL approval no. | J012 |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request | |

| | | |
|-------------------------------|--|--|
| Mechanical data | | |
| Weight [g] | 246 | |
| Housing | cylindrical | |
| Dimensions [mm] | Ø 34 / L = 90.7 | |
| Materials | stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC | |
| Materials (wetted parts) | stainless steel (316L/1.4404); Al2O3 (96%; ceramics); FKM | |
| Min. pressure cycles | 100 million | |
| Tightening torque [Nm] | > 50; (depends on the lubrication, the seal and the pressure load) | |
| Process connection | threaded connection 1/4" NPT external thread | |
| Restrictor element integrated | no (can be retrofitted) | |

| | | |
|--------------------------------------|------------------|---|
| Displays / operating elements | | |
| Display | Display unit | 4 x LED, green (mbar, mmWS, kPa, inH2O) |
| | 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



PN2698



Pressure sensor with display

PN-,25-REN14-MFRKG/US/IV

Connection



| | |
|------|------------------|
| OUT1 | switching output |
| | IO-Link |
| OUT2 | switching output |
| | analogue output |
| | Core colours : |
| BK = | black |
| BN = | brown |
| BU = | blue |
| WH = | white |