

PN3597



Pressure sensor with display

PN-001BREG14-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°
- 5 Sealing



Product characteristics

| | | | | | |
|------------------------------|---|---------------|--------------|---------------|-------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analogue outputs: 1 | | | | |
| Measuring range | 0...1 bar | 0...1000 mbar | 0...14.5 psi | 0...29.5 inHg | 0...100 kPa |
| Process connection | threaded connection G 1/4 external thread (DIN EN ISO 1179-2); internal thread:M5 | | | | |

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 | 450 psi | 880 inHg | 3000 kPa |
| Pressure rating | 10000 mbar | 145 psi | 290 inHg | 1000 kPa |
| Vacuum resistance | -1000 mbar | | -0.1 MPa | |
| 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 | | | |

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

Outputs

| | |
|--|--|
| Total number of outputs | 2 |
| Output signal | switching signal; analogue signal; IO-Link; (configurable) |
| Electrical design | PNP |
| Number of digital outputs | 1 |
| 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 |
| Number of analogue outputs | 1 |
| Analogue current output [mA] | 4...20 |
| Max. load [Ω] | 500 |
| Analogue voltage output [V] | 0...10 |
| Min. load resistance [Ω] | 2000 |
| Short-circuit protection | yes |
| Type of short-circuit protection | pulsed |
| Overload protection | yes |

Measuring/setting range

| | | | | | |
|-----------------|-----------|---------------|--------------|---------------|-------------|
| Measuring range | 0...1 bar | 0...1000 mbar | 0...14.5 psi | 0...29.5 inHg | 0...100 kPa |
|-----------------|-----------|---------------|--------------|---------------|-------------|

Factory setting / CMPT = 2

| | | | | |
|-----------------------------------|----------------|-----------------|-----------------|----------------|
| Set point SP | 10...1000 mbar | 0.1...14.5 psi | 0.2...29.5 inHg | 1...100 kPa |
| Reset point rP | 5...995 mbar | 0.05...14.5 psi | 0.1...29.4 inHg | 0.5...99.5 kPa |
| Min. difference between SP and rP | 5 mbar | 0.1 psi | 0.2 inHg | 0.5 kPa |
| In steps of | 5 mbar | 0.05 psi | 0.1 inHg | 0.5 kPa |

Status_B High Resolution / CMPT = 3

| | | | | |
|-----------------------------------|---------------|------------------|-----------------|----------------|
| Set point SP | 8...1000 mbar | 0.12...14.5 psi | 0.2...29.5 inHg | 0.8...100 kPa |
| Reset point rP | 3...995 mbar | 0.05...14.43 psi | 0.1...29.4 inHg | 0.3...99.5 kPa |
| Min. difference between SP and rP | 5 mbar | 0.08 psi | 0.2 inHg | 0.5 kPa |
| In steps of | 1 mbar | 0.01 psi | 0.1 inHg | 0.1 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 |



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|--|--------------------------|
| 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) |

Response times

| | |
|---|--------|
| Response time [ms] | < 3 |
| 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 | | | | | | |
| Process data analogue | 1 | | | | | | |
| Process data binary | 1 | | | | | | |
| 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>433</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>618</td> </tr> </tbody> </table> | Type of operation | DeviceID | Factory setting / CMPT = 2 | 433 | Status_B High Resolution / CMPT = 3 | 618 |
| Type of operation | DeviceID | | | | | | |
| Factory setting / CMPT = 2 | 433 | | | | | | |
| Status_B High Resolution / CMPT = 3 | 618 | | | | | | |
| 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 | 1 mbar | 0.0001 MPa |
| IO-Link process data (cyclical) | function | bit length |
| | pressure | 14 |
| | binary switching information | 1 |
| 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 | |

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| | | |
|---------------------------------|------------------------------|-------------------|
| IO-Link resolution pressure | 0.5 mbar | 0.00005 MPa |
| IO-Link process data (cyclical) | function | bit length |
| | pressure | 16 |
| | device status | 4 |
| | binary switching information | 1 |
| 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] | 226 |
| UL approval | UL approval no. | J004 |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request | |

Mechanical data

| | | |
|-------------------------------|------|--|
| Weight | [g] | 260 |
| Materials | | stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC |
| Materials (wetted parts) | | stainless steel (316L/1.4404); Al2O3 (ceramics); FKM |
| Min. pressure cycles | | 100 million |
| Tightening torque | [Nm] | 25...35; (recommended tightening torque; depends on the lubrication, the seal and the pressure load) |
| Process connection | | threaded connection G 1/4 external thread (DIN EN ISO 1179-2); internal thread:M5 |
| Process connection sealing | | FKM (DIN EN ISO 1179-2) |
| Restrictor element integrated | | no (can be retrofitted) |

Displays / operating elements

| | | |
|---------|------------------|---|
| Display | Display unit | 4 x LED, green (mbar, psi, kPa, inHg) |
| | switching status | 1 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: 4, gold-plated



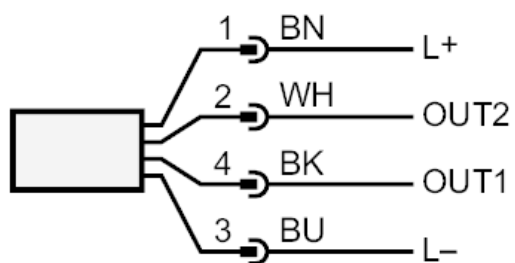
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Connection



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