

# PN2060



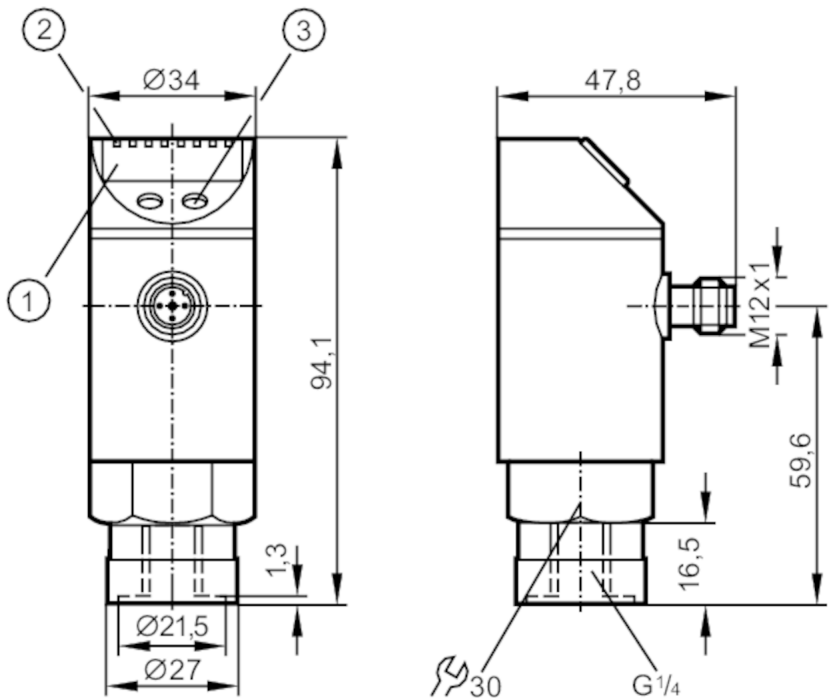
## Pressure sensor with display

PN-600-SBR14-MFRKG/US/ /V

Article to be discontinued

Alternative articles: PN2160

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 analog outputs: 1 |                            |            |
| Measuring range              | 0...600 bar                                               | 0...8700 psi               | 0...60 MPa |
| Process connection           | threaded connection G 1/4 Internal thread                 |                            |            |
| Application                  |                                                           |                            |            |
| System                       | gold-plated contacts                                      |                            |            |
| Application                  | for industrial applications                               |                            |            |
| Media                        | liquids and gases                                         |                            |            |
| Conditionally suitable for   | use in gases at pressures > 25 bar only on request        |                            |            |
| Medium temperature           | -25...80                                                  |                            |            |
| Min. bursting pressure       | 1200 bar                                                  | 17400 psi                  | 120 MPa    |
| Pressure rating              | 800 bar                                                   | 11600 psi                  | 80 MPa     |
| 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)            |            |



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|                             |     |
|-----------------------------|-----|
| 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 analog outputs: 1 |
|------------------------------|-----------------------------------------------------------|

### Outputs

|                                                      |                                                          |
|------------------------------------------------------|----------------------------------------------------------|
| Total number of outputs                              | 2                                                        |
| Output signal                                        | switching signal; analog signal; IO-Link; (configurable) |
| Electrical design                                    | PNP/NPN                                                  |
| Number of digital outputs                            | 2                                                        |
| Output function                                      | normally open / closed; (configurable)                   |
| Max. voltage drop switching output DC [V]            | 2                                                        |
| Permanent current rating of switching output DC [mA] | 250                                                      |
| Switching frequency DC [Hz]                          | < 500                                                    |
| Number of analog outputs                             | 1                                                        |
| Analog current output [mA]                           | 4...20; (scalable 1:4)                                   |
| Max. load [Ω]                                        | (U <sub>b</sub> - 10 V) / 20 mA                          |
| Analog voltage output [V]                            | 0...10; (scalable 1:4)                                   |
| Min. load resistance [Ω]                             | 2000                                                     |
| Short-circuit protection                             | yes                                                      |
| Type of short-circuit protection                     | yes (non-latching)                                       |
| Overload protection                                  | yes                                                      |

### Measuring/setting range

|                    |               |                 |                |
|--------------------|---------------|-----------------|----------------|
| Measuring range    | 0...600 bar   | 0...8700 psi    | 0...60 MPa     |
| Set point SP       | 6...600 bar   | 100...8700 psi  | 0.6...60 MPa   |
| Reset point rP     | 2...596 bar   | 40...8640 psi   | 0.2...59.6 MPa |
| Analog start point | 0...450 bar   | 0...6520 psi    | 0...45 MPa     |
| Analog end point   | 150...600 bar | 2120...8700 psi | 15...60 MPa    |
| In steps of        | 2 bar         | 20 psi          | 0.2 MPa        |
| Factory setting    |               | SP1 = 150 bar   | rP1 = 138 bar  |
|                    |               | SP2 = 450 bar   | rP2 = 438 bar  |
|                    |               | ASP = 0 bar     | AEP = 600 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]      | < ± 1,0; (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) |

## Reaction times

|                                       |          |
|---------------------------------------|----------|
| Response time [ms]                    | < 1.5    |
| Damping process value dAP [s]         | 0.01...4 |
| Damping for the analog output dAA [s] | 0.01...4 |
| Max. response time analog output [ms] | 3        |

## Software / programming

|                           |                                                                                                                                                                                                         |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter setting options | hysteresis / window; normally open / 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 class   | A                                                                                                            |                   |          |         |    |
| Process data analog          | 1                                                                                                            |                   |          |         |    |
| Process data binary          | 2                                                                                                            |                   |          |         |    |
| Min. process cycle time [ms] | 2.3                                                                                                          |                   |          |         |    |
| Supported DeviceIDs          | <table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>default</td><td>75</td></tr> </table> | Type of operation | DeviceID | default | 75 |
| Type of operation            | DeviceID                                                                                                     |                   |          |         |    |
| default                      | 75                                                                                                           |                   |          |         |    |

## Operating conditions

|                          |           |
|--------------------------|-----------|
| Ambient temperature [°C] | -25...80  |
| Storage temperature [°C] | -40...100 |
| Protection               | IP 67     |

## Tests / approvals

|                              |                                                                                                                                                                                                                                                                                                               |                  |                   |                          |        |                    |      |                    |          |                           |      |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|--------------------------|--------|--------------------|------|--------------------|----------|---------------------------|------|
| EMC                          | <table> <tr> <td>EN 61000-4-2 ESD</td><td>4 kV CD / 8 kV AD</td></tr> <tr> <td>EN 61000-4-3 HF radiated</td><td>10 V/m</td></tr> <tr> <td>EN 61000-4-4 Burst</td><td>2 kV</td></tr> <tr> <td>EN 61000-4-5 Surge</td><td>0,5/1 kV</td></tr> <tr> <td>EN 61000-4-6 HF conducted</td><td>10 V</td></tr> </table> | 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 |
| 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<br>50 g (11 ms)                                                                                                                                                                                                                                                                               |                  |                   |                          |        |                    |      |                    |          |                           |      |
| Vibration resistance         | DIN IEC 68-2-6<br>20 g (10...2000 Hz)                                                                                                                                                                                                                                                                         |                  |                   |                          |        |                    |      |                    |          |                           |      |
| MTTF [years]                 | 1385                                                                                                                                                                                                                                                                                                          |                  |                   |                          |        |                    |      |                    |          |                           |      |
| Pressure equipment directive | sound engineering practice; can be used for group 2 fluids; group 1 fluids on request                                                                                                                                                                                                                         |                  |                   |                          |        |                    |      |                    |          |                           |      |

## Mechanical data

|                          |                                                                                    |
|--------------------------|------------------------------------------------------------------------------------|
| Weight [g]               | 272.5                                                                              |
| Material                 | stainless steel (1.4301 / 304); stainless steel (1.4404 / 316L); PC; PBT; PEI; FKM |
| Materials (wetted parts) | stainless steel (1.4305 / 303); ceramics; FKM                                      |

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|                               |                                           |
|-------------------------------|-------------------------------------------|
| Min. pressure cycles          | 50 million                                |
| Process connection            | threaded connection G 1/4 Internal thread |
| Restrictor element integrated | yes                                       |

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

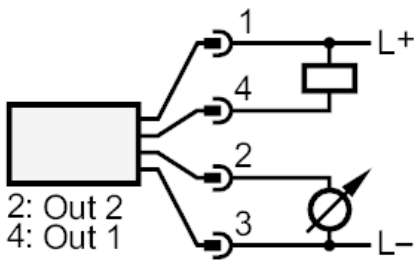
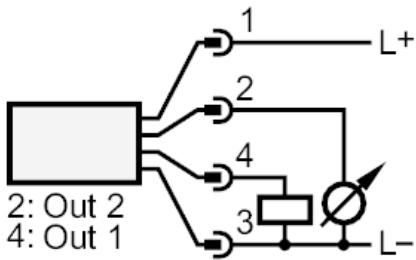
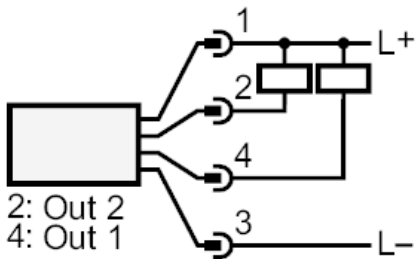
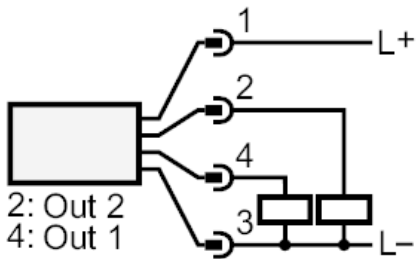
|               |        |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

Electrical connection

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



Connection



|      |                  |
|------|------------------|
| OUT1 | Switching output |
|      | IO-Link          |
| OUT2 | Switching output |
|      | analog output    |