Bourdon tube pressure gauge with one or two switch contacts
Stainless steel case
Model PGS11

Applications
- Pressure gauge for indicating and monitoring the pressure in tanks and for signalling leaks
- General industrial applications

Special features
- High switching reliability and long service life
- Design per EN 837-1
- Pressure indication over 270 angular degrees
- One or two preset, adjustable contacts

Description
The model PGS11 switchGAUGE is a combination of a Bourdon tube pressure gauge and a pressure switch. It offers the usual analogue display, which can be read on-site irrespective of the power supply, and in addition the possibility to switch a potential-free electrical signal.

The preset switch points are indicated on the dial by red mark pointers and can be reset at any time by the customer, between 10 and 90 % of the scale range. Depending on the pressure gauge's pointer position, the circuit will be opened or closed. Thus the switchGAUGE can be used actively for process monitoring, for example to control the level of a gas cylinder or a hydraulic circuit.

The switchGAUGE is available as standard in scale ranges from 0 ... 2.5 to 0 ... 400 bar with an accuracy class of 2.5 and a 1 m round cable for the electrical connection.

Through various options (e.g. higher accuracy class, other cable lengths, cable outlet at 8 o'clock on the instrument's circumference) the pressure measuring instrument can be matched exactly to the customer-specific requirements of each application.

The instrument has been designed in accordance with EN 837-1 and fulfils all the requirements within it.
Standard version

Design
EN 837-1

Nominal size in mm
40, 50, 63 (double contact only with NS 50 and 63)

Accuracy class
2.5

Switch point tolerance
Factory-set
With single contact: ±2.5 % of full scale value
With double contact: ± 4% of full scale value
(see also "Contact adjustment" on the right)

Scale ranges
0 ... 2.5 to 0 ... 400 bar
(NS 40 radial only 0 ... 2.5 to 0 ... 100 bar)

Pressure limitation
Steady: 3/4 x full scale value
Fluctuating: 2/3 x full scale value
Short time: Full scale value

Permissible temperature
Ambient: -20 ... +60 °C
Medium: +60 °C maximum

Temperature effect
When the temperature of the measuring system deviates from the reference temperature (+20 °C):
max. ±0.4 %/10 K of the span

Process connection
Copper alloy, lower mount (LM) or centre back mount (CBM)
NS 40: G 1/8 B (male), 14 mm flats
NS 50, 63: G 1/4 B (male), 14 mm flats

Pressure element
Copper alloy
C-type or helical type

Movement
Copper alloy

Dial
NS 40, 50: Aluminium, white
NS 63: Stainless steel, white

Pointer
Plastic, black

Case
Stainless steel

Window
Polycarbonate

Ingress protection
IP 41 per EN 60529 / IEC 529

Helium leak test
Leak rate 10^-5 mbar*l/s

Electrical data
Switching voltage: DC / AC 4.5 ... 24 V
Switching current: 5 ... 100 mA
Contact load: max. 2.4 W
Switch contact: Normally closed (NC) or normally open (NO)

Double contact only with NS 50 and 63

<table>
<thead>
<tr>
<th>Index</th>
<th>Designation</th>
<th>Symbol</th>
<th>Switching function / setting direction</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normally open (NO)</td>
<td>[Diagram]</td>
<td>Contact makes with rising pressure or clockwise pointer motion (standard)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Normally closed (NC)</td>
<td>[Diagram]</td>
<td>Contact breaks with falling pressure or anticlockwise pointer motion</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Normally open / normally closed (NO-NC)</td>
<td>[Diagram]</td>
<td>See switching function or setting direction for single contact</td>
<td>12</td>
</tr>
<tr>
<td>11</td>
<td>Normally open / normally closed (NO-NO)</td>
<td>[Diagram]</td>
<td>See switching function or setting direction for single contact</td>
<td>11</td>
</tr>
<tr>
<td>22</td>
<td>Normally closed / normally closed (NC-NC)</td>
<td>[Diagram]</td>
<td>See switching function or setting direction for single contact</td>
<td>22</td>
</tr>
</tbody>
</table>

Contact setting: To customer requirements (if not specified, to mean value of the scale range)

Contact adjustment: Adjustable between 10 and 90 % of the scale range

If the contact is reset without an adjustment unit, the following switching tolerances can be achieved:
With single contact: ±4 % of full scale value
With double contact: ±5.5 % of full scale value

Potential-free

Adjustability of contacts

Electrical connection
Cable outlet, standard length 1 m

<table>
<thead>
<tr>
<th>Single contact</th>
<th>Double contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>red: Ui+</td>
<td>red: UB+ (common)</td>
</tr>
<tr>
<td>black: SP 1</td>
<td>orange: SP 1</td>
</tr>
<tr>
<td></td>
<td>black: SP 2</td>
</tr>
</tbody>
</table>
Options

- Other process connection
- Ingress protection IP 65 (model PGS21, data sheet PV 21.02)
- Accuracy class 1.6 (with single contact)
- Cable outlet at case circumference, 8 o’clock (only with NS 50, single contact)
- Other cable length
- Instruments with VdS approval (NS 40, data sheet SP 21.01)

CE conformity

Pressure equipment directive
97/23/EC, PS > 200 bar, module A, pressure accessory

Approvals

- GOST-R, import certificate, Russia
- CRN, safety (e.g. electr. safety, overpressure, ...), Canada

Certificates 1)

- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. indication accuracy)

1) Option

Approvals and certificates, see website
### Dimensions in mm

**Standard version**

#### Lower mount (LM)

<table>
<thead>
<tr>
<th>NS</th>
<th>Type of contact</th>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Single contact</td>
<td>D 40, h 36, b₁ 34.6, a 10.7</td>
<td>G 1/8 B 14, SW 0.10</td>
</tr>
<tr>
<td>50</td>
<td>Single contact</td>
<td>D 49, h 45, b₁ 35, a 11</td>
<td>G 1/4 B 14, SW 0.12</td>
</tr>
<tr>
<td></td>
<td>Double contact</td>
<td>D 49, h 45, b₁ 41, a 11</td>
<td>G 1/4 B 14, SW 0.12</td>
</tr>
<tr>
<td>63</td>
<td>Single contact</td>
<td>D 61.9, h 53.5, b₁ 35.1, a 11.4</td>
<td>G 1/4 B 14, SW 0.14</td>
</tr>
<tr>
<td></td>
<td>Double contact</td>
<td>D 61.9, h 53.5, b₁ 41.1, a 11.4</td>
<td>G 1/4 B 14, SW 0.14</td>
</tr>
</tbody>
</table>

Process connection per EN 837-1 / 7.3

#### Centre back mount (CBM)

<table>
<thead>
<tr>
<th>NS</th>
<th>Type of contact</th>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Single contact</td>
<td>D 40, b₁ 30.6, b₂ 48</td>
<td>G 1/8 B 14, SW 0.10</td>
</tr>
<tr>
<td>50</td>
<td>Single contact</td>
<td>D 49, b₁ 35, b₂ 55.4</td>
<td>G 1/4 B 14, SW 0.12</td>
</tr>
<tr>
<td></td>
<td>Double contact</td>
<td>D 49, b₁ 41, b₂ 59.4</td>
<td>G 1/4 B 14, SW 0.12</td>
</tr>
<tr>
<td>63</td>
<td>Single contact</td>
<td>D 61.9, b₁ 35.1, b₂ 55.1</td>
<td>G 1/4 B 14, SW 0.14</td>
</tr>
<tr>
<td></td>
<td>Double contact</td>
<td>D 61.9, b₁ 41.1, b₂ 61.1</td>
<td>G 1/4 B 14, SW 0.14</td>
</tr>
</tbody>
</table>

Process connection per EN 837-1 / 7.3

### Ordering information

Model / Nominal size / Scale range / Connection size / Connection location / Switch point and function / Options

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