

# Bourdon tube pressure gauge with switch contacts

## Stainless steel case, 50 [2"] and 63 [2 1/2"]

### Model PGS25

WIKA data sheet PV 21.04



For further approvals,  
see page 6

**switchGAUGE**

#### Applications

- General machine building
- Industrial and medical gases
- Renewable energies

#### Special features

- Non-contact sensor (wear-free)
- Robust stainless steel case
- Scale ranges 0 ... 1.6 to 0 ... 400 bar or  
0 ... 30 to 0 ... 6,000 psi
- NPN or PNP switching outputs
- Both switch points factory-programmable between  
5 ... 95 % of the scale range



Configurator



**Bourdon tube pressure gauge model PGS25**

#### Description

The model PGS25 switchGAUGE is a combination of a Bourdon tube pressure gauge and an electronic pressure switch. It offers the usual analogue indication, which can be read on-site irrespective of the power supply. Additionally the instrument is capable of switching up to two transistor outputs.

One or two switch points are factory-set to customer requirements, fixed between 5 and 95 % of the scale range, and indicated on the dial by red mark pointers. Depending on the pointer position, the circuit will be opened or closed.

The switchGAUGE is available in scale ranges from 0 ... 1.6 to 0 ... 400 bar or 0 ... 30 to 0 ... 6,000 psi with an accuracy class of 2.5 or 1.6 and a 2 m [0.08 in] round cable for the electrical connection.

The stainless steel case fulfils the requirements of IP65 ingress protection. The resistance to shock and vibration can be increased by the silicone oil case filling. Thus the instrument is perfectly suited for use in harsh industrial environments.

The switchGAUGE can be used actively for process monitoring, for example to control the level of a gas cylinder or a hydraulic circuit. Through various options the pressure gauge can be matched exactly to the customer-specific requirements of each application.

## Specifications

| Basic information  |   |
|--|---|
| <b>Standard</b>  |   |
| Bourdon tube pressure gauges   | EN 837-1  |
| → For information on the "Selection, installation, handling and operation of pressure gauges", see technical information IN 00.05. |   |
| <b>Nominal size (NS)</b>   | <ul style="list-style-type: none"> <li>■ Ø 50 mm [2"]</li> <li>■ Ø 63 mm [2 ½"]</li> </ul>            |
| <b>Connection location</b>   | <ul style="list-style-type: none"> <li>■ Lower mount (radial)</li> <li>■ Centre back mount</li> </ul> |
| <b>Window</b>  | Polycarbonate (PC)  |
| <b>Case</b>  |   |
| Design   | Safety level "S1" per EN 837-1: with blow-out device  |
| Material   | Stainless steel 1.4301 (304)  |
| <b>Case filling</b>  | <ul style="list-style-type: none"> <li>■ Without</li> <li>■ Silicone oil</li> </ul>                   |
| <b>Movement</b>  | Copper alloy  |

| Measuring element                |   |
|----------------------------------|---|
| <b>Type of measuring element</b> | Bourdon tube, C-type or helical type                      |
| <b>Materials (wetted)</b>        | Copper alloy  |
| <b>Leak tightness</b>            | Helium tested, leakage rate: $< 5 \cdot 10^{-5}$ mbar l/s |

| Accuracy specifications     |   |
|-----------------------------|---|
| <b>Accuracy class</b>       | <ul style="list-style-type: none"> <li>■ 2.5</li> <li>■ 1.6</li> </ul>  |
| <b>Temperature error</b>    | On deviation from the reference conditions at the measuring system:<br>$\leq \pm 0.4\%$ per 10 °C [ $\leq \pm 0.4\%$ per 18 °F] of full scale value |
| <b>Reference conditions</b> |   |
| Ambient temperature         | +20 °C  |

## Scale ranges

| bar       |           |
|-----------|-----------|
| 0 ... 1.6 | 0 ... 30  |
| 0 ... 2   | 0 ... 35  |
| 0 ... 2.5 | 0 ... 40  |
| 0 ... 4   | 0 ... 60  |
| 0 ... 6   | 0 ... 70  |
| 0 ... 7   | 0 ... 100 |
| 0 ... 10  | 0 ... 140 |
| 0 ... 12  | 0 ... 160 |
| 0 ... 14  | 0 ... 200 |
| 0 ... 16  | 0 ... 250 |
| 0 ... 20  | 0 ... 315 |
| 0 ... 25  | 0 ... 400 |
| 0 ... 28  | -         |

| kg/cm <sup>2</sup> |           |
|--------------------|-----------|
| 0 ... 1.6          | 0 ... 30  |
| 0 ... 2            | 0 ... 35  |
| 0 ... 2.5          | 0 ... 40  |
| 0 ... 4            | 0 ... 60  |
| 0 ... 6            | 0 ... 70  |
| 0 ... 7            | 0 ... 100 |
| 0 ... 10           | 0 ... 140 |
| 0 ... 12           | 0 ... 160 |
| 0 ... 14           | 0 ... 200 |
| 0 ... 16           | 0 ... 250 |
| 0 ... 20           | 0 ... 315 |
| 0 ... 25           | 0 ... 350 |
| 0 ... 28           | 0 ... 400 |

| kPa         |              |
|-------------|--------------|
| 0 ... 160   | 0 ... 3,000  |
| 0 ... 200   | 0 ... 4,000  |
| 0 ... 250   | 0 ... 6,000  |
| 0 ... 300   | 0 ... 7,000  |
| 0 ... 400   | 0 ... 10,000 |
| 0 ... 600   | 0 ... 14,000 |
| 0 ... 700   | 0 ... 16,000 |
| 0 ... 1,000 | 0 ... 20,000 |
| 0 ... 1,400 | 0 ... 25,000 |
| 0 ... 1,600 | 0 ... 31,500 |
| 0 ... 2,500 | 0 ... 40,000 |

| MPa        |            |
|------------|------------|
| 0 ... 0.16 | 0 ... 4    |
| 0 ... 0.25 | 0 ... 6    |
| 0 ... 0.4  | 0 ... 7    |
| 0 ... 0.6  | 0 ... 14   |
| 0 ... 1    | 0 ... 16   |
| 0 ... 1.6  | 0 ... 20   |
| 0 ... 2    | 0 ... 25   |
| 0 ... 2.5  | 0 ... 31.5 |
| 0 ... 3    | 0 ... 40   |

| psi       |             |
|-----------|-------------|
| 0 ... 30  | 0 ... 600   |
| 0 ... 60  | 0 ... 800   |
| 0 ... 100 | 0 ... 1,000 |
| 0 ... 160 | 0 ... 1,500 |
| 0 ... 200 | 0 ... 2,000 |
| 0 ... 250 | 0 ... 3,000 |
| 0 ... 300 | 0 ... 4,000 |
| 0 ... 400 | 0 ... 6,000 |
| 0 ... 500 | -           |

## Vacuum and compound scale ranges

| bar        |            |
|------------|------------|
| -0.6 ... 0 | -1 ... +30 |
| -1 ... 0   | -          |

| kPa        |   |
|------------|---|
| -100 ... 0 | - |

| psi            |   |
|----------------|---|
| -30 inHg ... 0 | - |

| kg/cm <sup>2</sup> |          |
|--------------------|----------|
| -0.6 ... 0         | -1 ... 0 |

| MPa         |            |
|-------------|------------|
| -0.06 ... 0 | -0.1 ... 0 |

→ Other scale ranges on request

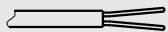
| Further details on: scale ranges |   |           |
|----------------------------------|---|-----------|
| <b>Unit</b>                      | <ul style="list-style-type: none"> <li>■ bar</li> <li>■ psi</li> <li>■ kg/cm<sup>2</sup></li> <li>■ MPa</li> <li>■ kPa</li> </ul> |           |
|                                  | → Other units on request  |           |
| <b>Dial</b>                      |   |           |
| Scale layout                     | <ul style="list-style-type: none"> <li>■ Single scale</li> <li>■ Dual scale</li> </ul>  |           |
| Scale colour                     | Single scale  | Black     |
|                                  | Dual scale  | Black/red |
| Material                         | Aluminium   |           |
| Customer-specific version        | → Other scales, e.g. with red mark, circular arcs or circular sectors, on request   |           |
| <b>Instrument pointer</b>        | Plastic, black  |           |

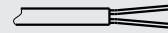
| Process connection        |  |  |
|---------------------------|--|--|
| <b>Standard</b>           | <ul style="list-style-type: none"> <li>■ EN 837</li> <li>■ ANSI/B1.20.1</li> <li>■ ISO 7</li> </ul>                                      |  |
| <b>Size</b>               |  |  |
| EN 837-1                  | <ul style="list-style-type: none"> <li>■ G 1/8 B, male thread</li> <li>■ G 1/4 B, male thread</li> <li>■ M10 x 1, male thread</li> </ul> |  |
| ANSI/B1.20.1              | <ul style="list-style-type: none"> <li>■ 1/8 NPT, male thread</li> <li>■ 1/4 NPT, male thread</li> </ul>                                 |  |
| ISO 7                     | <ul style="list-style-type: none"> <li>■ R 1/8, male thread</li> <li>■ R 1/4, male thread</li> </ul>                                     |  |
| <b>Materials (wetted)</b> |  |  |
| Measuring element         | Copper alloy   |  |

→ Other process connections on request

| Output signal                  |   |
|--------------------------------|---|
| Type                           | <ul style="list-style-type: none"> <li>■ 1 PNP or NPN transistor output</li> <li>■ 2 PNP or NPN transistor outputs</li> <li>■ 1 PNP or NPN transistor output + 4 ... 20 mA, 2-wire analogue output</li> </ul> |
| Switching functions            | Normally closed (NC) or normally open (NO)  |
| Switch point setting           | Set pointer factory-set, fixed within scale range   |
| Setting range                  | 5 ... 95 % of span  |
| Distance between switch points | With a version with 2 contacts, these must not be set to the same point. The required offset is approx. 15 % of the span.   |
| Switching current              | ≤ 1 A, short-circuit-proof  |
| Supply voltage                 | DC 12 ...32 V   |

| Electrical connection    |                               |
|--------------------------|-------------------------------|
| Connection type          | Cable                         |
| Wire cross-section       | 0.14 mm <sup>2</sup> [AWG 26] |
| Cable diameter           | 4 mm [0.16 in]                |
| Ingress protection       | IP67                          |
| Cable length             | 2 m [0.08 in]                 |
| Short-circuit resistance | Short-circuit-proof           |
| Material                 | PVC                           |

| Cable outlet, 1 contact / 1 contact + analogue output                               |          |        |
|---|----------|--------|
|  | U+       | Red    |
|   | SP1 / S+ | Orange |
|   | GND      | Black  |


| Cable outlet, 2 contacts  |     |        |
|---|-----|--------|
|  | U+  | Red    |
|   | SP1 | Orange |
|   | SP2 | Brown  |
|   | GND | Black  |

#### Legend



- U+ Positive power supply terminal
- SP1 Normally open / normally closed for switch contact 1
- SP2 Normally open / normally closed for switch contact 2
- S+ Analogue output

| Operating conditions                |                                  |
|-------------------------------------|----------------------------------|
| Medium temperature range            | ≤ +60 °C [+140 °F]               |
| Ambient temperature range           | -20 ... +60 °C [-4 ... +140 °F]  |
| Storage temperature range           | -40 ... +70 °C [-40 ... +158 °F] |
| <b>Pressure limitation</b>          |                                  |
| Steady                              | ¾ x full scale value             |
| Fluctuating                         | ½ x full scale value             |
| Short time                          | Full scale value                 |
| Ingress protection per IEC/EN 60529 | IP65                             |

## Approvals

| Logo  | Description   | Region         |
|---|---|----------------|
|  | <b>EU declaration of conformity</b>                           | European Union |
|   | RoHS directive  |                |
| -   | <b>CRN</b><br>Safety (e.g. electr. safety, overpressure, ...) | Canada         |

### Optional approvals

| Logo  | Description  | Region     |
|---|--|------------|
|  | <b>PAC Kazakhstan</b><br>Metrology, measurement technology | Kazakhstan |
| -   | <b>PAC Ukraine</b><br>Metrology, measurement technology    | Ukraine    |
|  | <b>PAC Uzbekistan</b><br>Metrology, measurement technology | Uzbekistan |

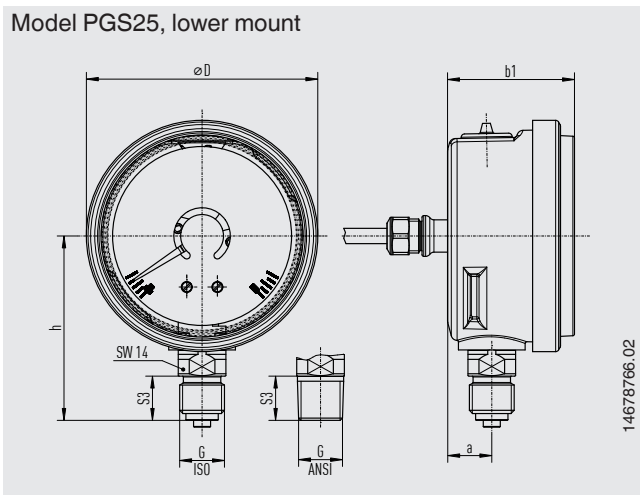
## Certificates (option)

| Certificates                            |   |
|---|---|
| <b>Certificates</b>                     | <ul style="list-style-type: none"> <li>■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, indication accuracy)</li> <li>■ 3.1 inspection certificate per EN 10204 (e.g. indication accuracy)</li> </ul> |
| <b>Recommended calibration interval</b> | 1 year (dependent on conditions of use)   |

→ For approvals and certificates, see website

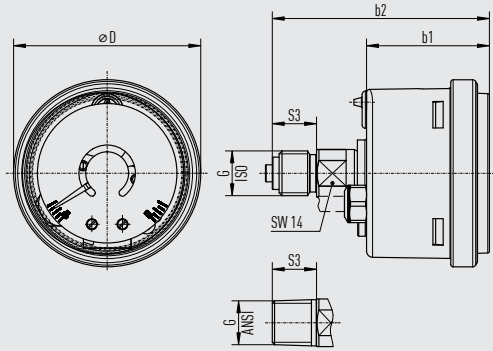
## Dimensions in mm [in]

Model PGS25, lower mount



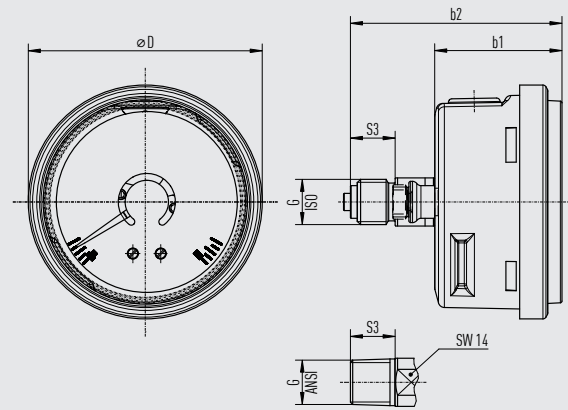
| NS        | G       | Dimensions in mm [in] |           |                    |           |           | Weight in g [oz]    |
|-----------|---------|-----------------------|-----------|--------------------|-----------|-----------|---------------------|
|           |         | D                     | h         | b1 ±0.5<br>[±0.02] | a         | S3        |                     |
| 50 [2"]   | G ½ B   | 55 [2.17]             | 45 [1.77] | 36 [1.42]          | 12 [0.47] | 10 [0.39] | Approx. 200 [7.05]  |
|           | G ¼ B   | 55 [2.17]             | 48 [1.89] | 36 [1.42]          | 12 [0.47] | 13 [0.51] | Approx. 200 [7.05]  |
|           | M10 x 1 | 55 [2.17]             | 45 [1.77] | 36 [1.42]          | 12 [0.47] | 10 [0.39] | Approx. 200 [7.05]  |
|           | ½ NPT   | 55 [2.17]             | 45 [1.77] | 36 [1.42]          | 12 [0.47] | 10 [0.39] | Approx. 200 [7.05]  |
|           | ¼ NPT   | 55 [2.17]             | 48 [1.89] | 36 [1.42]          | 12 [0.47] | 13 [0.51] | Approx. 200 [7.05]  |
|           | R ½     | 55 [2.17]             | 45 [1.77] | 36 [1.42]          | 12 [0.47] | 10 [0.39] | Approx. 200 [7.05]  |
|           | R ¼     | 55 [2.17]             | 48 [1.89] | 36 [1.42]          | 12 [0.47] | 13 [0.51] | Approx. 200 [7.05]  |
| 63 [2 ½"] | G ½ B   | 68 [2.68]             | 51 [2.01] | 37 [1.46]          | 13 [0.51] | 10 [0.39] | Approx. 300 [10.58] |
|           | G ¼ B   | 68 [2.68]             | 54 [2.13] | 37 [1.46]          | 13 [0.51] | 13 [0.51] | Approx. 300 [10.58] |
|           | M10 x 1 | 68 [2.68]             | 51 [2.01] | 37 [1.46]          | 13 [0.51] | 10 [0.39] | Approx. 300 [10.58] |
|           | ½ NPT   | 68 [2.68]             | 51 [2.01] | 37 [1.46]          | 13 [0.51] | 10 [0.39] | Approx. 300 [10.58] |
|           | ¼ NPT   | 68 [2.68]             | 54 [2.13] | 37 [1.46]          | 13 [0.51] | 13 [0.51] | Approx. 300 [10.58] |
|           | R ½     | 68 [2.68]             | 51 [2.01] | 37 [1.46]          | 13 [0.51] | 10 [0.39] | Approx. 300 [10.58] |
|           | R ¼     | 68 [2.68]             | 54 [2.13] | 37 [1.46]          | 13 [0.51] | 13 [0.51] | Approx. 300 [10.58] |

Model PGS25, NS 50 [2"], centre back mount



14678923.02






Model PGS25, NS 63 [2 1/2"], centre back mount



14681422.02

| NS          | G       | Dimensions in mm [in] |                 |               |           | Weight in g [oz]    |
|-------------|---------|-----------------------|-----------------|---------------|-----------|---------------------|
|             |         | D                     | b1 ±0.5 [±0.02] | b2 ±1 [±0.04] | S3        |                     |
| 50 [2"]     | G 1/8 B | 55 [2.17]             | 36 [1.42]       | 61 [2.40]     | 10 [0.39] | Approx. 200 [7.05]  |
|             | G 1/4 B | 55 [2.17]             | 36 [1.42]       | 64 [2.52]     | 13 [0.51] | Approx. 200 [7.05]  |
|             | M10 x 1 | 55 [2.17]             | 36 [1.42]       | 61 [2.40]     | 10 [0.39] | Approx. 200 [7.05]  |
|             | 1/8 NPT | 55 [2.17]             | 36 [1.42]       | 61 [2.40]     | 10 [0.39] | Approx. 200 [7.05]  |
|             | 1/4 NPT | 55 [2.17]             | 36 [1.42]       | 64 [2.52]     | 13 [0.51] | Approx. 200 [7.05]  |
|             | R 1/8   | 55 [2.17]             | 36 [1.42]       | 61 [2.40]     | 10 [0.39] | Approx. 200 [7.05]  |
|             | R 1/4   | 55 [2.17]             | 36 [1.42]       | 64 [2.52]     | 13 [0.51] | Approx. 200 [7.05]  |
| 63 [2 1/2"] | G 1/8 B | 68 [2.68]             | 37 [1.46]       | 58.5 [2.30]   | 10 [0.39] | Approx. 300 [10.58] |
|             | G 1/4 B | 68 [2.68]             | 37 [1.46]       | 61.5 [2.42]   | 13 [0.51] | Approx. 300 [10.58] |
|             | M10 x 1 | 68 [2.68]             | 37 [1.46]       | 58.5 [2.30]   | 10 [0.39] | Approx. 300 [10.58] |
|             | 1/8 NPT | 68 [2.68]             | 37 [1.46]       | 58.5 [2.30]   | 10 [0.39] | Approx. 300 [10.58] |
|             | 1/4 NPT | 68 [2.68]             | 37 [1.46]       | 61.5 [2.42]   | 13 [0.51] | Approx. 300 [10.58] |
|             | R 1/8   | 68 [2.68]             | 37 [1.46]       | 58.5 [2.30]   | 10 [0.39] | Approx. 300 [10.58] |
|             | R 1/4   | 68 [2.68]             | 37 [1.46]       | 61.5 [2.42]   | 13 [0.51] | Approx. 300 [10.58] |

## Accessories and spare parts

| Model   | Description  |
|---|--|
|  | <b>910.17</b><br>Seals<br>→ See data sheet AC 09.08                                |
|  | <b>910.15</b><br>Syphons<br>→ See data sheet AC 09.06                              |
|  | <b>910.13</b><br>Overpressure protector<br>→ See data sheet AC 09.04               |
|  | <b>IV1</b><br>Needle valve and multiport needle valve<br>→ See data sheet AC 09.22 |
|  | <b>IV2</b><br>Block-and-bleed valve<br>→ See data sheet AC 09.19                   |

### Ordering information

Model / Nominal size / Contact model / Contact version /  
 Scale range / Connection location / Process connection /  
 Options



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