

Bourdon tube pressure gauge with one or two fixed switch contacts, stainless steel case Model PGS21

WIKA data sheet PV 21.02



for further approvals
see page 3

switchGAUGE

Applications

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

Special features

- High switching reliability and long service life
- Design per EN 837-1
- Switch contacts fixed to customer requirements
- Increased ingress protection, IP 65



Bourdon tube pressure gauge model PGS21

Description

The model PGS21 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.

One or two fixed switch points are factory-set to customer requirements, between 10 and 90 % of the scale range, and indicated on the dial by red mark pointers. 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. other scale ranges, higher accuracy class, other cable lengths, plug connection) 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. Furthermore it features increased ingress protection of IP 65 and can therefore be offered with optional liquid filling to increase its vibration resistance.

Standard version

Design

EN 837-1

Nominal size in mm

40, 50, 63 (double contact only with NS 50)

Accuracy class

2.5

Switch point tolerance

Factory-set

With single contact: $\pm 2.5\%$ of full scale value

With double contact: $\pm 4\%$ of full scale value

Scale ranges

0 ... 2.5 to 0 ... 400 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. $\pm 0.4\%$ / 10 K of the span

Process connection

Copper alloy, lower mount (LM) or centre back mount (CBM) ¹⁾

NS 40: G 1/8 B (male), 14 mm flats

NS 50, 63: G 1/4 B (male), 14 mm flats

¹⁾ NS 40 only centre back mount

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 65 per EN 60529 / IEC 529

see also option, electrical connection via connector

Helium leak test

Leak rate 10^{-5} mbar³/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)

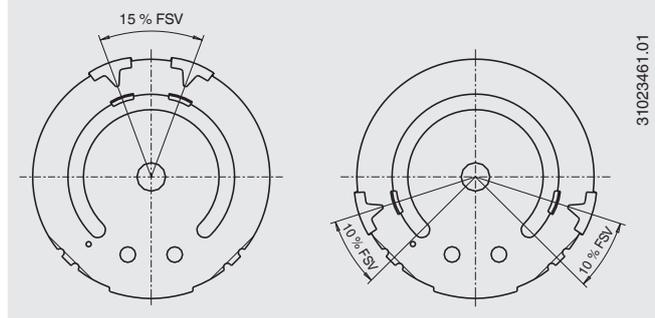
Double contact only with NS 50

Index	Designation	Symbol	Switching function / setting direction	Code
1	Normally open (NO)		Contact makes with rising pressure or clockwise pointer motion (standard)	1
			Contact breaks with falling pressure or anticlockwise pointer motion	5
2	Normally closed (NC)		Contact breaks with rising pressure or clockwise pointer motion (standard)	2
			Contact makes with falling pressure or anticlockwise pointer motion	4
12	Normally open / normally closed (NO-NC)		See switching function or setting direction for single contact	
11	Normally open / normally open (NO-NO)		See switching function or setting direction for single contact	
22	Normally closed / normally closed (NC-NC)		See switching function or setting direction for single contact	

Contact setting: fixed to customer requirements (between 10 and 90 % of the scale range)

Potential-free

Adjustability of contacts



Electrical connection

Cable outlet, cable ends tinned for soldered joints (per standard IPC-WHMA-A-620A), standard length 1 m

Single contact		Double contact	
red:	U _B +	red:	U _B + (common)
black:	SP 1	orange:	SP 1
		black:	SP 2

Options

- Other process connection
- Liquid filling (silicone oil)
- Other scale ranges
- Adjustable contact (model PGS11, data sheet PV 21.01)
- Electrical connection via connector (NS 50, 63)
- Accuracy class 1.6 %
- Other cable length
- Instruments with VdS approval (only NS 50, data sheet SP 21.03)

Option

Electrical connection via connector (NS 50, 63)

Angular connector EN 175301-803-C



Single contact	Double contact
1: U _{B+}	1: U _{B+} (common)
2: SP 1	2: SP 1
	3: SP 2

Circular connector M12 x 1



Single contact	Double contact
1: U _{B+}	1: U _{B+} (common)
4: SP 1	4: SP 1
	2: SP 2

Circular connector M8 x 1



Single contact	Double contact
1: U _{B+}	1: U _{B+} (common)
4: SP 1	4: SP 1
	3: SP 2

If the IP ingress protection of the connector is lower than that of the pressure gauge, then this determines the overall ingress protection of the instrument.

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

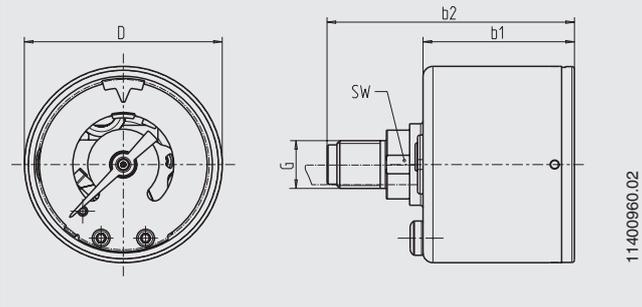
Approvals and certificates, see website

Dimensions in mm

Standard version

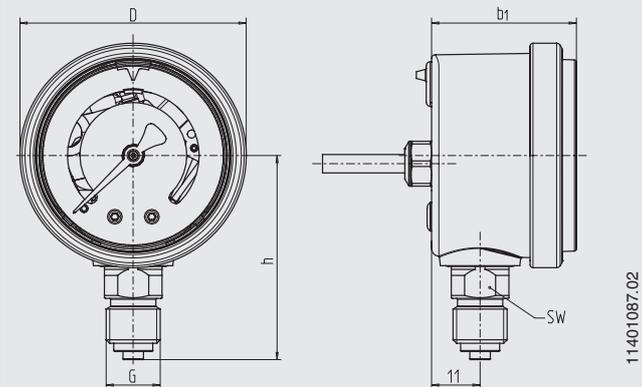
NS 40, centre back mount (CBM)

Single contact

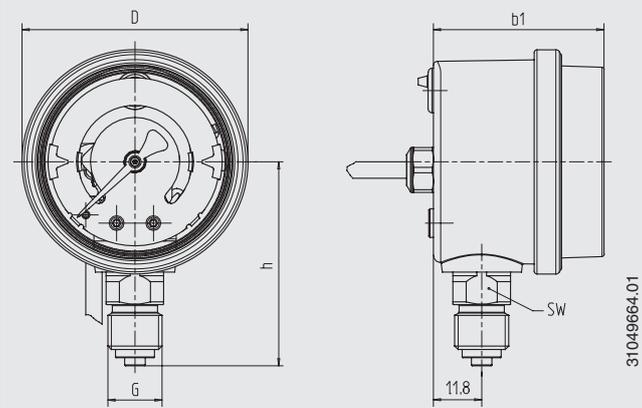


NS 50, lower mount (LM)

Single contact

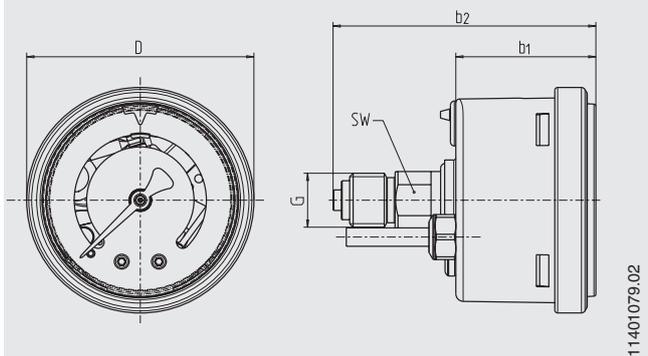


Double contact

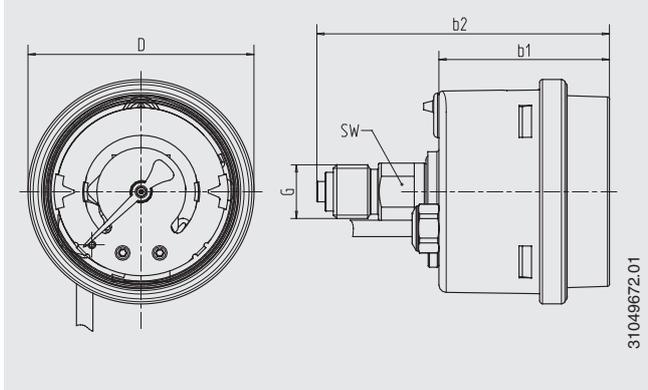


NS 50, centre back mount (CBM)

Single contact

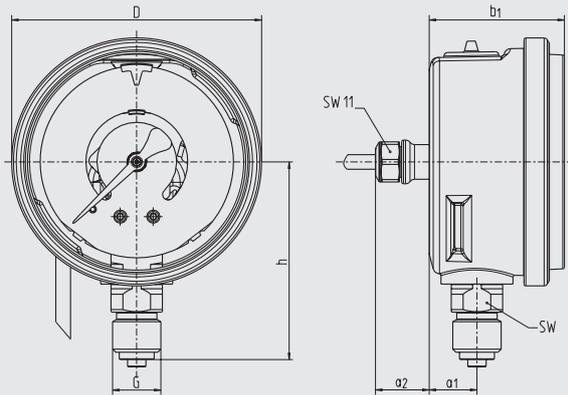


Double contact

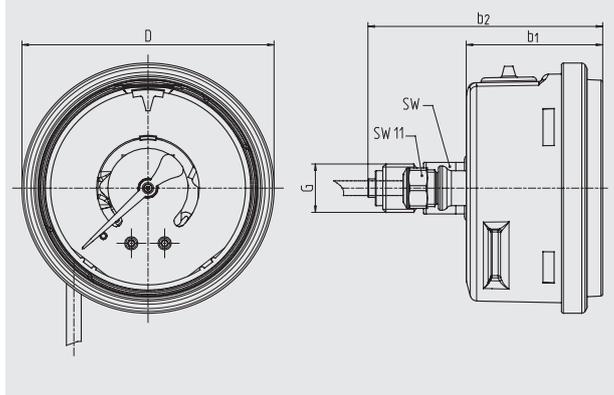


NS 63, lower mount (LM)

Single contact

**NS 63, centre back mount (CBM)**

Single contact



NS	Type of contact	Dimensions in mm						G	h	SW	Weight in kg
		D	a ₁	a ₂	b ₁ ±0.5	b ₂ ±1					
40	Single contact	40	-	-	30.5	53	G 1/8 B	-	14	0.10	
50	Single contact	55	-	-	35.5	63	G 1/4 B	50	14	0.18	
50	Double contact	55	-	-	41.5	71.5	G 1/4 B	50	14	0.18	
63	Single contact	68	13	14.6	36.8	63	G 1/4 B	54.2	14	0.20	

Process connection per EN 837-1 / 7.3

Ordering information

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

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