

# Bourdon tube pressure gauge with switch contacts

## Stainless steel case

### Model PGS21, NS 100 and 160

WIKA data sheet PV 22.01



for further approvals  
see page 3

**switchGAUGE**

#### Applications

- Control and regulation of industrial processes
- Monitoring of plants and switching of circuits
- For gaseous and liquid media that are not highly viscous or crystallising and will not attack copper alloy parts

#### Special features

- High reliability and long service life
- Up to 4 switch contacts per instrument
- Instruments with inductive contacts for use in hazardous areas with ATEX approval
- Instruments with electronic contacts for PLC applications
- Contact gauges comply with DIN 16085



Model PGS21.100 with model 821.21 switch contacts

## Description

Wherever the process pressure has to be indicated locally and, at the same time, circuits need to be switched, the model PGS21.1x0 switchGAUGE finds its use.

Switch contacts (electrical alarm contacts) make or break an electric control circuit dependent upon the position of the instrument pointer. The switch contacts are adjustable over the full extent of the scale range (see DIN 16085), and are mounted predominantly below the dial, though also partly on top of the dial. The instrument pointer (actual value pointer) moves freely across the entire scale range, independent of the setting.

The set pointer can be adjusted using a removable adjustment key in the window.

Switch contacts consisting of several contacts can also be set to a single set point. Contact actuation is made when the actual value pointer travels beyond or below the desired set point.

The pressure gauge is manufactured in accordance with DIN 16085 and fulfils all requirements of the relevant standards (EN 837-1) and regulations for the on-site display of the working pressure of pressure vessels.

As switch contacts, magnetic snap-action contacts, reed switches, inductive contacts – for requirements to ATEX – or electronic contacts for triggering a PLC are available. For further information on the different switch contacts please see data sheet AC 08.01.

## Standard version

### Nominal size in mm

100, 160

### Accuracy class

1.0

### Scale ranges

0 ... 0.6 to 0 ... 600 bar

or all other equivalent vacuum or combined pressure and vacuum ranges

### Pressure limitation

Steady: Full scale value

Fluctuating: 0.9 x full scale value

Short time: 1.3 x full scale value

### Permissible temperature

Ambient: -20 ... +60 °C

Medium: +80 °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 full scale value

### Process connection

Copper alloy, lower mount (radial) or lower back mount

G ½ B (male), SW 22

### Pressure element

< 100 bar: Copper alloy, C-type

≥ 100 bar: Stainless steel 316L, helical type

### Movement

Copper alloy, wear parts argentan

### Dial

Aluminium, white, black lettering

### Pointer

Instrument pointer: Aluminium, black

Set pointer: Red

### Case

Stainless steel

### Window

Polycarbonate

### Ring

Bayonet ring, stainless steel

### Electrical connection

Cable terminal box

### Ingress protection

IP54 per IEC/EN 60529

## Switch contacts

### Magnetic snap-action contact model 821

- No control unit and no power supply required
- Direct switching up to 250 V, 1 A
- Up to 4 switch contacts per measuring instrument

### Inductive contact model 831

- Long service life due to non-contact sensor
- Additional control unit required (model 904.xx)
- With corresponding control unit suitable for use in zone 1 / 21 (2 GD) hazardous areas
- Low influence on the indication accuracy
- Fail-safe switching at high switching frequency
- Insensitive to corrosion
- Up to 3 switch contacts per measuring instrument

### Electronic contact model 830 E

- For direct triggering of a programmable logic controller (PLC)
- 2-wire system (option: 3-wire system)
- Long service life due to non-contact sensor
- Low influence on the indication accuracy
- Fail-safe switching at high switching frequency
- Insensitive to corrosion
- Up to 3 switch contacts per measuring instrument

### Reed switch model 851

- No control unit and no power supply required
- Direct switching up to 250 V, 1 A
- Also suitable for direct triggering of a programmable logic controller (PLC)
- Free from wear as without contact
- Up to two change-over contacts per measuring instrument

### Switching function

The switching function of the switch is indicated by index 1, 2 or 3.

Model 8xx.1: Normally open (clockwise pointer motion)

Model 8xx.2: Normally closed (clockwise pointer motion)

Model 821.3 and 851.3: Change-over; one contact breaks and one contact makes simultaneously when pointer reaches set point

For further information on the different switch contacts please see data sheet AC 08.01.

## Options

- Other process connection
- Sealings (model 910.17, see data sheet AC 09.08)
- Inductive contacts also in safety version (SN, S1N)
- Dual scale
- Higher medium temperature
- Panel mounting flange, polished stainless steel
- Surface mounting lugs on the back, stainless steel

# Approvals

Logo	Description	Country
	<b>EU declaration of conformity</b> <ul style="list-style-type: none"> <li>■ Pressure equipment directive PS &gt; 200 bar, module A, pressure accessory</li> <li>■ ATEX directive (option) Ignition protection type "c", constructive safety</li> </ul>	European Union
	<b>EAC (option)</b> <ul style="list-style-type: none"> <li>■ EMC directive</li> <li>■ Pressure equipment directive</li> </ul>	Eurasian Economic Community
	<b>GOST (option)</b> Metrology, measurement technology	Russia
	<b>KazInMetr (option)</b> Metrology, measurement technology	Kazakhstan
-	<b>MTSCHS (option)</b> Permission for commissioning	Kazakhstan
	<b>BelGIM (option)</b> Metrology, measurement technology	Belarus
	<b>Uzstandard (option)</b> Metrology, measurement technology	Uzbekistan
-	<b>CRN</b> Safety (e.g. electr. safety, overpressure, ...)	Canada

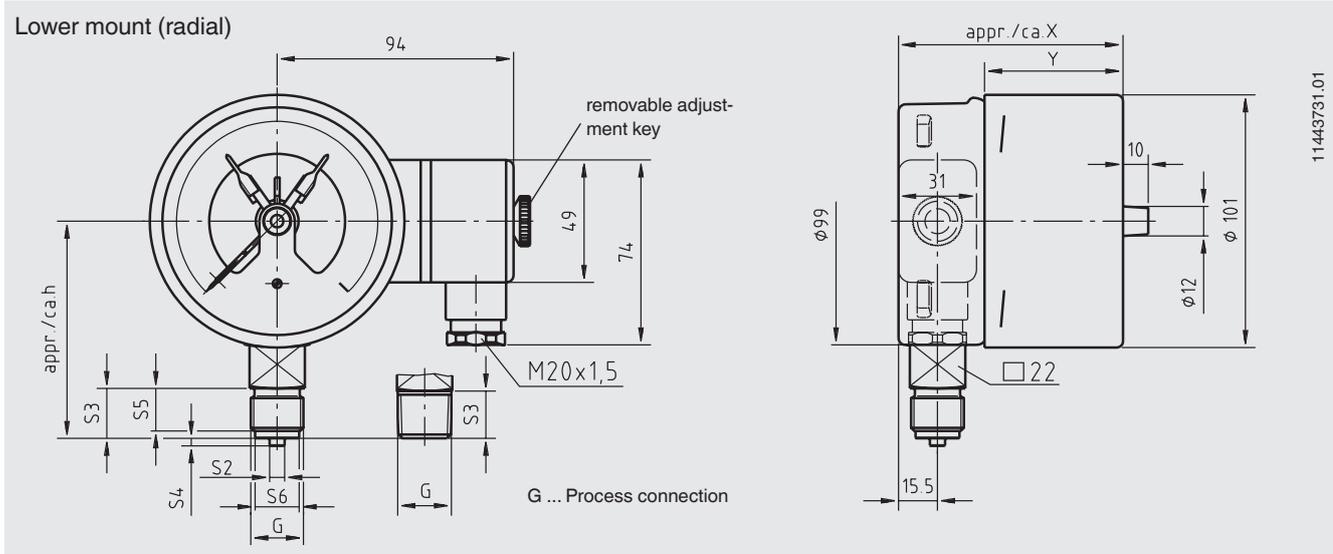
## Certificates (option)

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

Approvals and certificates, see website

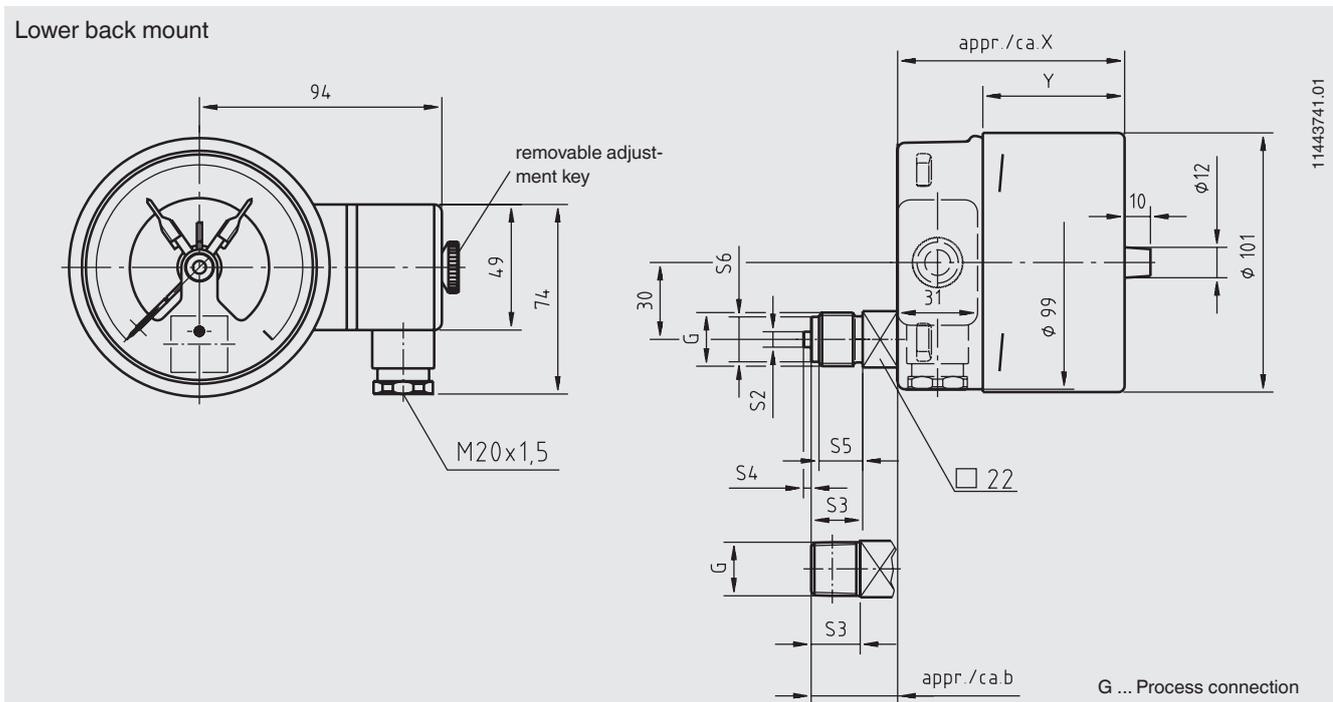
## Dimensions in mm

switchGAUGE model PGS21.100 with switch contact model 821, 831 or 830 E



Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Double (change-over) contact	113	80
Triple contact	96	63
Quadruple contact	113	80

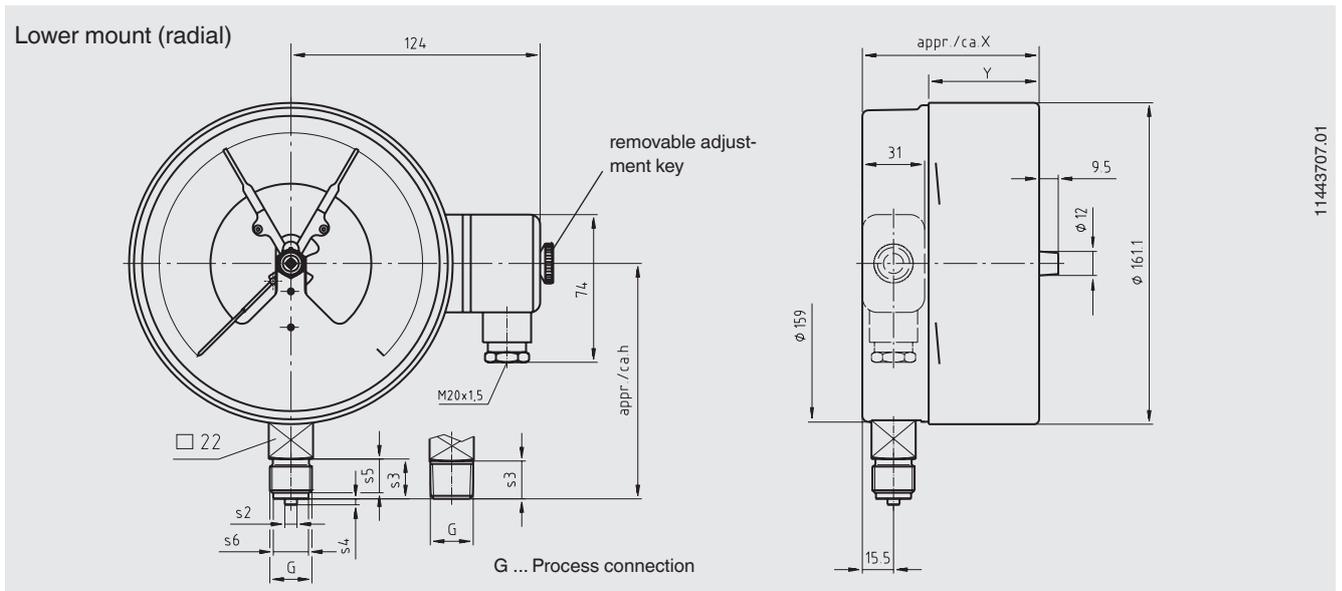
Process connection	Dimensions in mm					
	h ±1	S2	S3	S4	S5	S6
G ½ B	87	6	20	3	17	17.5
G ¼ B	80	5	13	2	11	9.5
G ⅜ B	83	5.5	16	3	14	13
½ NPT	86	-	19	-	-	-



Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Double (change-over) contact	113	80
Triple contact	96	63
Quadruple contact	113	80

Process connection	Dimensions in mm					
	b	S2	S3	S4	S5	S6
G ½ B	33.5	6	20	3	17	17.5
G ¼ B	26.5	5	13	2	11	9.5
G ⅜ B	29.5	5.5	16	3	14	13
½ NPT	32.5	-	19	-	-	-

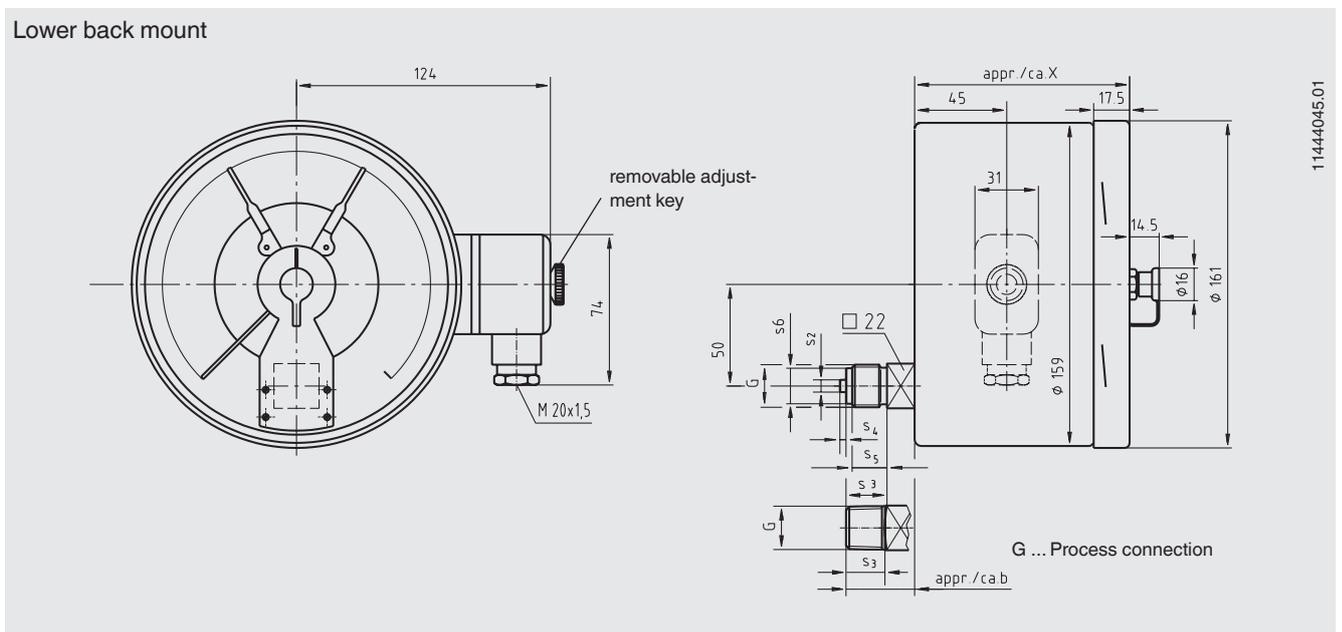
switchGAUGE model PGS21.160 with switch contact model 821, 831 or 830 E



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Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Triple contact	96	63
Quadruple contact	113	80

Process connection	Dimensions in mm					
	h ±1	S2	S3	S4	S5	S6
G ½ B	118	6	20	3	17	17.5
G ¼ B	111	5	13	2	11	9.5
G ⅜ B	114	5.5	16	3	14	13
½ NPT	117	-	19	-	-	-



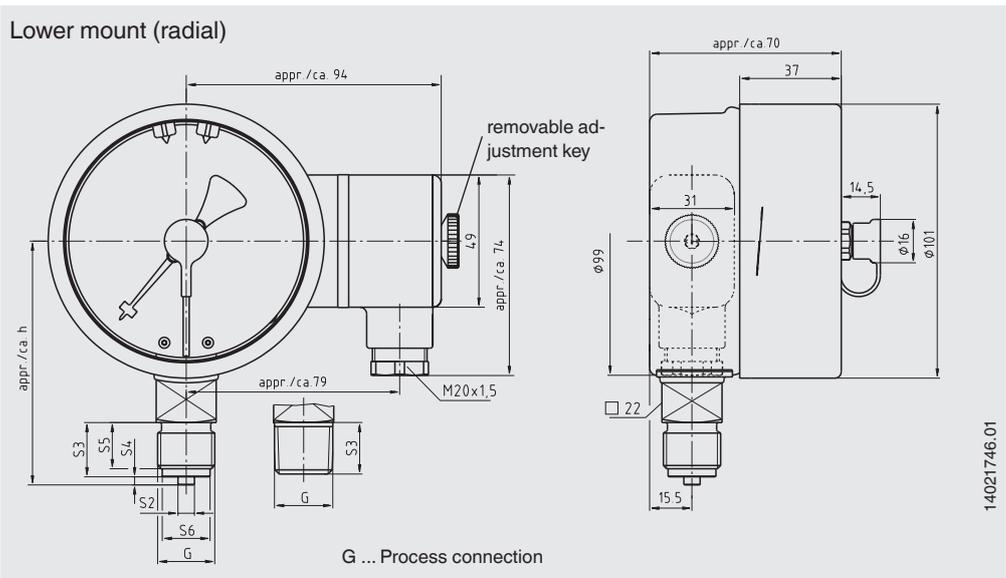
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Type of contact	Dimensions in mm
	X
Single or double contact	105
Triple contact	105
Quadruple contact	119

Process connection	Dimensions in mm					
	b	S2	S3	S4	S5	S6
G ½ B	33.5	6	20	3	17	17.5
G ¼ B	26.5	5	13	2	11	9.5
G ⅜ B	29.5	5.5	16	3	14	13
½ NPT	32.5	-	19	-	-	-

switchGAUGE model PGS21.100 with switch contact model 851.3 or 851.33

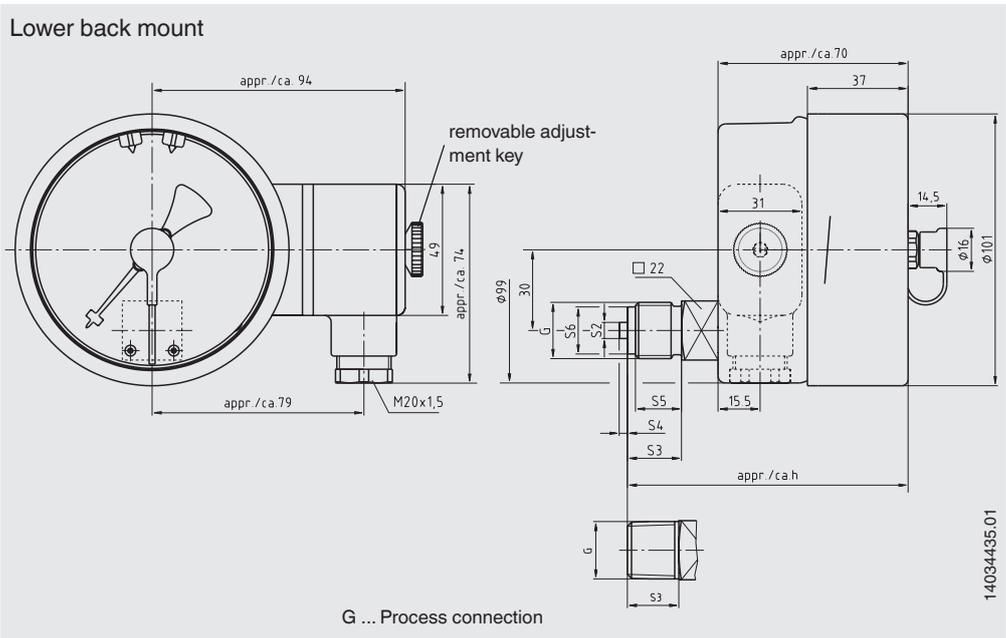
Lower mount (radial)



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Process connection	Dimensions in mm					
	h ±1	S2	S3	S4	S5	S6
G ½ B	87	6	20	3	17	17.5
G ¼ B	80	5	13	2	11	9.5
G ⅜ B	83	5.5	16	3	14	13
½ NPT	86	-	19	-	-	-

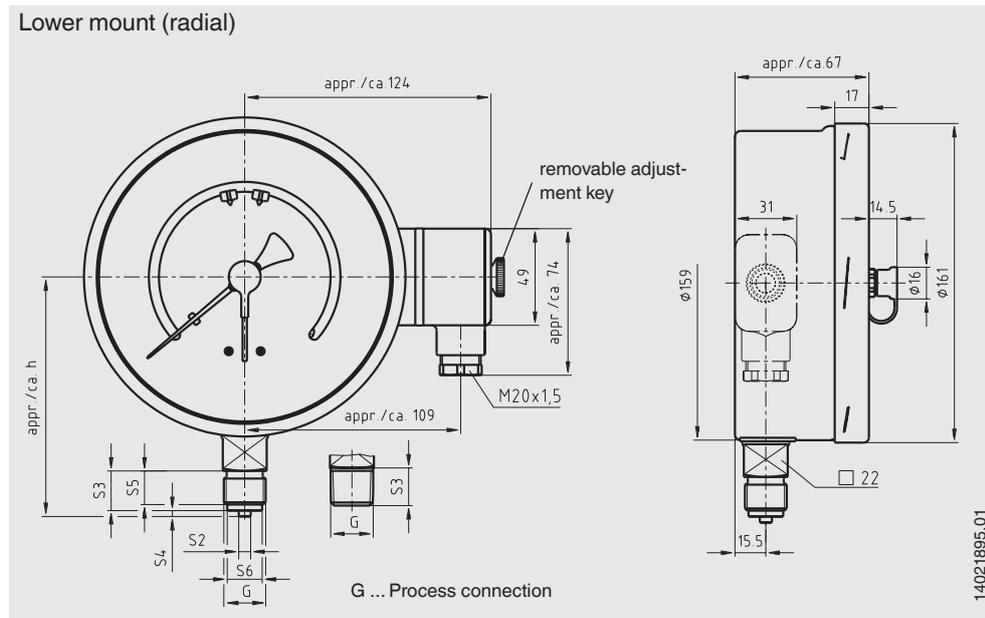
Lower back mount



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Process connection	Dimensions in mm					
	h ±1	S2	S3	S4	S5	S6
G ½ B	103	6	20	3	17	17.5
G ¼ B	96	5	13	2	11	9.5
G ⅜ B	99	5.5	16	3	14	13
½ NPT	102	-	19	-	-	-

**switchGAUGE model PGS21.160 with switch contact model 851.3 or 851.33**



Process connection	Dimensions in mm					
	h ±1	S2	S3	S4	S5	S6
G ½ B	118	6	20	3	17	17.5
G ¼ B	111	5	13	2	11	9.5
G ⅜ B	114	5.5	16	3	14	13
½ NPT	117	-	19	-	-	-

**Ordering information**

Model / Nominal size / Type of contact and switching function / Scale range / Process connection / Connection location / Options

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