

# Bourdon Tube Pressure Gauges with Switch Contacts

## Models 232.50.100/160, Stainless Steel Version

## Models 232.30.100/160, Stainless Steel Safety Version

WIKA Data Sheet PV 22.02



**switchGAUGE**

### Applications

- Control and regulation of industrial processes
- Monitoring of plant and switching of electric circuits
- For gaseous and liquid aggressive media that are not highly viscous or crystallising, also in aggressive ambience
- Process industry: chemical/petro-chemical, power stations, mining, on- and offshore, environmental technology, machine building and general plant construction

### Special Features

- High reliability and long service life
- Up to 4 switch contacts per instrument
- Also available with liquid-filled case for high dynamic pressure loads and vibration
- Gauges with inductive contacts for use in hazardous areas with ATEX approval
- Gauges with electronic contacts for PLC applications
- Gauges Model 23X.30 in safety version S3 (S)



**switchGAUGE Model 232.50.100**

### Description

Wherever the process pressure has to be indicated locally, and, at the same time, circuits are to be made or broken, the Model 232.50/30 switchGAUGE can be used.

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 16 085), 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 detachable adjustment key in the window.

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

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

As switch contacts magnetic snap-action contacts, Reed switch, 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 ... 1600 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

### Operating temperature

Ambient: -20 ... +60 °C without liquid filling and gauges with silicon oil filling

Medium: +200 °C maximum without liquid filling  
+100 °C maximum with liquid filling

### Temperature effect

When the temperature of the measuring system deviates from the reference temperature (+20 °C):

max. ±0.4 %/10 K of full scale value

### Process connection

Stainless steel 316L,

lower mount (LM) or lower back mount (LBM)

G ½ B (male), 22 mm flats

### Pressure element

Stainless steel 316L

< 100 bar: C-type

≥ 100 bar: helical type

### Movement

Stainless steel

### Dial

Aluminium, white, black lettering

### Pointer

Instrument pointer: aluminium, black

Set pointer: red

### Case

Stainless steel, scale ranges ≤ 0 ... 16 bar with compensating valve to vent case

Model 23X.50: with pressure relief in case back

Model 23X.30: case with solid baffle wall and blow-out back, hermetically sealed, with internal pressure compensation

### Window

Laminated safety glass

### Bezel ring

Cam ring (bayonet type), stainless steel

### Electrical connection

Junction box

### Ingress protection

IP 65 per EN 60 529 / IEC 529

## Switch contacts

### Magnetic snap-action contact Model 821

- No control unit and no extra power supply required
- Direct switching up to 230 V
- Up to 4 switch contacts per measuring instrument
- Suitable for Ex zone 22 (3 D)

### Inductive contact Model 831

- Long service life due to non-contact sensor
- Additional control unit required
- With corresponding control unit suitable for use in Zone 1 / 21 (2 GD) hazardous areas
- Low reaction on the display accuracy
- Fail-safe switching at high switching rates
- 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)
- No additional control unit required
- Long service life due to non-contact sensor
- Low reaction on the display accuracy
- Fail-safe switching at high switching rates
- Insensitive to corrosion
- Up to 3 switch contacts per measuring instrument

### Reed switch Model 851

- No control unit and no extra 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 changeover contacts per measuring instrument

### Switching function

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

Model 8XX.1: Contact makes (clockwise rotary motion of the pointer)

Model 8XX.2: Contact breaks (clockwise rotary motion of the pointer)

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

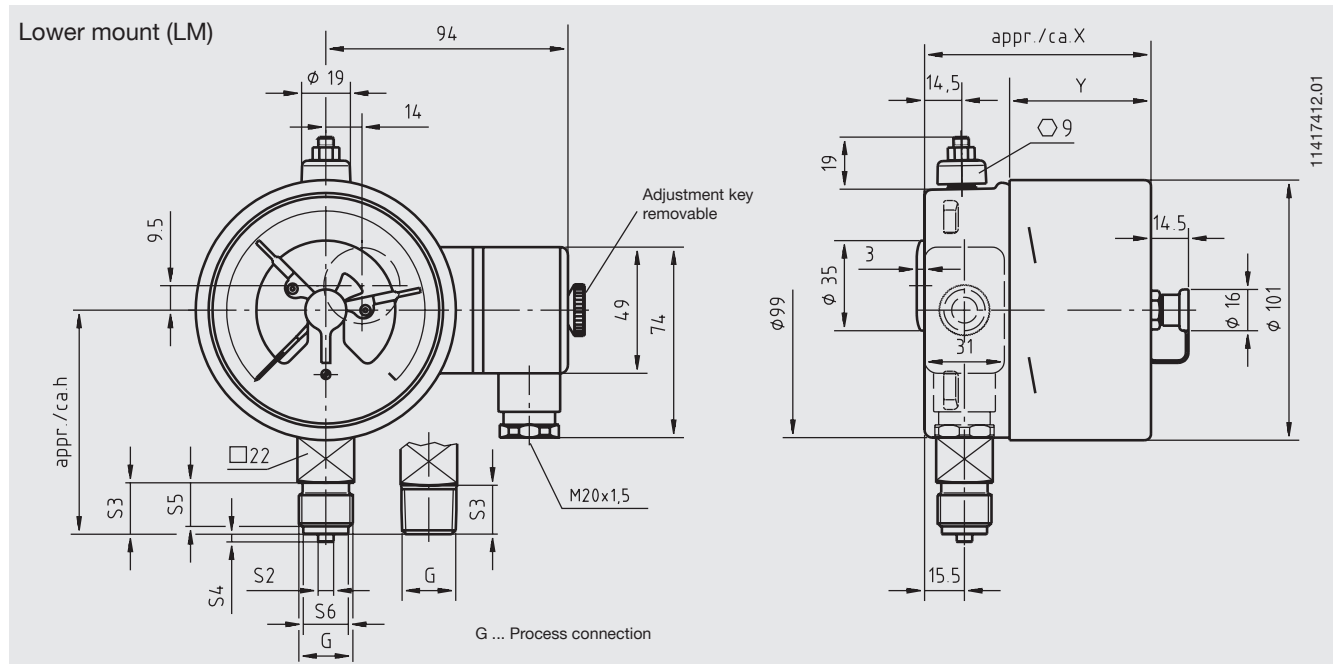
### For further information please see data sheet AC 08.01, Electrical Switch Contacts

## Options

- Other process connection
- Liquid filling (Model 233.50 or 233.30, only lower mount)
- Inductive contacts also in safety version
- Dual scale
- Panel mounting flange, polished stainless steel
- Surface mounting flange, stainless steel (Model 23X.50)
- Surface mounting lugs on case, stainless steel (23X.30)
- SIL2 approval (Model 23X.30)

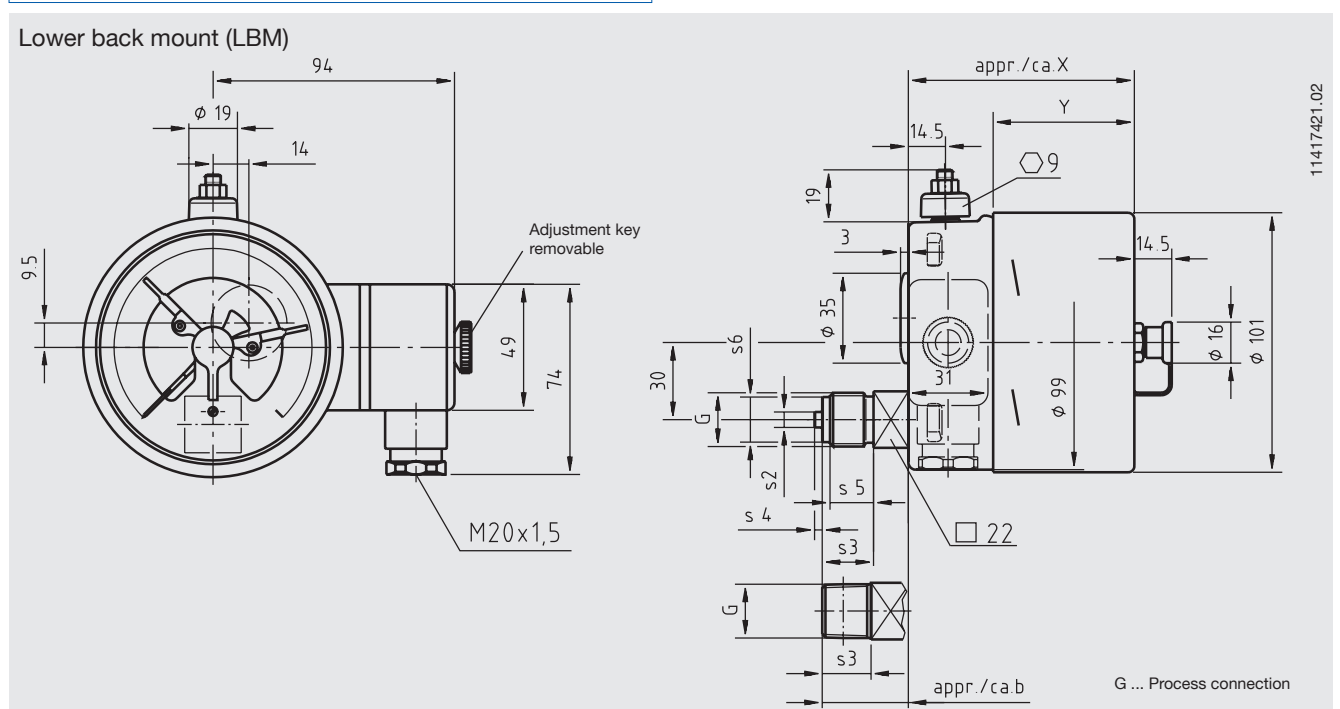
# Dimensions in mm

## switchGAUGE Model 232.50, NS 100



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

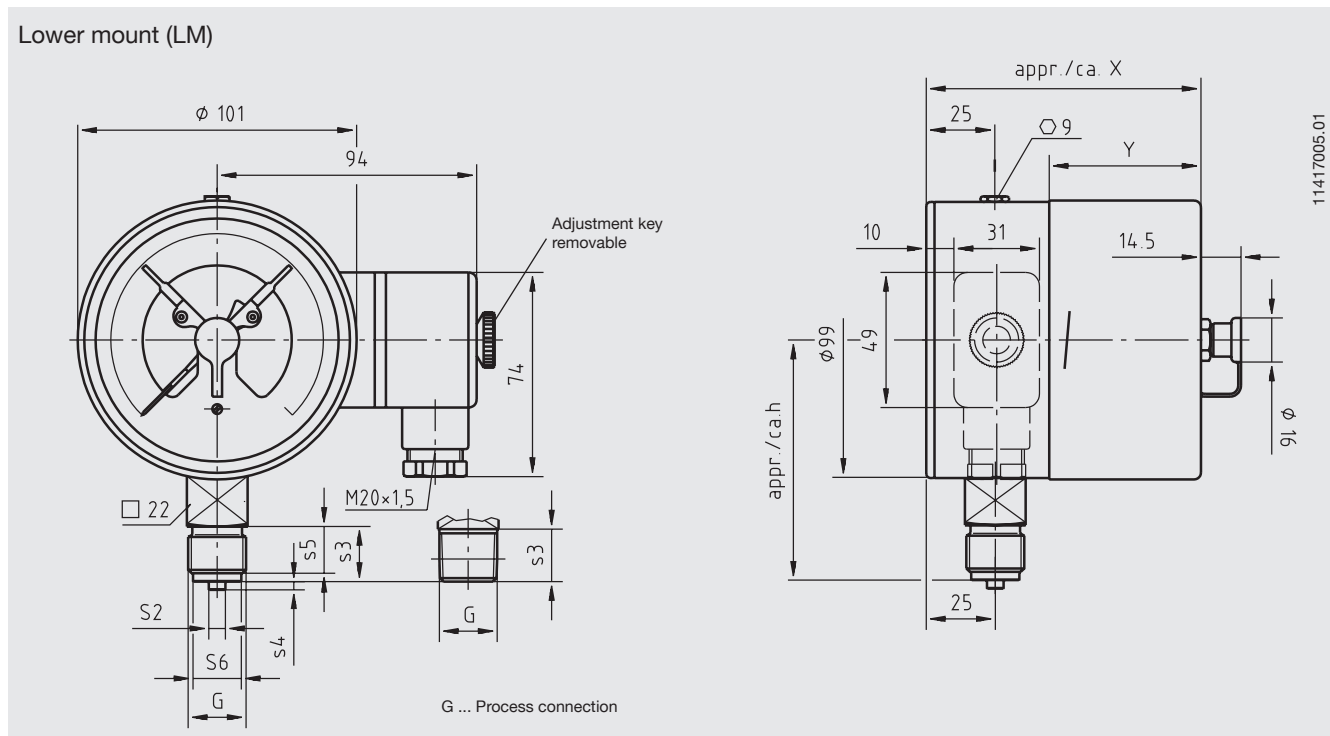
Process connection	Dimensions in mm					
	h ± 1	S2	S3	S4	S5	S6
G 1/2 B	87	6	20	3	17	17.5
G 1/4 B	80	5	13	2	11	9.5
G 3/8 B	83	5.5	16	3	13	13
1/2 NPT	86	-	19	-	-	-



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

Process connection	Dimensions in mm					
	b	S2	S3	S4	S5	S6
G 1/2 B	33.5	6	20	3	17	17.5
G 1/4 B	26.5	5	13	2	11	9.5
G 3/8 B	29.5	5.5	16	3	14	13
1/2 NPT	32.5	-	19	-	-	-

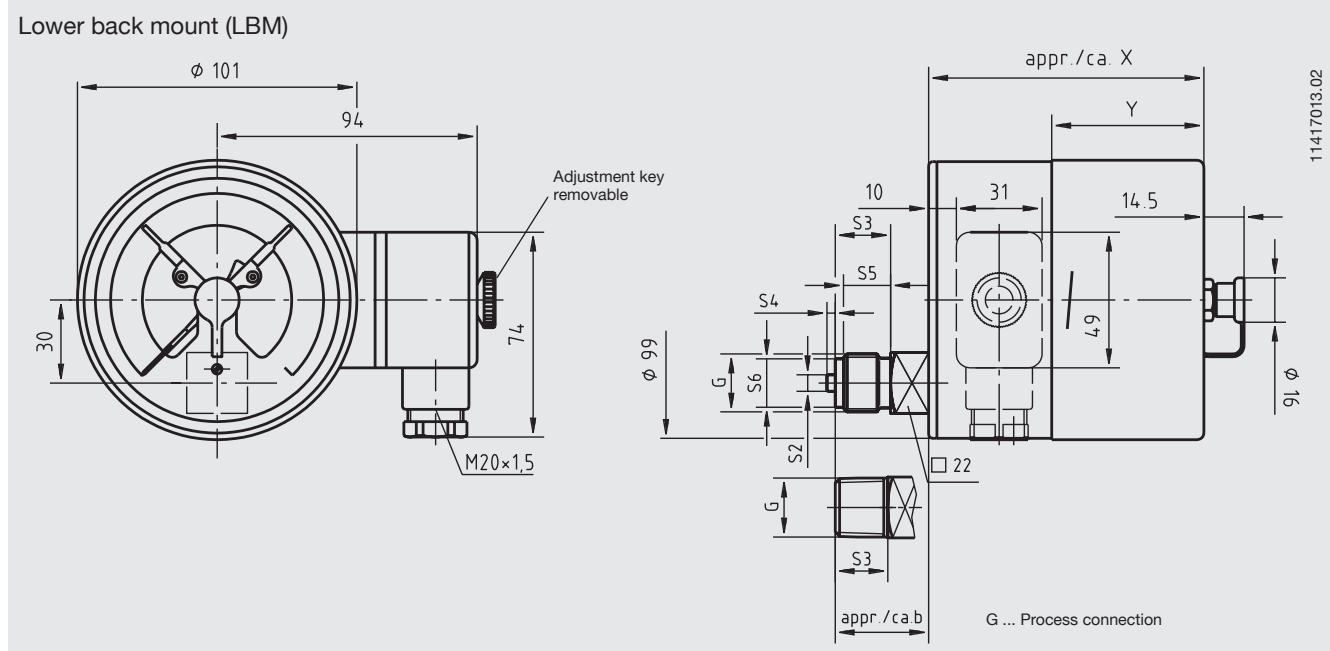
switchGAUGE Model 232.30, NS 100



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Type of contact	Dimensions in mm	
	X	Y
Single or double contact	97	55
Double contact (SPDT)	122	80
Triple contact	105	63
Quadruple contact	122	80

Process connection	Dimensions in mm					
	h ± 1	S2	S3	S4	S5	S6
<b>G 1/2 B</b>	87	6	20	3	17	17.5
<b>G 1/4 B</b>	80	5	13	2	11	9.5
<b>G 3/8 B</b>	83	5.5	16	3	14	13
<b>1/2 NPT</b>	86	-	19	-	-	-

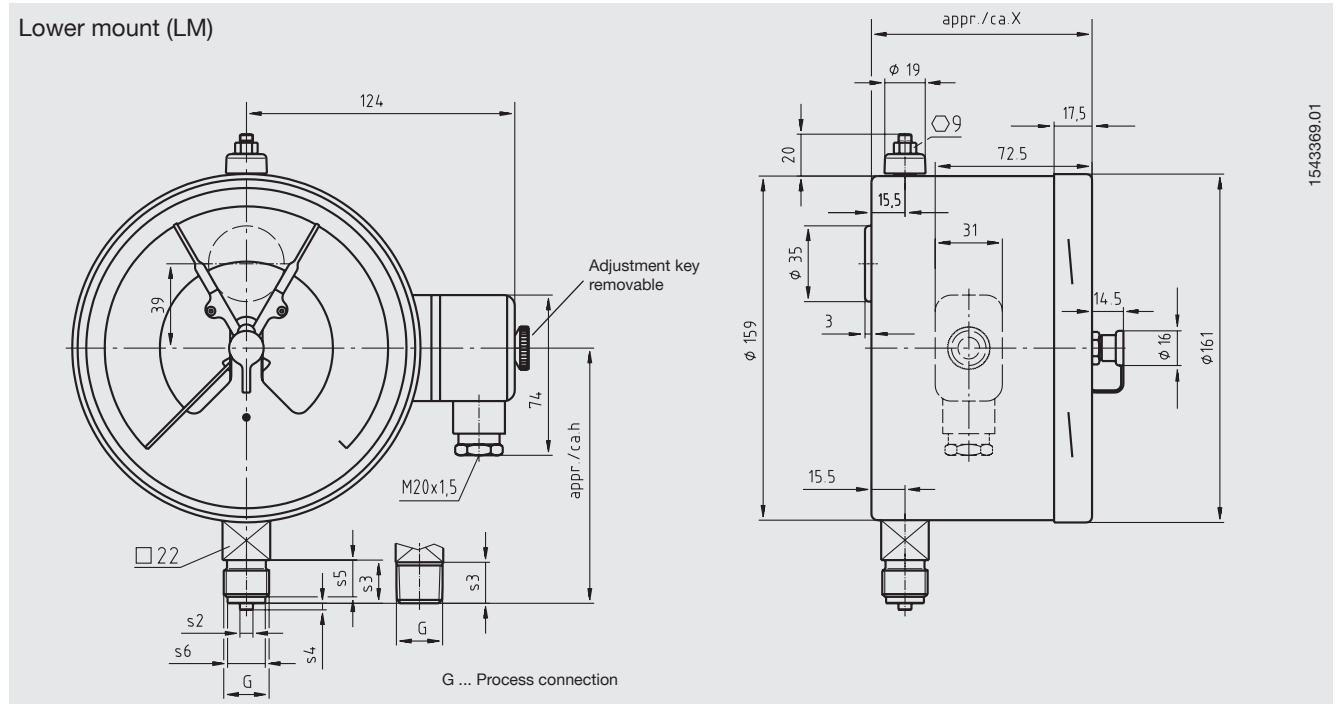


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Type of contact	Dimensions in mm	
	X	Y
Single or double contact	97	55
Double contact (SPDT)	122	80
Triple contact	105	63
Quadruple contact	122	80

Process connection	Dimensions in mm					
	b	S2	S3	S4	S5	S6
<b>G 1/2 B</b>	33.5	6	20	3	17	17.5
<b>G 1/4 B</b>	26.5	5	13	2	11	9.5
<b>G 3/8 B</b>	29.5	5.5	16	3	14	13
<b>1/2 NPT</b>	32.5	-	19	-	-	-

switchGAUGE Model 232.50, NS 160

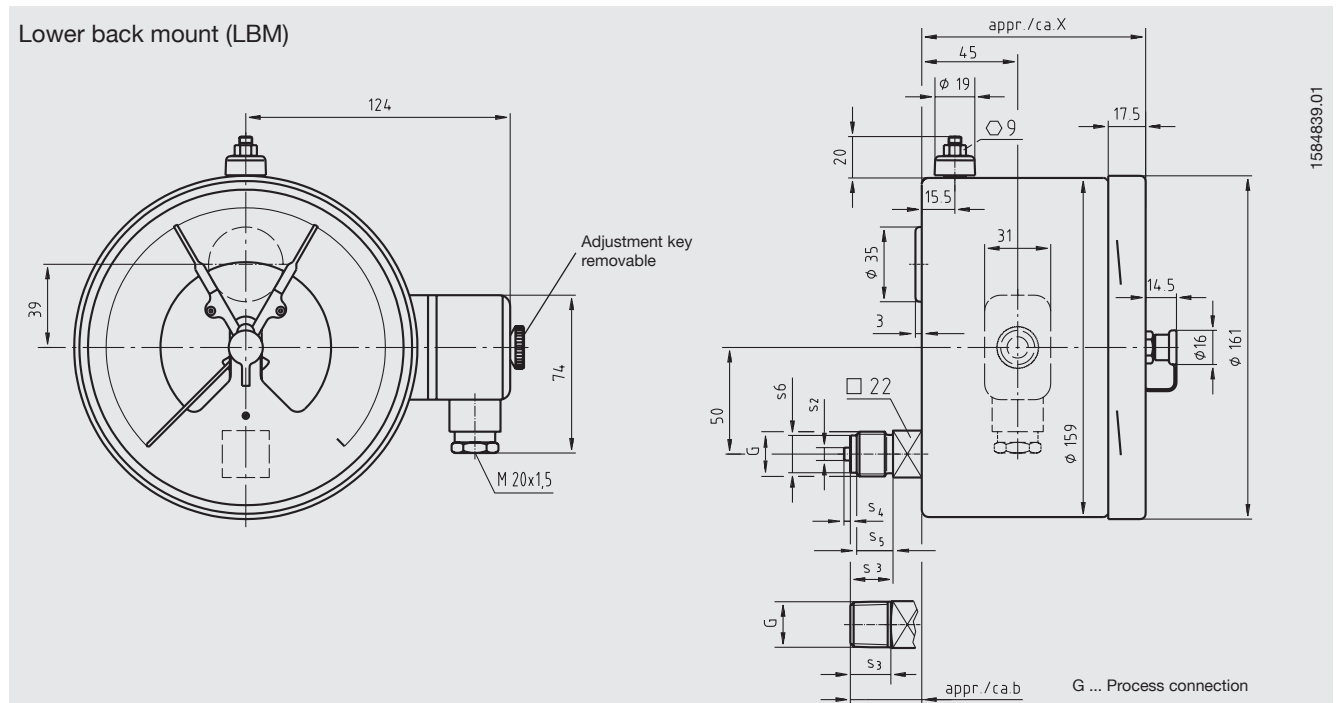


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Type of contact	Dimensions X in mm
Single, double or triple contact	102 <sup>1)</sup>
Double contact (SPDT), quadruple contact	116 <sup>1)</sup>

1) Plus 14 mm with pressure ranges  $\geq 0 \dots 100$  bar

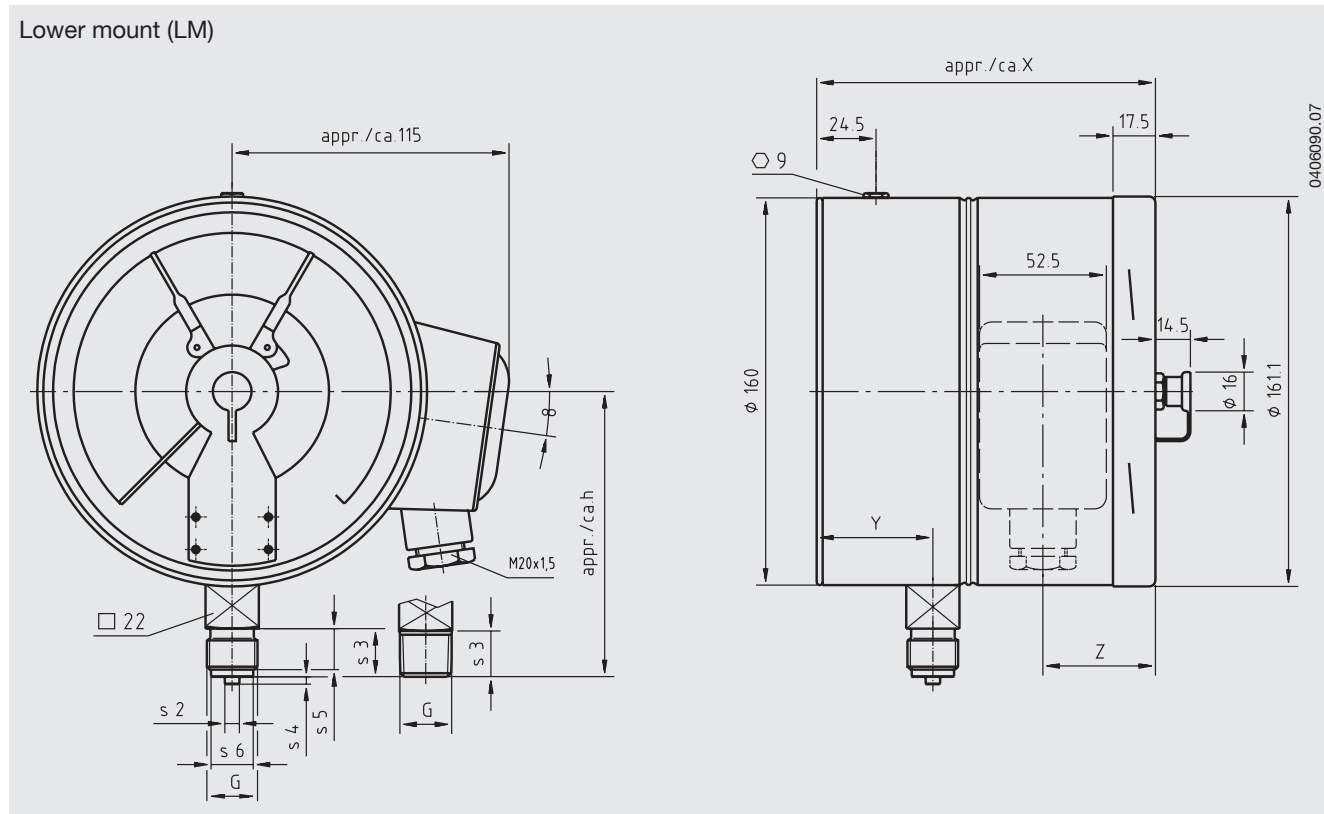
Process connection	Dimensions in mm	h $\pm 1$	S2	S3	S4	S5	S6
<b>G 1/2 B</b>		118	6	20	3	17	17.5
<b>G 1/4 B</b>		111	5	13	2	11	9.5
<b>G 3/8 B</b>		114	5.5	16	3	14	13
<b>1/2 NPT</b>		117	-	19	-	-	-



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

Process connection	Dimensions in mm	b	S2	S3	S4	S5	S6
<b>G 1/2 B</b>		33.5	6	20	3	17	17.5
<b>G 1/4 B</b>		26.5	5	13	2	11	9.5
<b>G 3/8 B</b>		29.5	5.5	16	3	14	13
<b>1/2 NPT</b>		32.5	-	19	-	-	-



Type of contact	Dimensions in mm		
	X	Y	Z
Single or double contact	141	30.5 <sup>1)</sup>	48
Triple contact	153.5	30.5 <sup>1)</sup>	60.5

Process connection	Dimensions in mm					
	h ± 1	S2	S3	S4	S5	S6
<b>G ½ B</b>	118	6	20	3	17	17.5
<b>½ NPT</b>	117	-	19	-	-	-
<b>M20 x 1.5</b>	118	6	20	3	17	17.5

1) Plus 17 mm with pressure ranges ≤ 0 ... 60 bar

### Ordering information

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

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



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