

# Diaphragm pressure gauge with switch contacts

## For the process industry, up to 10-fold overload safety, max. 40 bar

### Models PGS43.100, PGS43.160

WIKA data sheet PV 24.03



for further approvals see page 3

**switchGAUGE**

### Applications

- Control and regulation of industrial processes at measuring points with increased overload and scale ranges from 0 ... 25 mbar
- Monitoring of plants and switching of circuits
- For gaseous and liquid, aggressive and highly viscous or contaminated media, also in aggressive environments
- Process industry: Chemical industry, petrochemical industry, power plants, mining, on-/offshore, environmental technology, machine building and general plant construction

### Special features

- High reliability and long service life
- Wide choice of special materials
- Up to 4 switch contacts per instrument
- Also available with liquid filling for high dynamic pressure loads or vibrations
- Instruments with inductive contacts for use in hazardous areas with ATEX approval
- Instruments with electronic contact for PLC applications

### Description

Wherever the process pressure has to be indicated locally and, at the same time, circuits need to be switched, the model PGS43 switchGAUGE finds its use.

Switch contacts (electrical alarm contacts) make or break an electric control circuit dependent upon the pointer position of the indicating measuring instrument. 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.



**Diaphragm pressure gauge model PGS43.100 with switch contact model 831.21**

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 837-3) 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.

## Standard version

### Nominal size in mm

100, 160

### Accuracy class

1.6

### Scale ranges

0 ... 25 mbar to 0 ... 250 mbar (flange Ø 160 mm)

0 ... 400 mbar to 0 ... 25 bar (flange Ø 100 mm)

or all other equivalent vacuum or combined pressure and vacuum ranges

### Pressure limitation

Steady: Full scale value

Fluctuating: 0.9 x full scale value

### Overload safety

5 x full scale value, however max. 40 bar

### Permissible temperature

Ambient: -20 ... +60 °C

Medium: +100 °C maximum

### Temperature effect

When the temperature of the measuring system deviates from the reference temperature (+20 °C): max.  $\pm 0.8 \%$ /10 K of full scale value

### Process connection with lower measuring flange

Stainless steel 316L, G ½ B (male), SW 22

### Pressure element

≤ 0.25 bar: Stainless steel 316L

> 0.25 bar: NiCr-alloy (Inconel)

### Pressure chamber sealing

FPM/FKM

### Movement

Stainless steel

### Dial

Aluminium, white, black lettering

### Pointer

Instrument pointer: Aluminium, black

Set pointer: Red

### Case with upper measuring flange

Stainless steel, with blow-out device in case back

Safety version option: With solid baffle wall (Solidfront) and blow-out back

### Window

Laminated safety glass

### Ring

Bayonet ring, stainless steel

### Electrical connection

Cable terminal box

### Ingress protection per IEC/EN 60529

IP54

## Options

- Other process connection
- Sealings (model 910.17, see data sheet AC 09.08)
- Liquid filling (filling liquid silicone oil M50, ingress protection IP65)
- Overload safety up to 10-fold, max. 40 bar
- Vacuum safety to -1 bar
- Max. medium temperature +200 °C
- Higher indication accuracy, class 1.0<sup>1)</sup>
- Open connecting flanges per DIN/ASME from DN 15 to DN 80 (preferred nominal widths DN 25 and 50 or DN 1" and 2"; see data sheet IN 00.10)
- Wetted parts lined/coated with special materials such as PTFE, Hastelloy, Monel, nickel, tantalum, titanium, silver (instruments with accuracy class 2.5)
- Inductive contacts also in safety version (SN, S1N)

### Instruments with special approvals<sup>2)</sup>

- Type approval for connection to hazardous zone 0

1) Application test required

2) Specification on request

## 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)

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

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

## Approvals

Logo	Description	Country
	<b>EU declaration of conformity</b> <ul style="list-style-type: none"> <li>■ EMC directive</li> <li>■ Low voltage directive</li> <li>■ RoHS directive</li> <li>■ ATEX directive (option)</li> </ul> Ignition protection type "c", constructive safety	European Union
	<b>EAC (option)</b> <ul style="list-style-type: none"> <li>■ EMC directive</li> <li>■ Pressure equipment directive</li> <li>■ Low voltage directive</li> <li>■ Hazardous areas</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>UkrSEPRO (option)</b> Metrology, measurement technology	Ukraine
	<b>Uzstandard (option)</b> Metrology, measurement technology	Uzbekistan
-	<b>CRN</b> Safety (e.g. electr. safety, overpressure, ...)	Canada

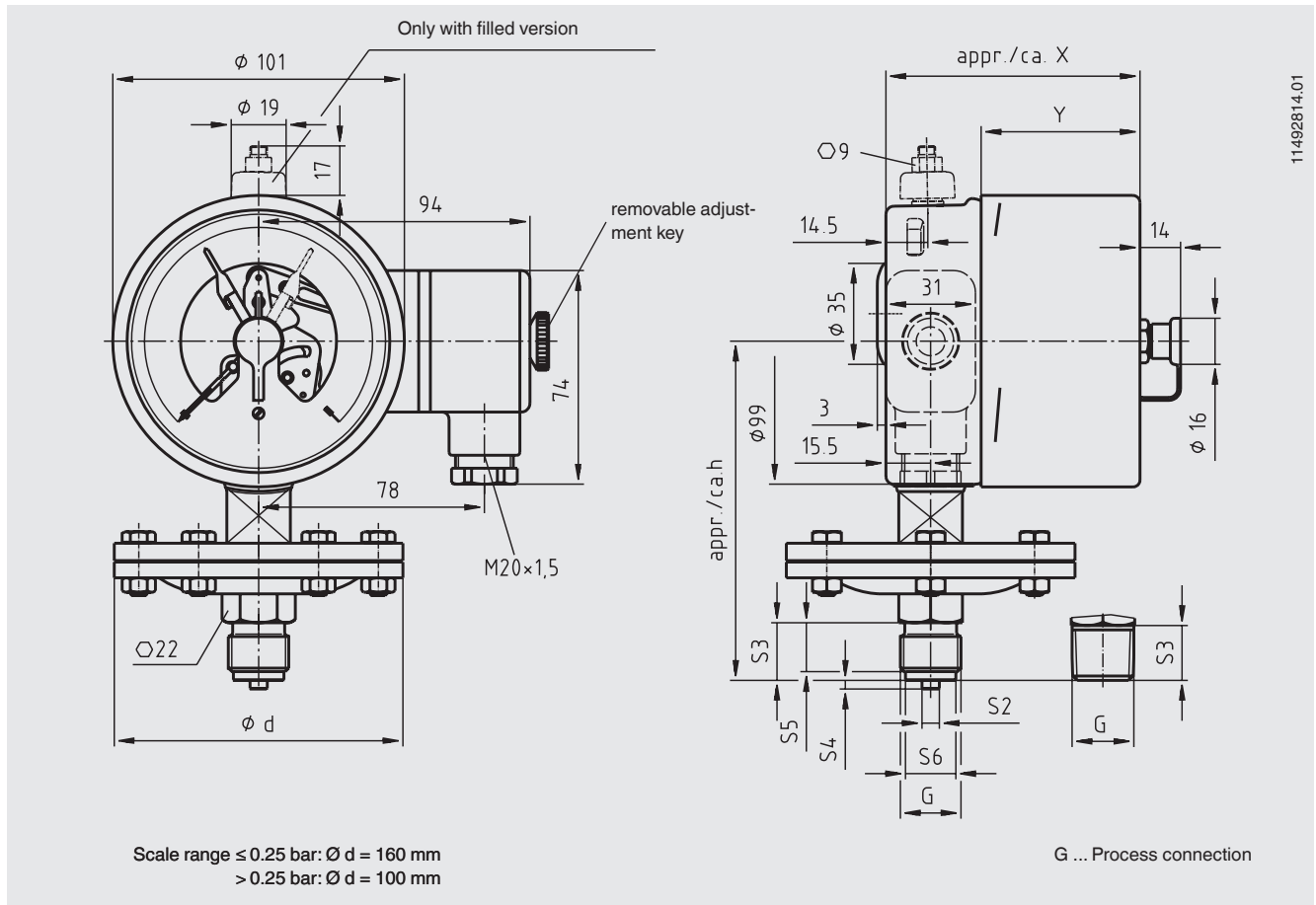
## Certificates (option)

- 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 PGS43.100 with switch contact model 821, 831 or 830 E

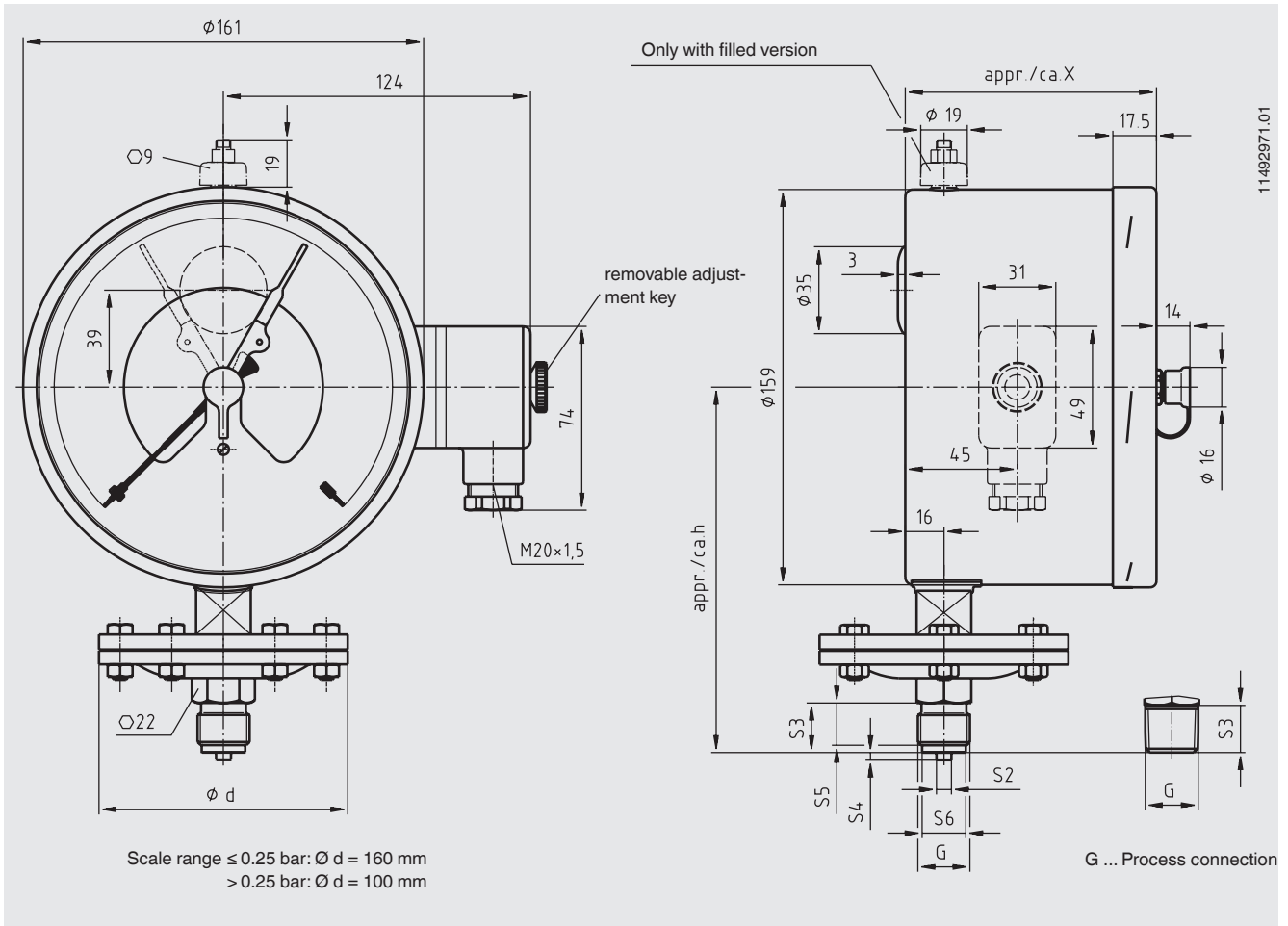


Process connection	Dimensions in mm					
	$h \pm 1$	S2	S3	S4	S5	S6
G ½ B	117	6	20	3	17	17.5
½ NPT	116	-	19	-	-	-

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



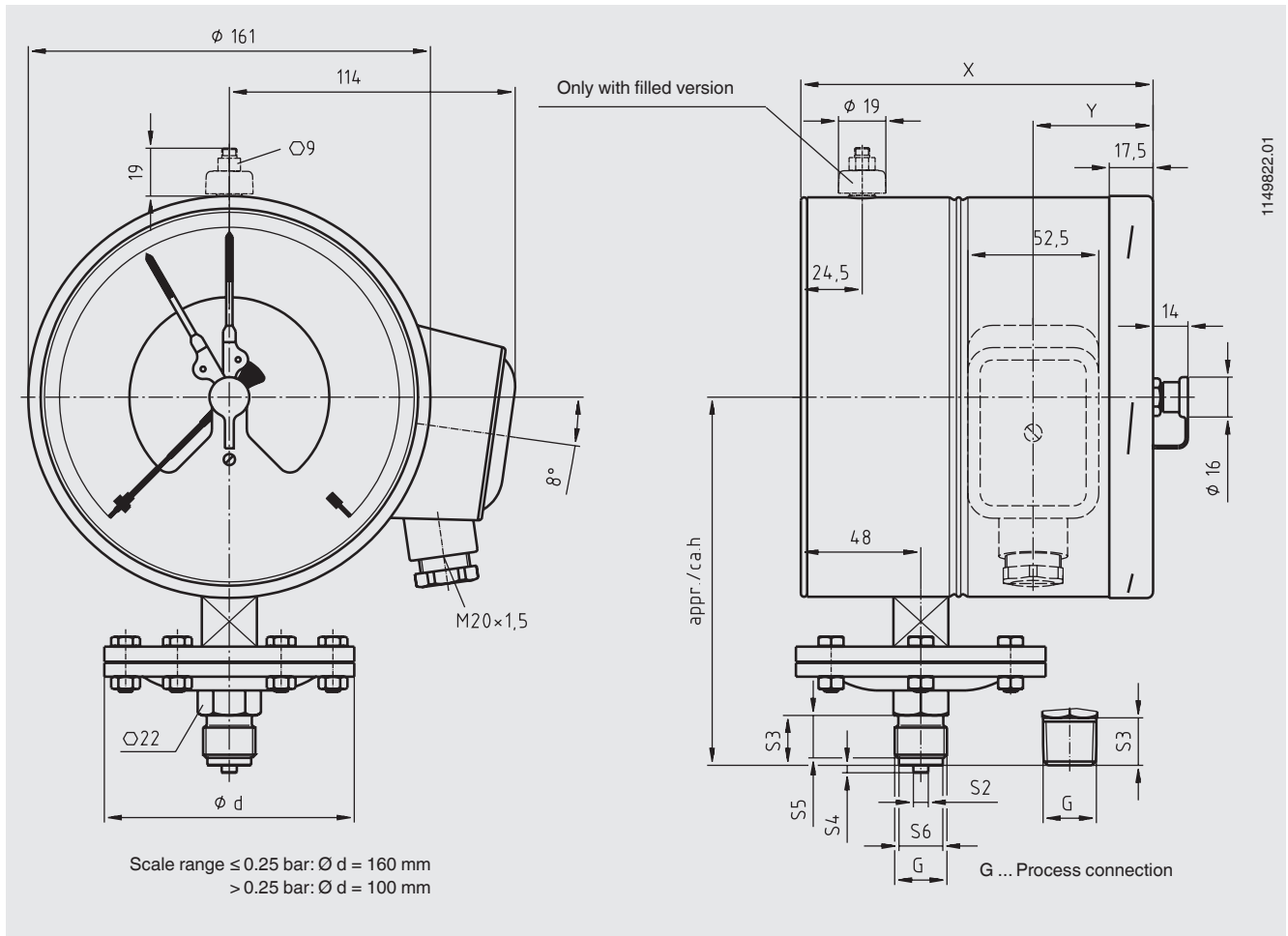
switchGAUGE model PGS43.160 with switch contact model 821, 831 or 830 E



Process connection	Dimensions in mm					
	$h \pm 1$	S2	S3	S4	S5	S6
G ½ B	147	6	20	3	17	17.5
½ NPT	146	-	19	-	-	-

Type of contact	Dimensions in mm
	X
Single or double contact	102
Double (change-over) contact	116
Triple contact	102
Quadruple contact	116

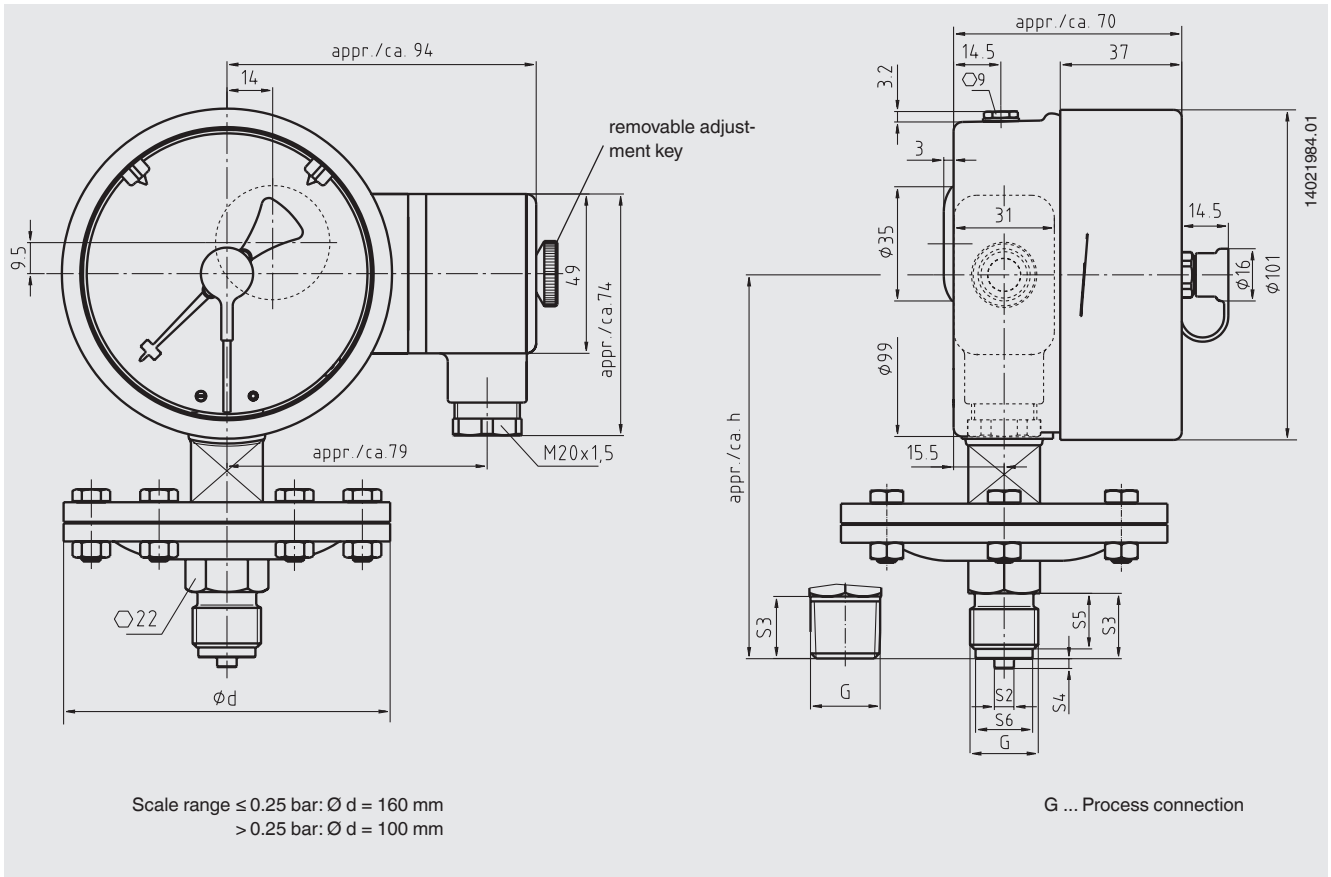
switchGAUGE model PGS43.160 (safety version) with switch contact model 821, 831 or 830 E



Process connection	Dimensions in mm					
	$h \pm 1$	S2	S3	S4	S5	S6
G 1/2 B	147	6	20	3	17	17.5
1/2 NPT	146	-	19	-	-	-

Type of contact	Dimensions in mm	
	X	Y
Single or double contact	141	48
Triple contact	153.5	60.5

switchGAUGE model PGS43.063 with switch contact model 851.3 or 851.33

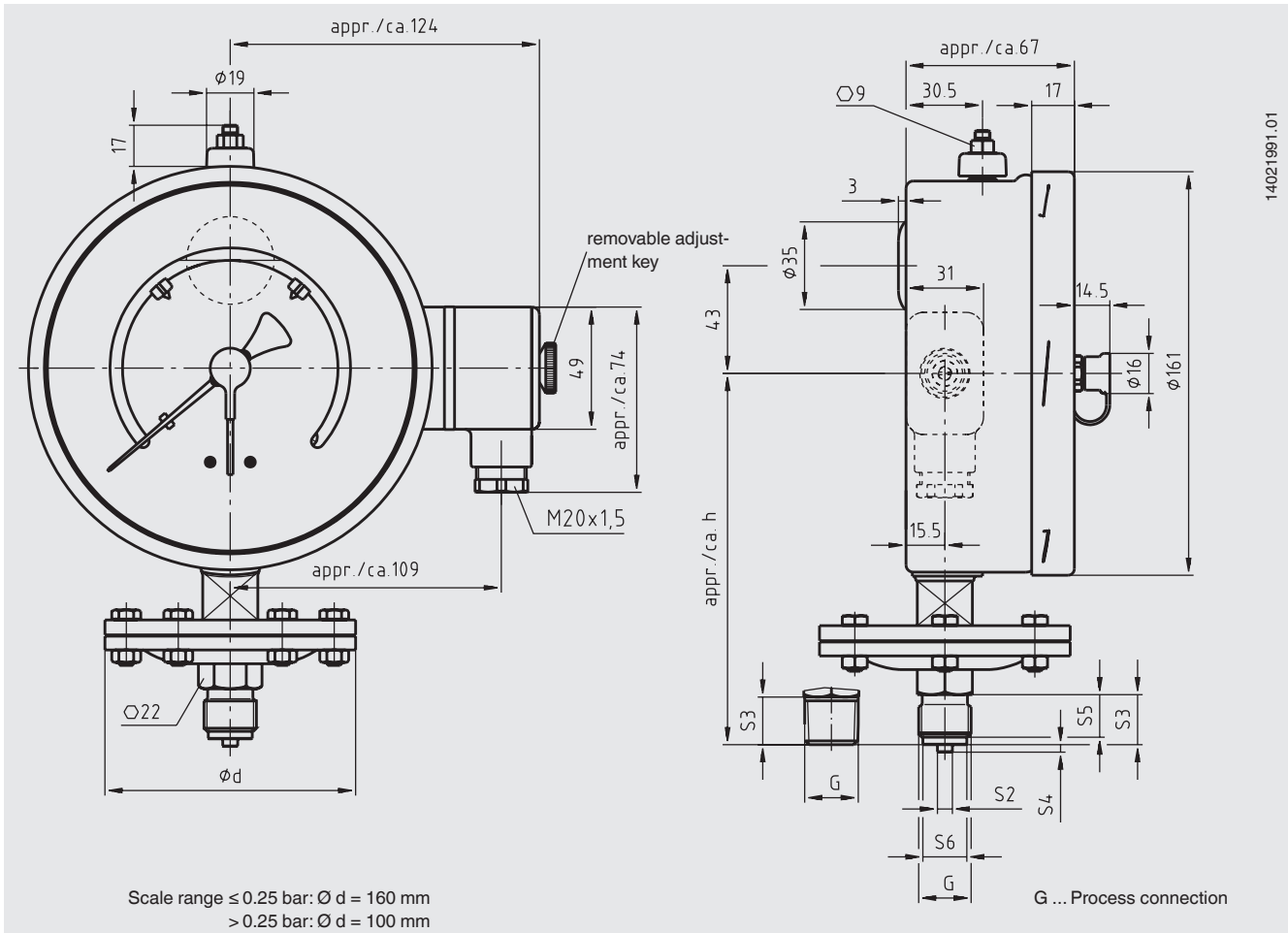


Process connection	Dimensions in mm					
	$h \pm 1$	S2	S3	S4	S5	S6
G ½ B	117	6	20	3	17	17.5
½ NPT	116	-	19	-	-	-





switchGAUGE model PGS43.160 with switch contact model 851.3 or 851.33



Process connection	Dimensions in mm					
	$h \pm 1$	S2	S3	S4	S5	S6
G ½ B	147	6	20	3	17	17.5
½ NPT	146	-	19	-	-	-

**Ordering information**

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

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