Diaphragm pressure gauge with switch contacts Models PGS43.1x0, stainless steel version

Applications

- Control and regulation of industrial processes at measuring points with increased overpressure and scale ranges from 0 … 25 mbar
- Monitoring of plants and switching of electric circuits
- For gaseous and liquid, aggressive and highly viscous or contaminated media, also in aggressive ambience
- Process industry: Chemical, petrochemical, power plants, mining, on- and 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-filled case for high dynamic pressure loads or vibrations
- Gauges with inductive contacts for use in hazardous areas with ATEX approval
- Gauges with electronic contact for PLC applications

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

Description

Wherever the process pressure has to be indicated locally, and, at the same time, circuits are to be made or broken, the model PGS43.1x0 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 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 837-3) 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.
For further information on the different switch contacts please see data sheet AC 08.01.

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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

Overpressure 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. ±0.8 %/10 K of full scale value

Process connection with lower measuring flange

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

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

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

Window

Laminated safety glass

Bezel ring

Cam ring (bayonet type), stainless steel

Electrical connection

Terminal box

Ingress protection

IP 54 per EN 60529 / IEC 529

Switch contacts

Magnetic snap-action contact model 821

- No control unit and no extra 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 effect on the indication 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)
- 2-wire system (option: 3-wire system)
- Long service life due to non-contact sensor
- Low effect on the indication 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 change-over 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 pointer motion)
Model 8xx.2: Contact breaks (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 please see data sheet AC 08.01, electrical switch contacts

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Options

- Other process connection
- Sealings (model 910.17, see data sheet AC 09.08)
- Liquid filling (filling liquid silicone oil M50, ingress protection IP 65)
- Overpressure safety: 10 x full scale value, max. 40 bar
- Vacuum safe to -1 bar
- Max. medium temperature +200 °C
- Higher indication accuracy, class 1.0 and 0.6
- 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 (gauges with accuracy class 2.5)
- Inductive contacts also in safety version (SN, S1N)

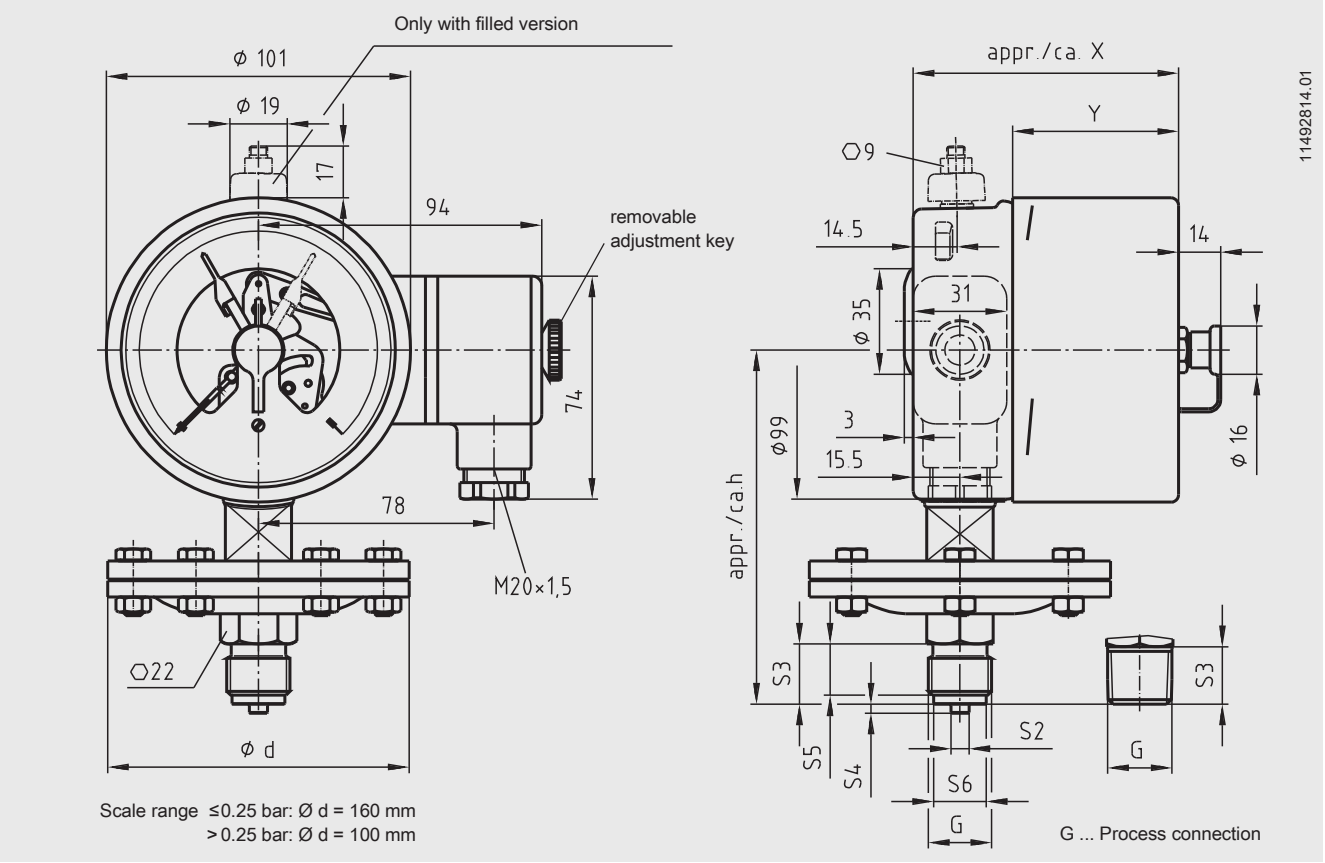
Instruments with special approvals

- Pressure switch per VdTÜV code of practice 100
- SIL2 approval
- DVGW declaration for the use in gas supply systems
- DIN/DVGW registration: Pressure switch per EN 1854
- Gost standard approval (Russia)
- Design approval for connection to hazardous zone 0

1) Specification on request

Dimensions in mm

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



Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Double 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 ½ B	117	6	20	3	17	17.5
½ NPT	116	-	19	-	-	-

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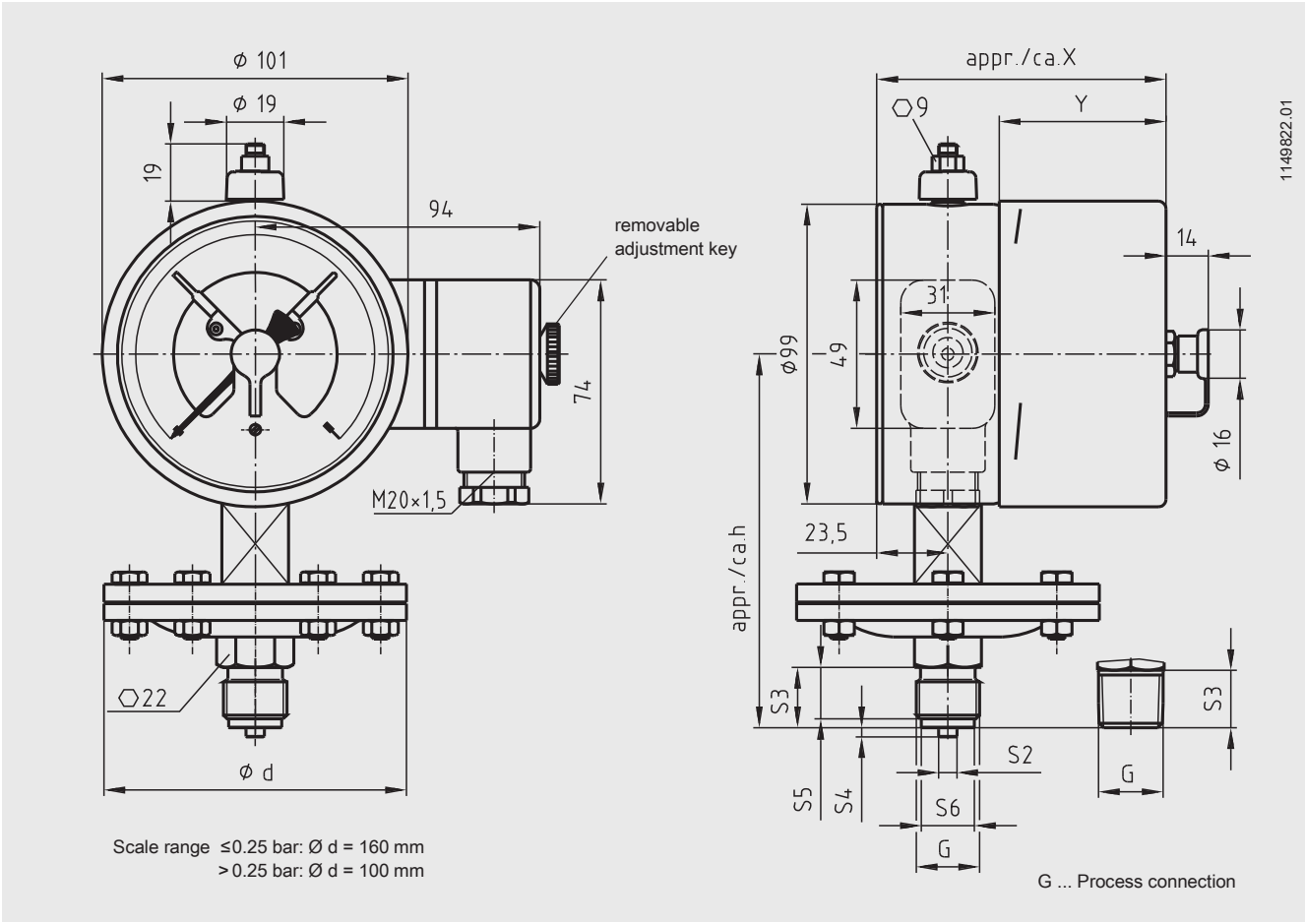
switchGAUGE model PGS43.100 (safety version) with switch contact model 821, 831 or 830 E



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 ½ B	123	6	20	3	17	17.5
½ NPT	122	-	19	-	-	-

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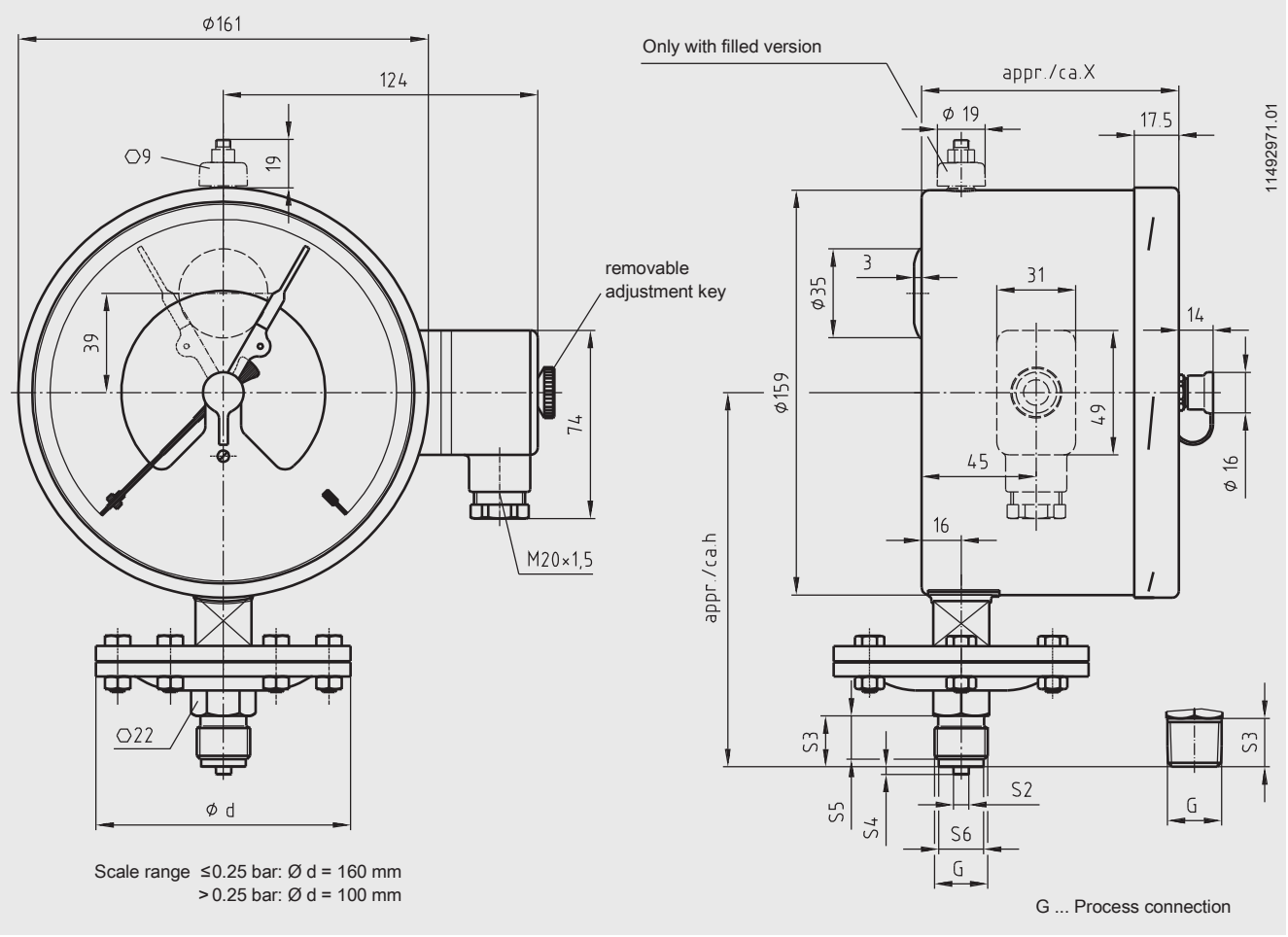
switchGAUGE model PGS43.160 with switch contact model 821, 831 or 830 E



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

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

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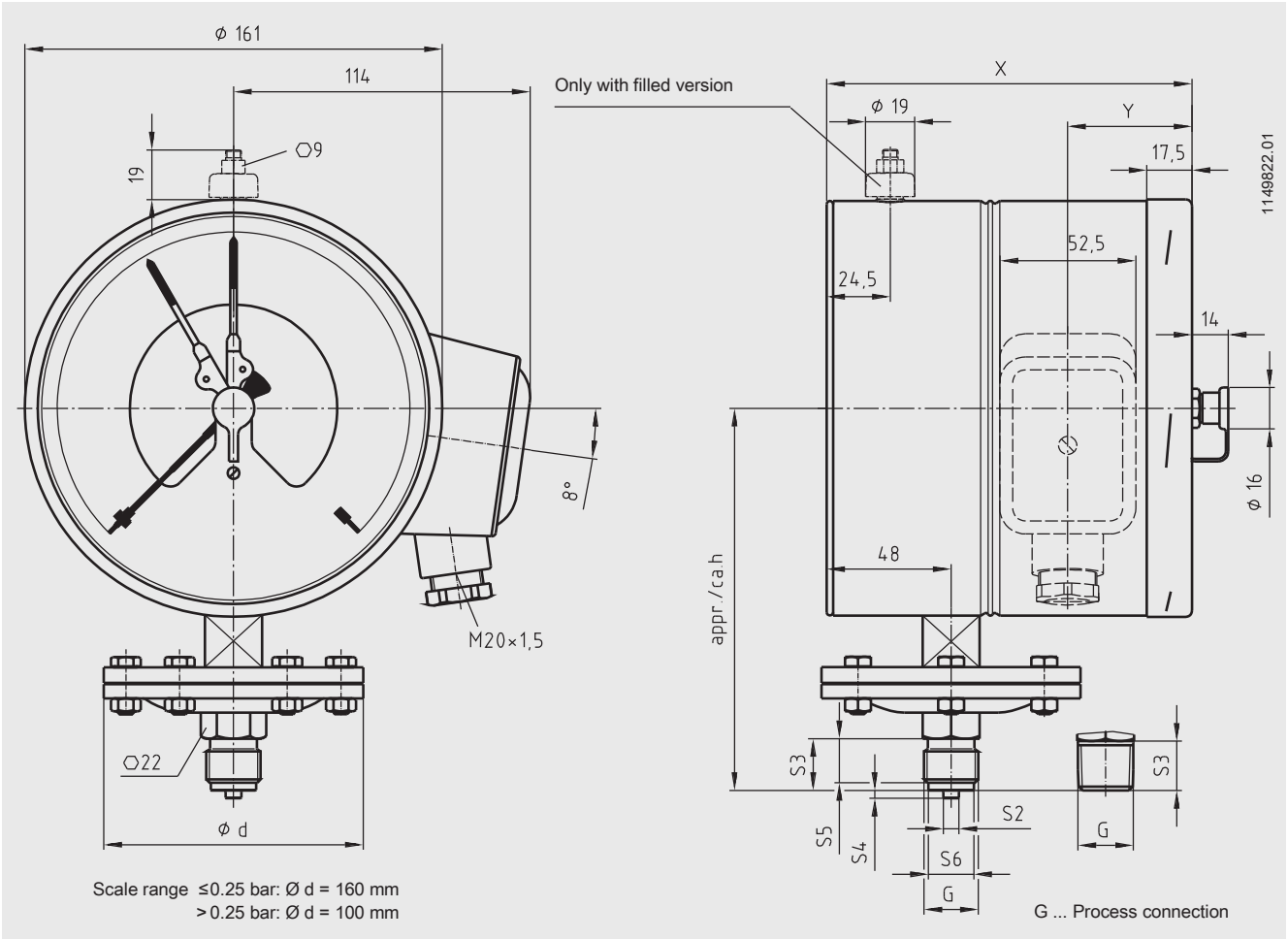
switchGAUGE model PGS43.160 (safety version) with switch contact model 821, 831 or 830 E



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

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

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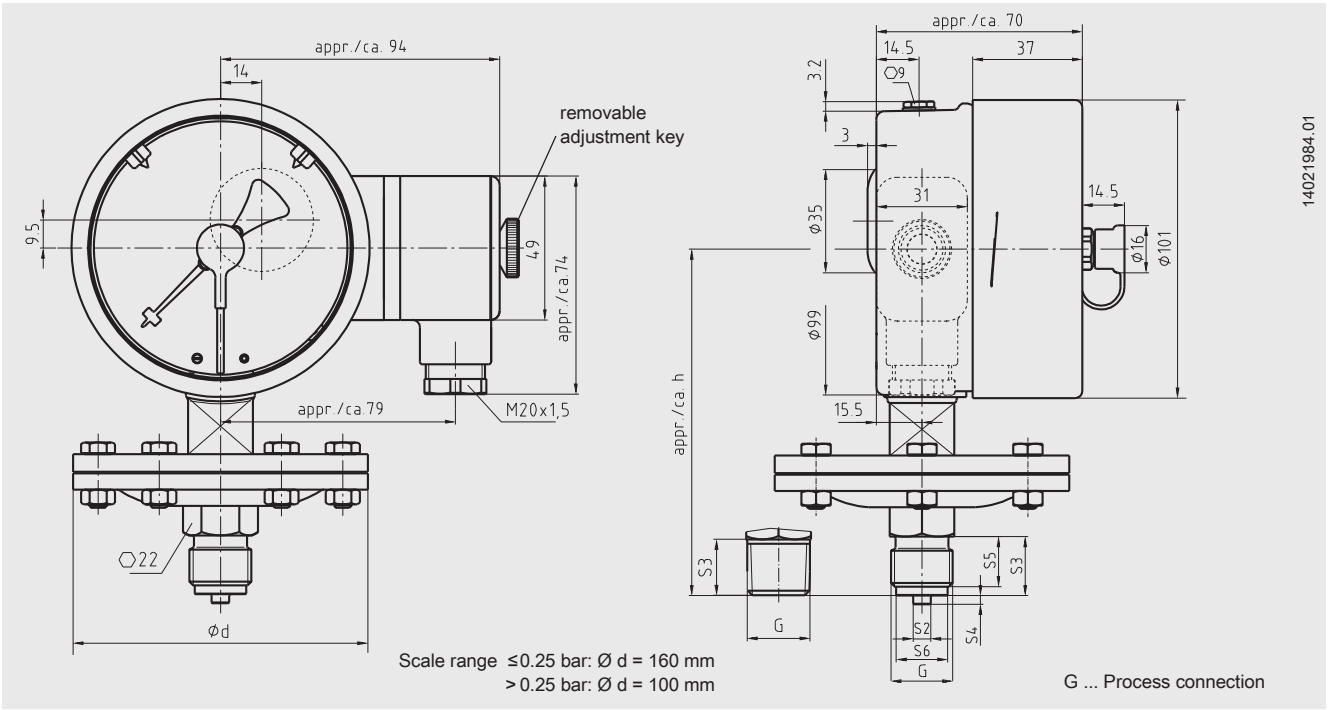
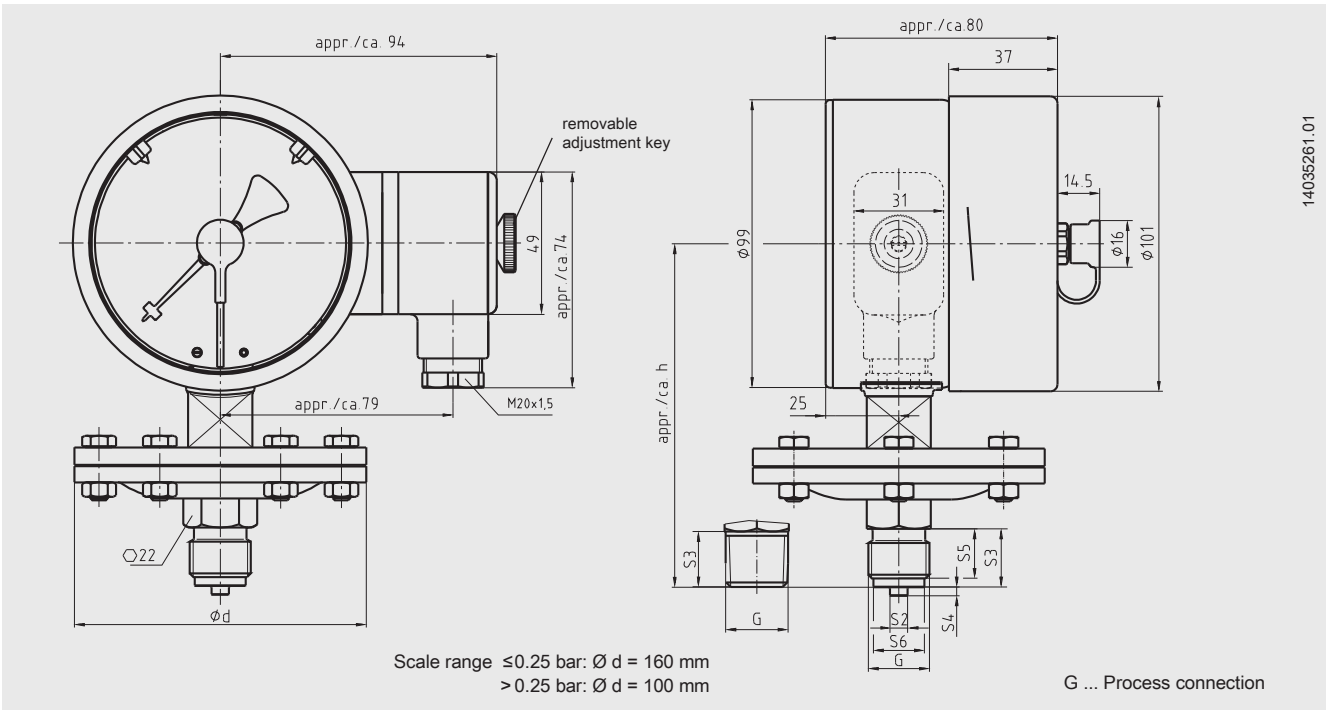
switchGAUGE model PGS43.063 with switch contact model 851.3 or 851.33



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

switchGAUGE model PGS43.100 (safety version) with switch contact model 851.3 or 851.33



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

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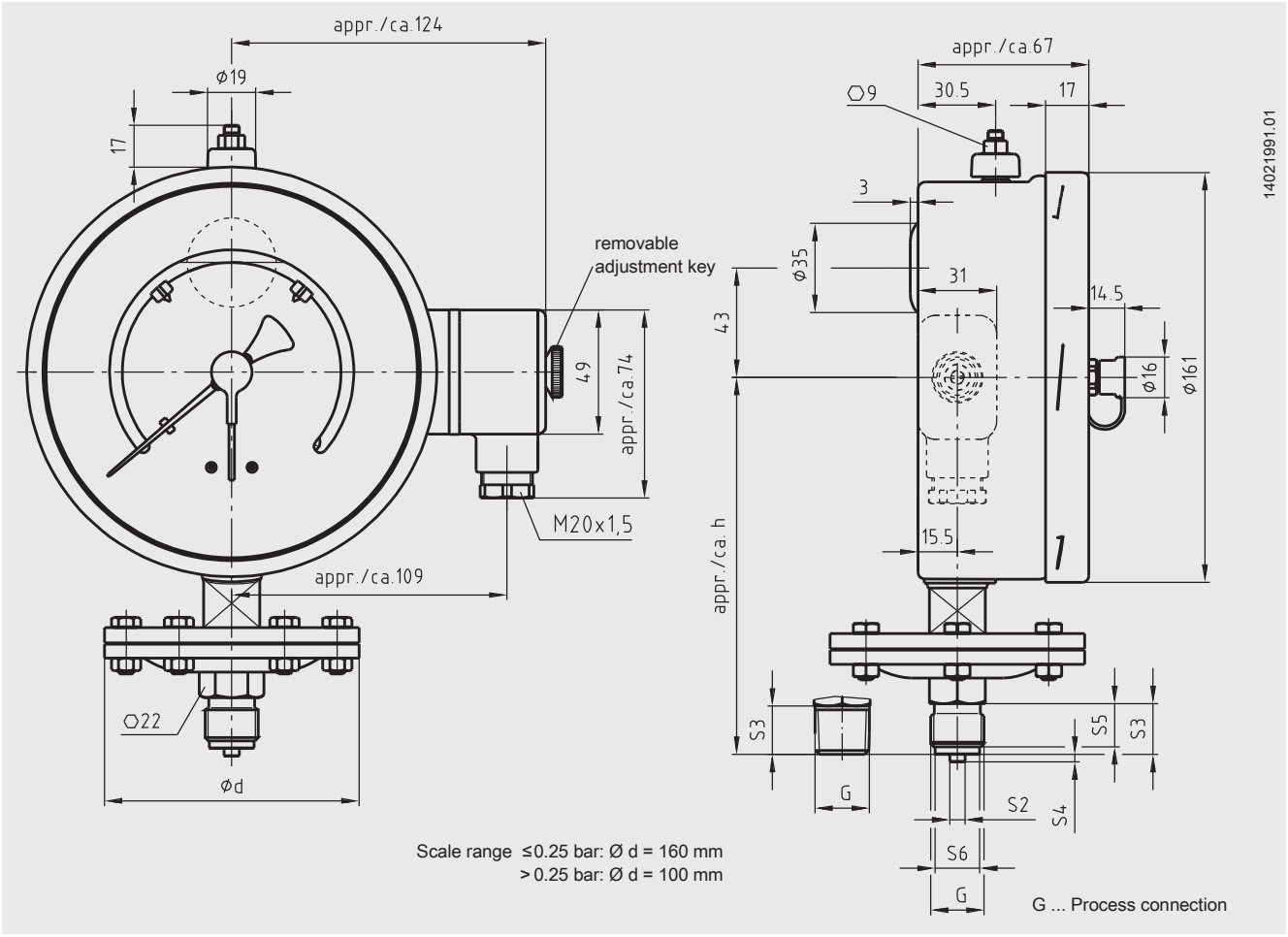
switchGAUGE model PGS43.160 with switch contact model 851.3 or 851.33



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

Ordering information

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

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