Diaphragm Pressure Gauges with Switch Contacts
Models 432.56.100/160, High Overpressure Safety up to 40 or 100 bar
Models 432.36.100/160, High Overpressure Safety up to 400 bar

switchGAUGE

Applications

- Control and regulation of industrial processes at measuring points with increased overpressure and scale ranges from 0 … 16 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/petro-chemical, power stations, mining, on- and offshore, environmental technology, machine building and general plant construction

Special Features

- High overpressure safety, optionally up to 40, 100 or 400 bar, due to metallic diaphragm cushion, without liquid-filled gauge head
- Wide choice of special materials
- 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

switchGAUGE Model 432.56.100

Description

Wherever the process pressure has to be indicated locally, and, at the same time, circuits are to be made or broken, the Model 432.56/36 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 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 EN 837-3 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.

Data sheets showing similar products:
switchGAUGE, Stainless Steel Version; Model 432.50/30.100/160; see data sheet PV 24.03

Standard version

Nominal size in mm
100, 160

Accuracy class
1.6

Scale ranges
0 ... 16 mbar to 0 ... 250 mbar
0 ... 400 mbar to 0 ... 40 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

Overpressure safety
40, 100 or 400 bar

Operating 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 diaphragm housing
Stainless steel 316L, G ½ B (male), 27 mm flats

Pressure element
≤ 0.25 bar: stainless steel 316L
> 0.25 bar: NiCrCo-alloy (Duratherm)

Pressure chamber sealing
FPM/FKM

Movement
Stainless steel

Dial
Aluminium, white, black lettering

Pointer
Instrument pointer: aluminium, black
Set pointer: red

Case with upper diaphragm housing
Model 43X.56: with pressure relief in case back
Model 43X.36: case with solid baffle wall and blow-out back

Window
Laminated safety glass

Bezel ring
Cam ring (bayonet type), stainless steel

Electrical connection
Junction box

Ingress protection
IP 54 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 250 V
- Up to 4 switch contacts per measuring instrument

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 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 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 433.56 or 433.36, ingress protection IP 65)
- Vacuum safe to -1 bar
- Max. medium temperature +200 °C
- Higher accuracy class, class 1.0 and 0.6
- Open connection flanges to DIN/ASME from DN 15 to DN 80 (Preferred nominal widths DN 25 and 50 or DN 1" and DN 2"; see data sheet IN 00.10)
- Wetted parts lined/coated with special materials such as PTFE, Hastelloy B2, Hastelloy C4, Monel, nickel, tantalum, titanium, silver (gauges with accuracy class 2.5)
- Inductive contacts also in safety version

Instruments with special approvals: 1)

- Gosstandart approval (Russia)
- Design approval for connection to hazardous Zone 0

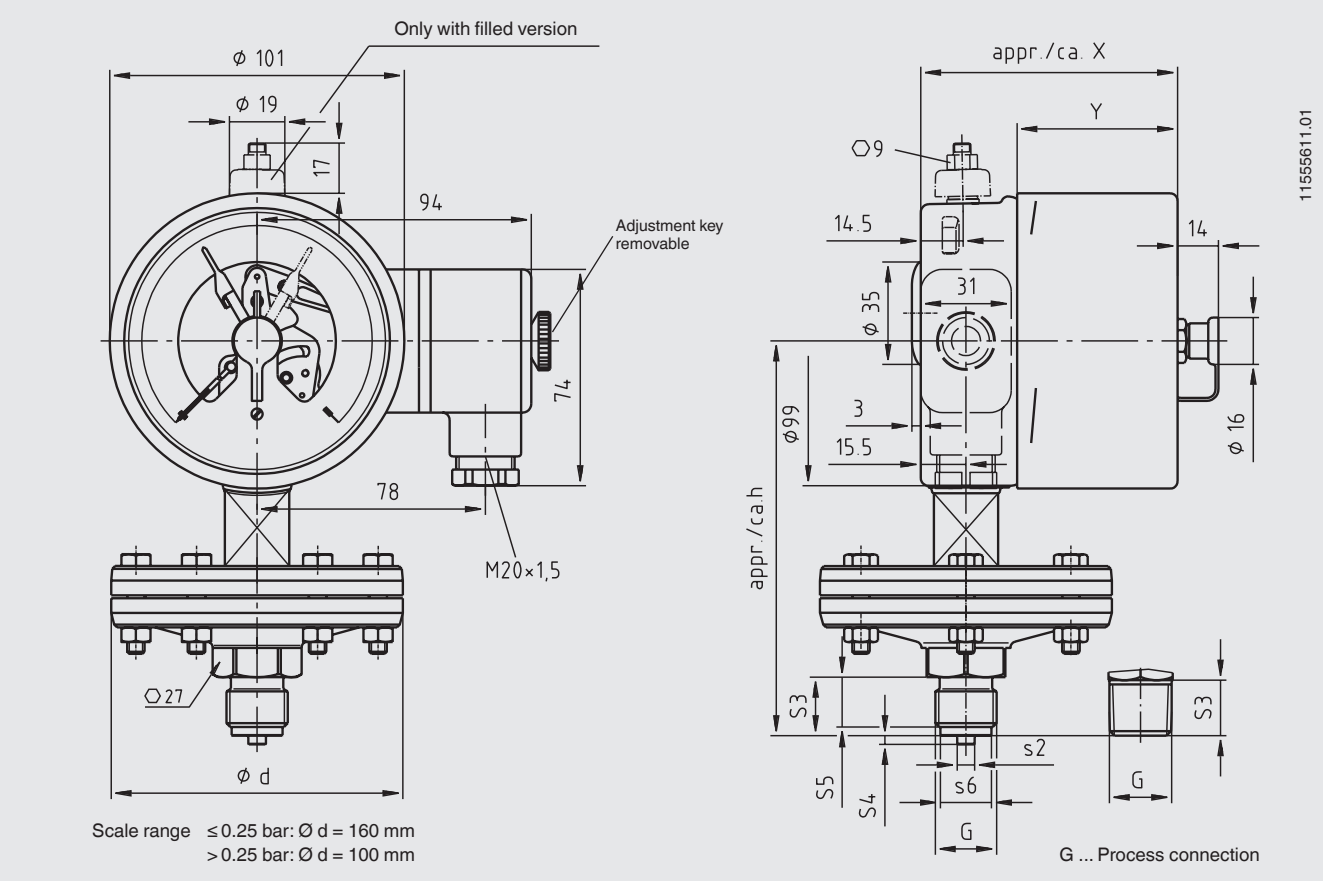
1) Specification on request

Special version

Model 432.36 high overpressure safety up to 400 bar
Case with blow-out back per EN 837-3
Scale ranges:
0 ... 25 mbar to 0 ... 250 mbar (flange Ø 190 mm)
0 ... 400 mbar to 0 ... 40 bar (flange Ø 120 mm)
Flange connecting screws: steel, corrosion-protected

Dimensions in mm

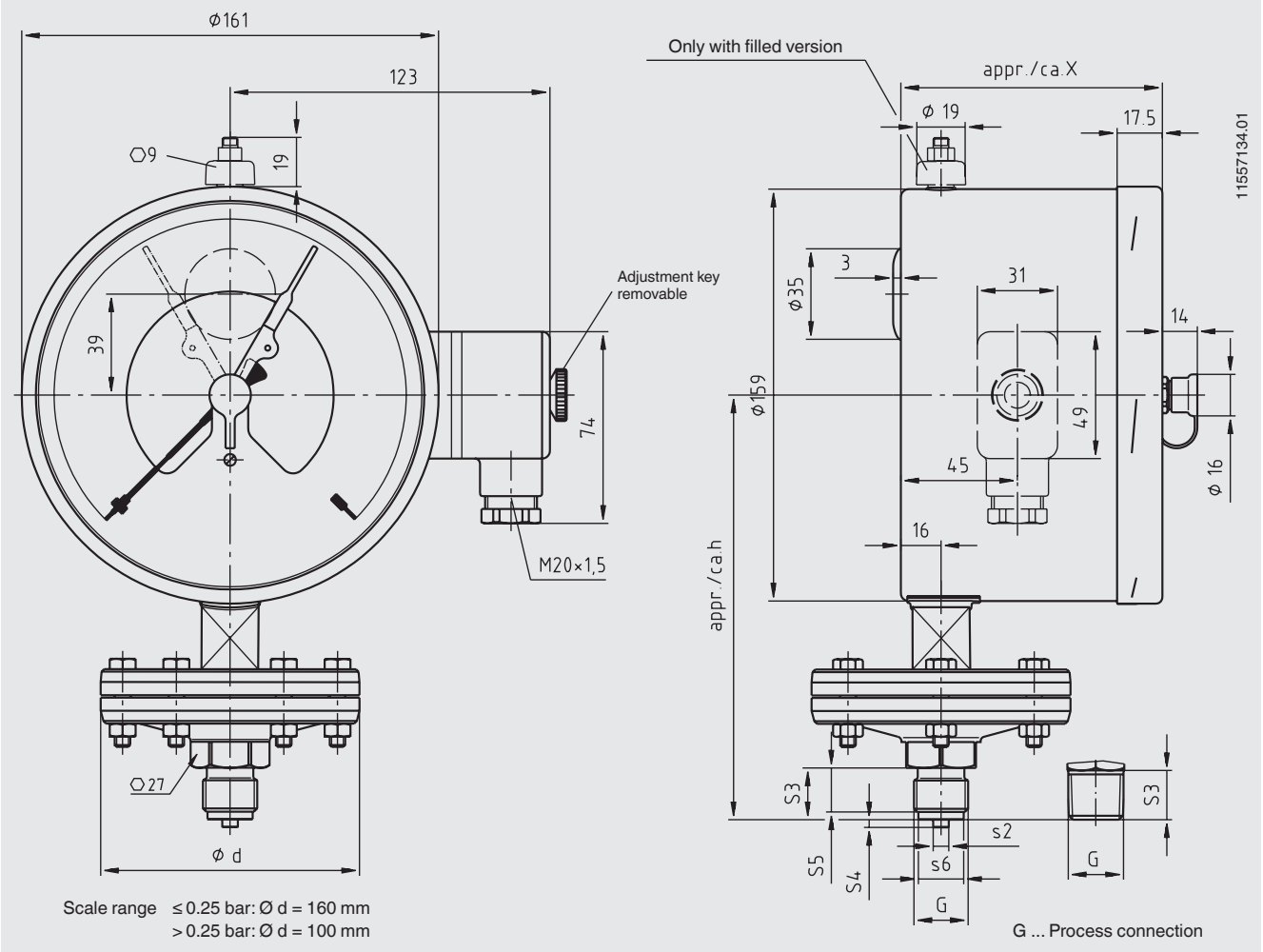
switchGAUGE Model 432.56, NS 100



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 ½ B	135	6	20	3	17	17.5
½ NPT	134	-	19	-	-	-

switchGAUGE Model 432.56, NS 160

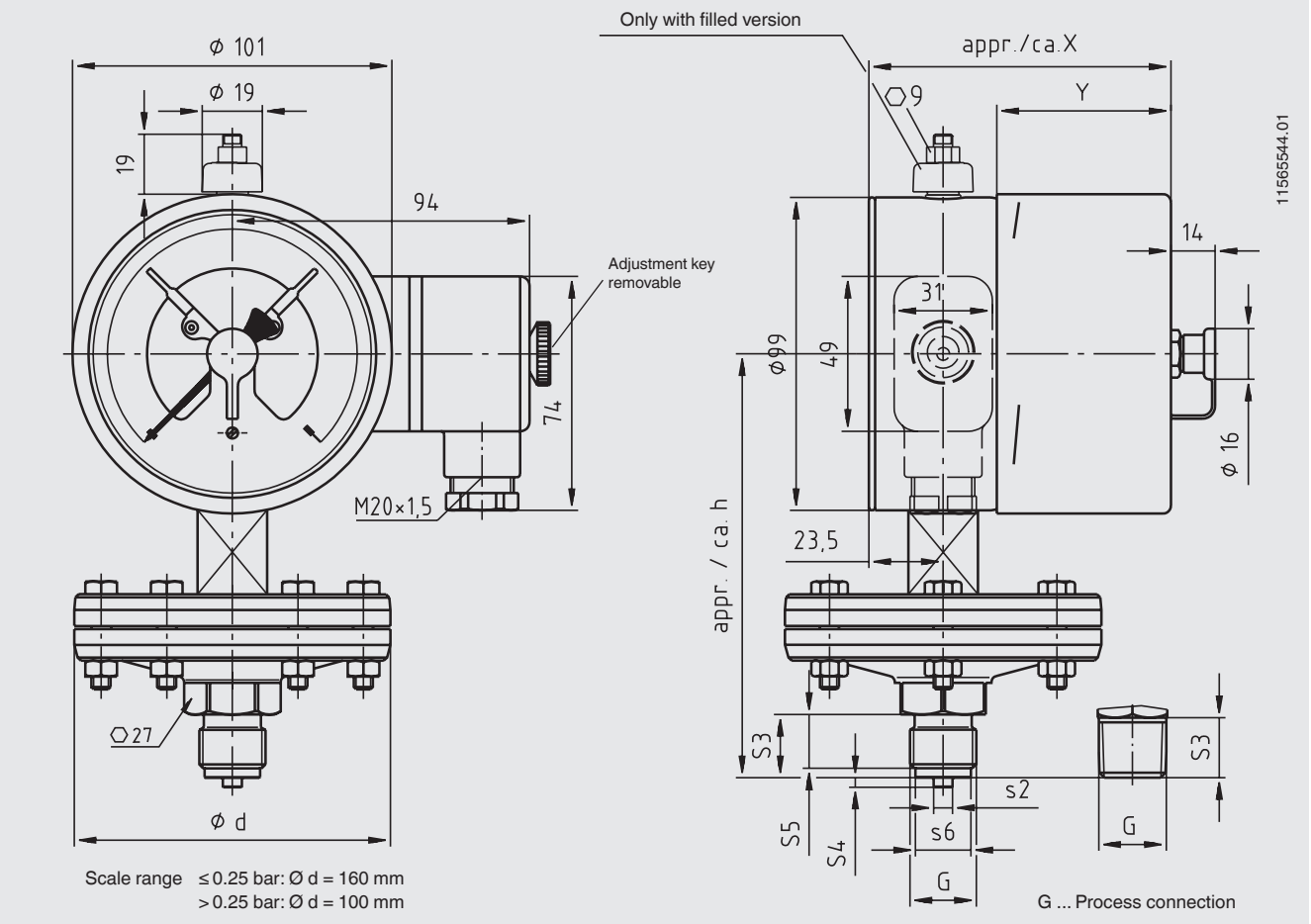


Type of contact	Dimensions in mm X
Single or double contact	102
Double contact (SPDT)	116
Triple contact	102
Quadruple contact	116

Process connection	Dimensions in mm h ± 1	S2	S3	S4	S5	S6
G ½ B	164	6	20	3	17	17.5
½ NPT	163	-	19	-	-	-

Option

switchGAUGE Model 432.36, NS 100

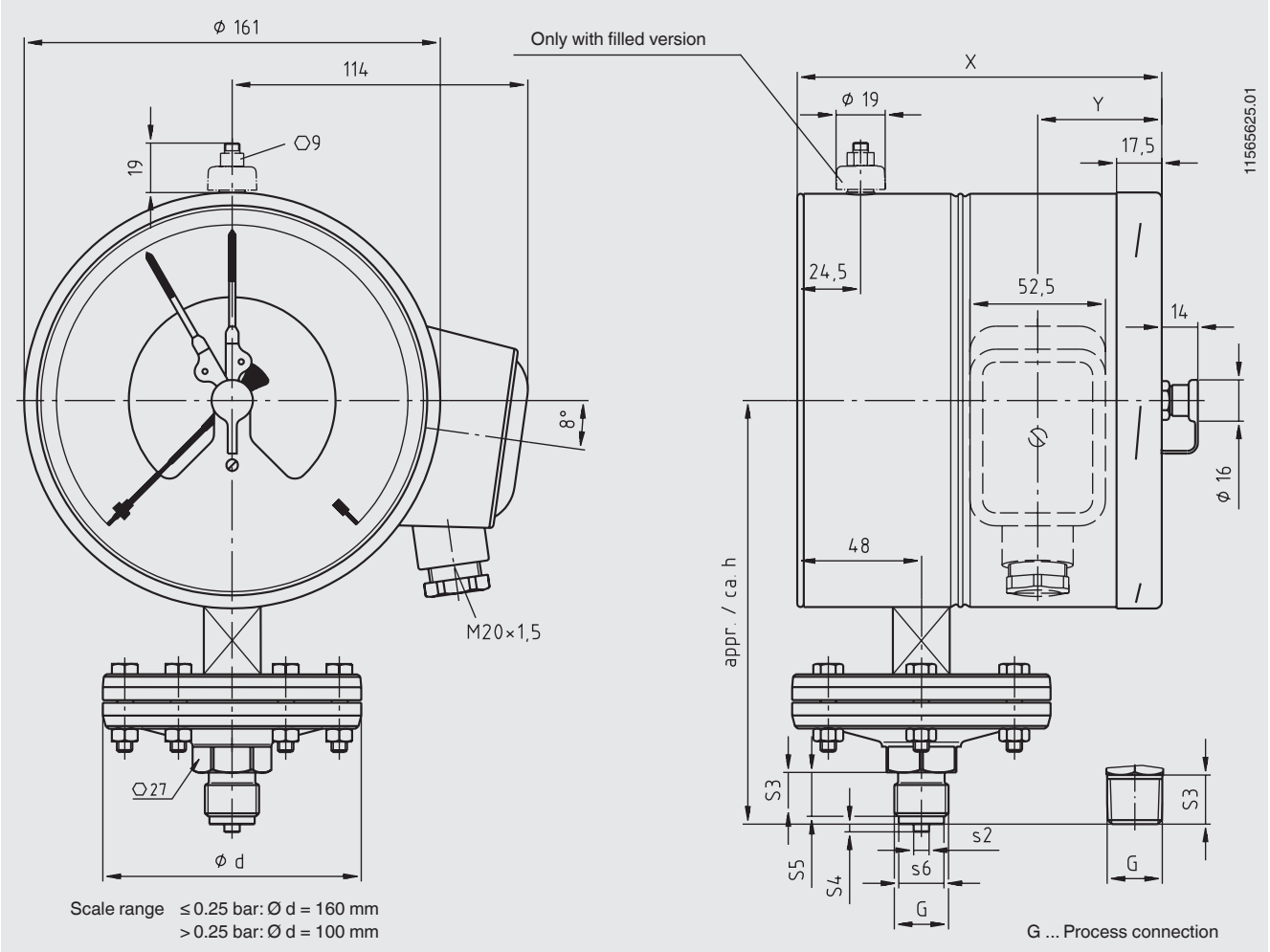


Type of contact	Dimensions in mm	
	X	Y
Single or double contact	97	55
Double contact (SPDT)	122	80
Triple contact	105	63
Quadruple contact	122	80

Process connection	Dimensions in mm					
	h ± 1	S2	S3	S4	S5	S6
G ½ B	134	6	20	3	17	17.5
½ NPT	133	-	19	-	-	-

Option

switchGAUGE Model 432.36, NS 160



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	164	6	20	3	17	17.5
½ NPT	163	-	19	-	-	-

Ordering information

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

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