

Differential pressure gauge with switch contacts

For the process industry, all-metal media chamber

Models DPGS43.100, DPGS43.160

WIKA data sheet PV 27.05



for further approvals see
page 4

switchGAUGE

Applications

- Control and regulation of process values
- Monitoring of plants and switching of circuits
- For measuring points with increased differential overpressure
- Filter and pump monitoring
- Level measurement on closed vessels

Special features

- Differential pressure measuring ranges from 0 ... 16 mbar
- High working pressure (static pressure) and high overload safety up to 40 bar
- Also available with liquid-filled case 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



Differential pressure gauge model DPGS43.100 with switch contact model 831.2

Description

Wherever the process pressure has to be indicated locally and, at the same time, circuits need to be switched, the model DPGS43.1x0 switchGAUGE finds its use.

Switch contacts (electrical alarm contacts) make or break an electric control circuit dependent upon the pointer position of the pressure gauge. 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 differential 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 switch contacts see data sheet AC 08.01.

Specifications

Mechanical data	
Mechanical design	Lower mount or lateral (option) process connections, highly corrosion-resistant all-metal design, measuring cell protected against unauthorised intervention
Nominal size in mm	100, 160
Accuracy (mechanical display)	≤ 1.6 % of measuring span (class 1.6 per EN 837-3)
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 Scale length approx. 180 °
Operating limits	Overload resistance per EN 837-3
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value Observe the recommendations for the use of mechanical pressure measuring systems in accordance with EN 837-2
Overload safety	see table on page 4
Media chamber with process connection (wetted)	Stainless steel 316Ti (1.4571) Lower mount 2 x G ¼ female
Pressure elements (wetted)	≤ 0.25 bar: Stainless steel 316L > 0.25 bar: NiCr-alloy (Inconel)
Venting of the media chambers (wetted)	Stainless steel 316Ti (1.4571) for scale ranges ≤ 0.25 bar (option for scale ranges ≥ 0.4 bar)
Sealing bellows (wetted)	Stainless steel 316Ti (1.4571)
Movement	Brass
Dial	Aluminium, white, black lettering
Pointer	Aluminium, black
Case	Stainless steel, with blow-out device
Window	Laminated safety glass
Ring	Bayonet ring, stainless steel
Damping options	
For dynam. pressure load	Restrictor in the pressure port
For vibration	Liquid filling of the case
Permissible temperature range	
Medium	-20 ... +100 °C
Ambient	-20 ... +60 °C (with window from polycarbonate max. 80 °C)
Temperature effect	max. ±0.5 %/10 K of full scale value (when the temperature deviates from 20 °C reference temperature)
Case ingress protection	IP54 per IEC/EN 60529 (with liquid filling IP65)
Installation	according to affixed symbols: ⊕ high pressure, ⊖ low pressure
Mounting	<ul style="list-style-type: none"> ■ Rigid measuring lines ■ Mounting holes in measuring flange ■ Panel mounting flange (option) ■ Instrument mounting bracket for wall or pipe mounting (option)

Options

- Liquid filling
- Sealings (model 910.17, see data sheet AC 09.08)
- Safety version
- Higher max. working pressure (static pressure) and higher overload safety (see table)
- Indication accuracy better than class 1.6
- Venting of the media chambers (wetted) for scale ranges ≥ 0.4 bar
- Zero point adjustment appliance
- Lateral connection location (right, left, front or back)
- Other process connections via female or male threads
- Medium temperature >100 °C
- Instrument mounting bracket for wall or pipe mounting
- Panel mounting flange
- Valve manifolds (models IV3x, IV5x, see data sheet AC 09.23)
- Inductive contacts also in safety version (SN, S1N)

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.

Max. working pressure, overload safety

Scale ranges	Max. working pressure in bar (static pressure)		Overload safety in bar either side max.	
	Standard	Option	Standard	Option
0 ... 16 to 0 ... 40 mbar	2.5	6 ¹⁾	2.5	-
0 ... 60 to 0 ... 250 mbar	6	10	2.5	6
0 ... 400 mbar	25	40	4	40
0 ... 0.6 bar	25	40	6	40
0 ... 1 bar	25	40	10	40
0 ... 1.6 bar	25	40	16	40
0 ... 2.5 to 0 ... 25 bar	25	40	25	40

1) Accuracy class 2.5

Approvals

Logo	Description	Country
	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive ■ Pressure equipment directive ■ ATEX directive (option) 	European Union
	EAC (option) <ul style="list-style-type: none"> ■ EMC directive ■ Pressure equipment directive ■ Low voltage directive ■ Hazardous areas 	Eurasian Economic Community
	GOST (option) Metrology, measurement technology	Russia
	KazInMetr (option) Metrology, measurement technology	Kazakhstan
-	MTSCHS (option) Permission for commissioning	Kazakhstan
	BelGIM (option) Metrology, measurement technology	Belarus
	UkrSEPRO (option) Metrology, measurement technology	Ukraine
	DNOP (MakNII) (option) Hazardous areas	Ukraine
	Uzstandard (option) Metrology, measurement technology	Uzbekistan
-	CRN Safety (e.g. electr. safety, overpressure, ...)	Canada

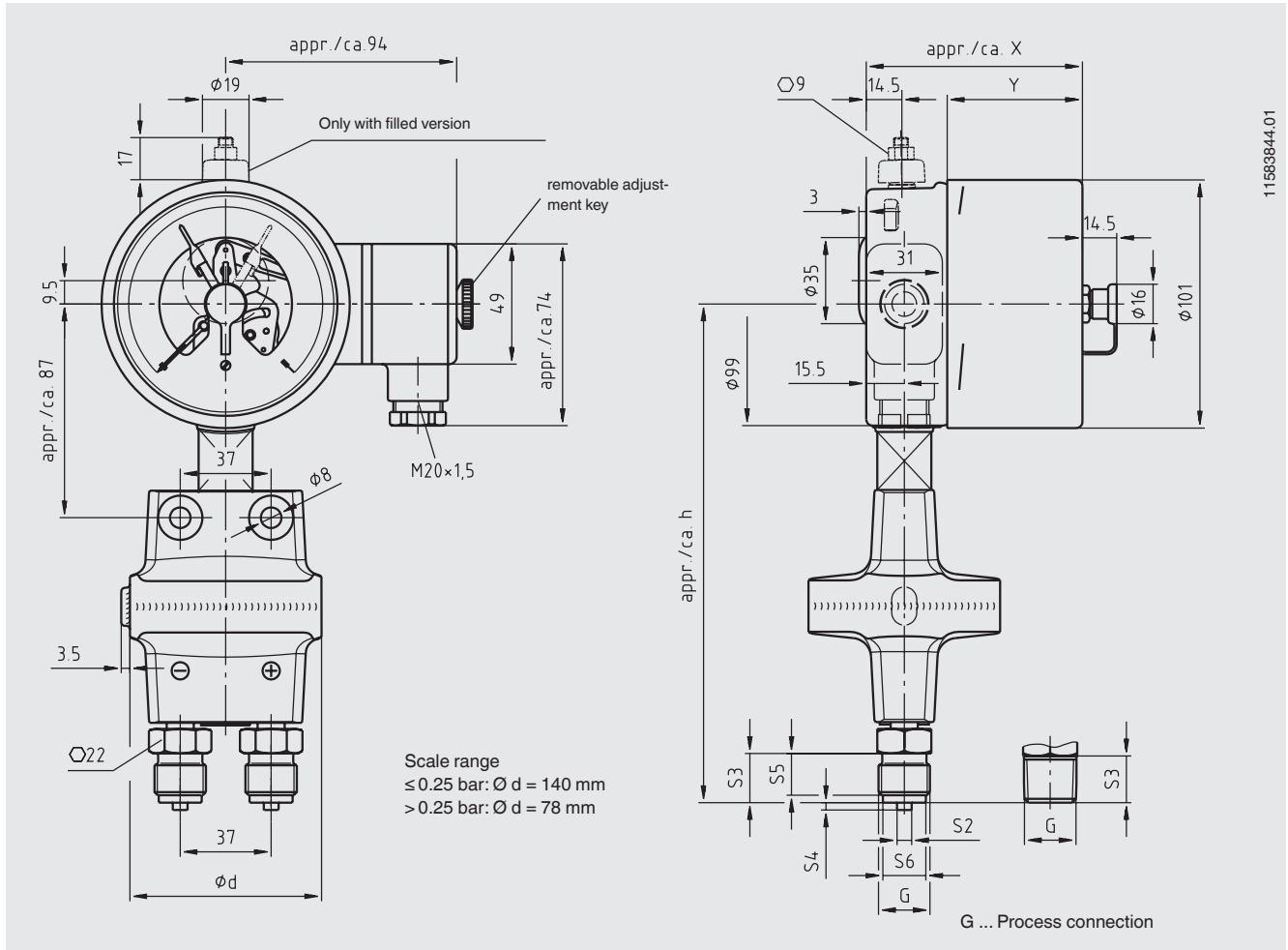
Certificates (option)

- 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 DPGS43.100 with switch contact model 821, 831 or 830 E

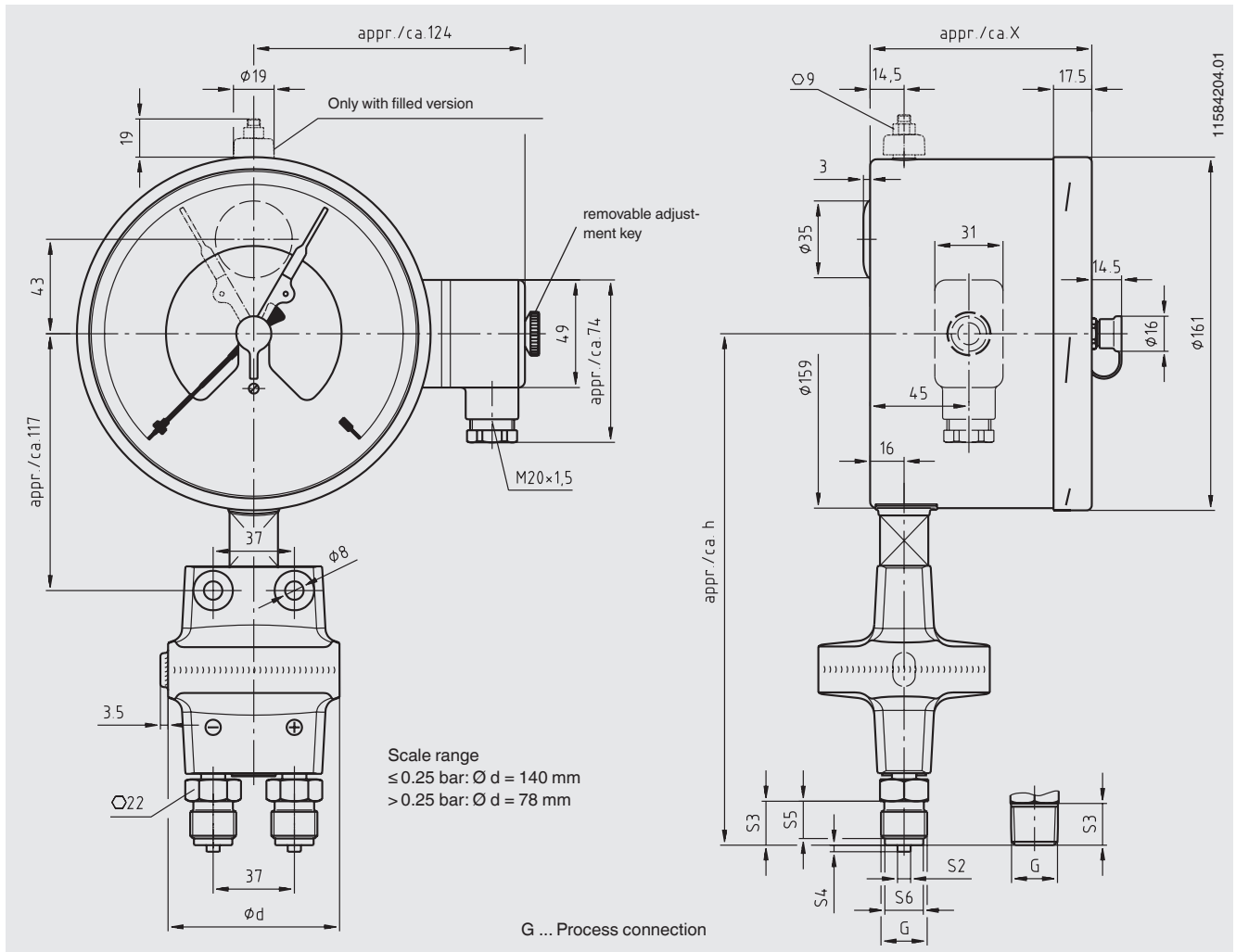


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Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Double (change-over) contact	113	80
Triple contact	96	63
Quadruple contact	113	80

Process connection	Dimensions in mm					
	$h \pm 1$	S2	S3	S4	S5	S6
G 1/2 B	203	6	20	3	17	17.5
1/2 NPT	201	-	19	-	-	-

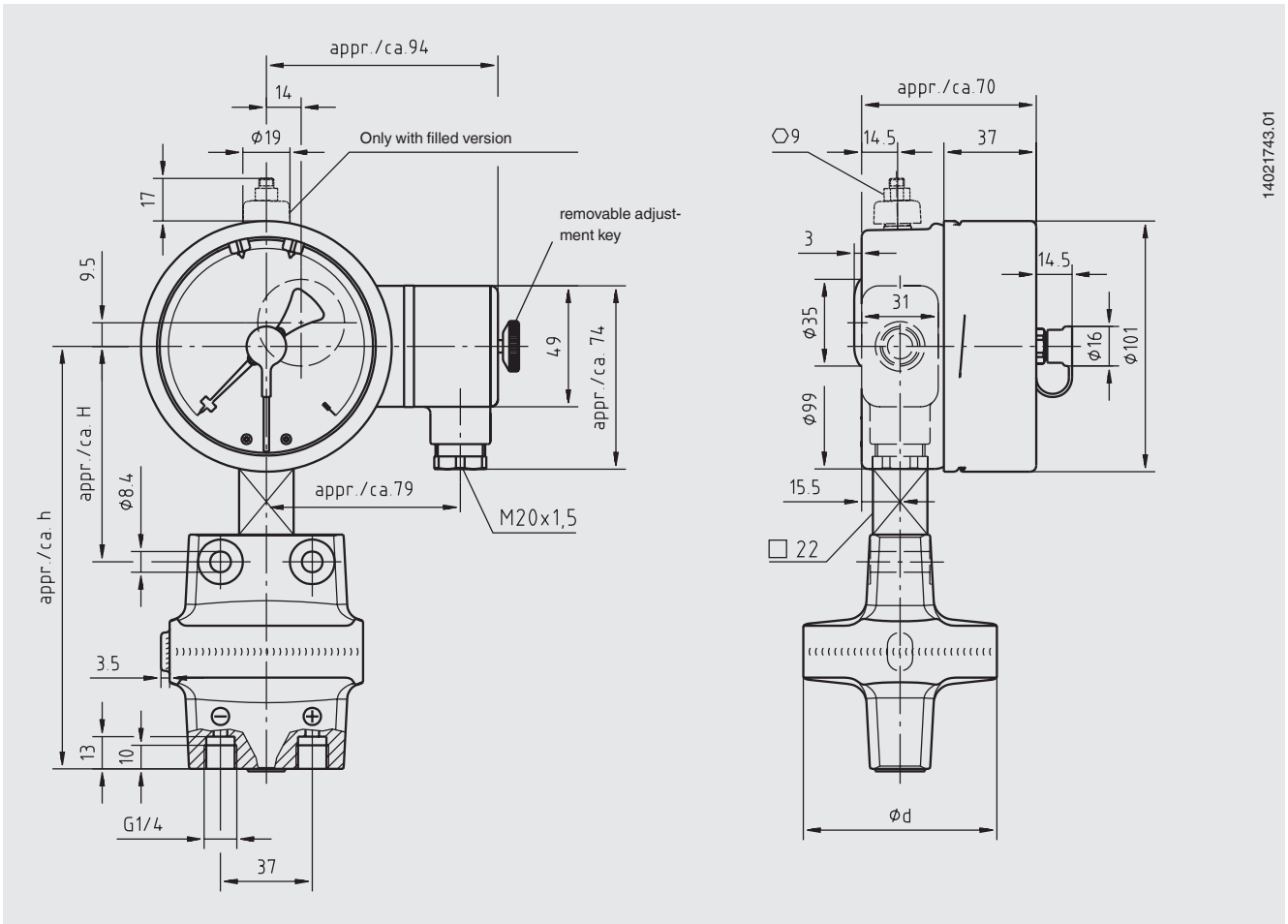
switchGAUGE model DPGS43.160 with switch contact model 821, 831 or 830 E



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

Process connection	Dimensions in mm					
	h ±1	S2	S3	S4	S5	S6
G ½ B	233	6	20	3	17	17.5
½ NPT	231	-	19	-	-	-

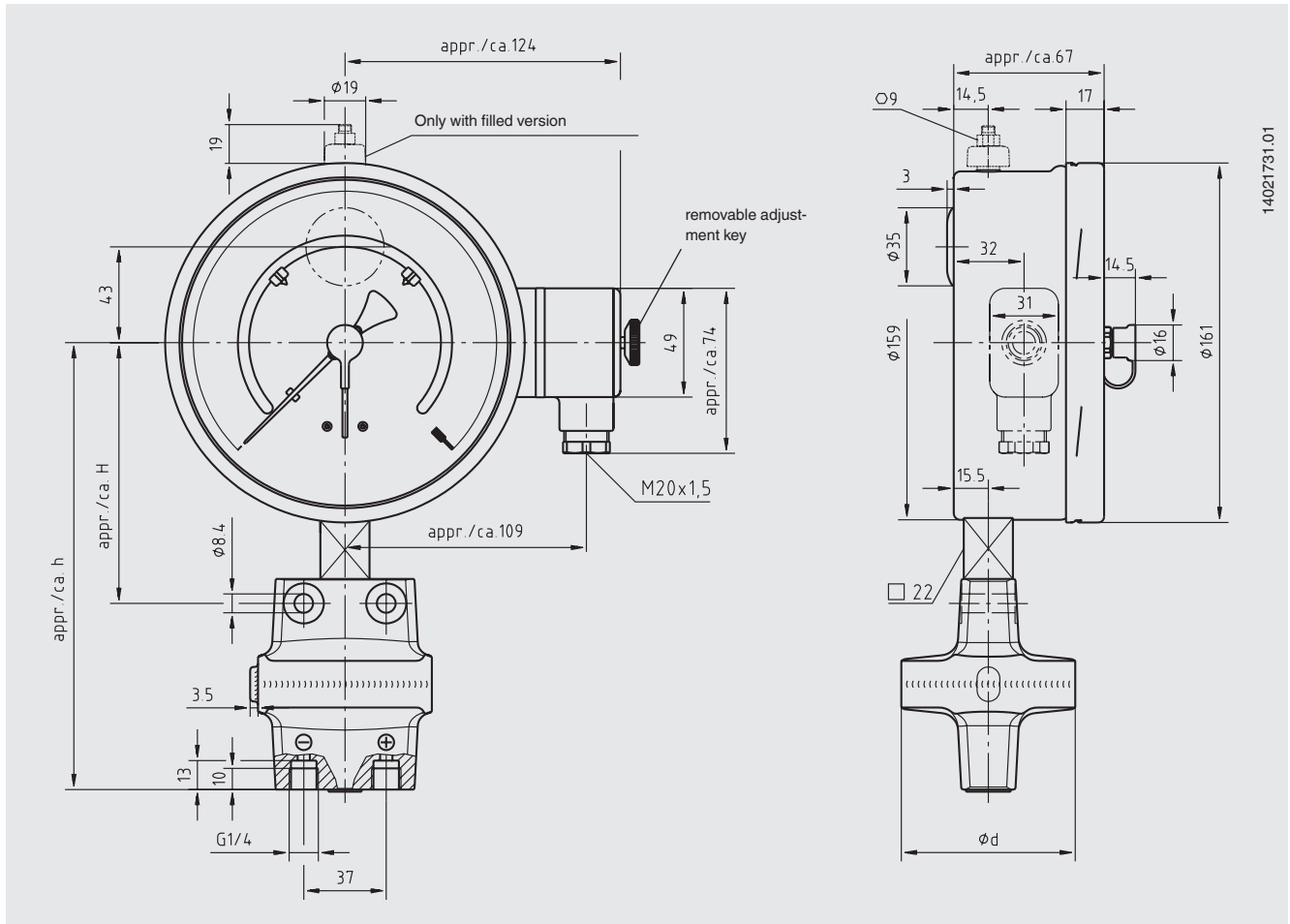
switchGAUGE model DPGS43.100 with switch contact model 851.3 or 851.33



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Scale range	Dimensions in mm		
	Ø d	h ±1	H ±1
≤ 0.25 bar	140	161	90
> 0.25 bar	78	171	87

switchGAUGE model DPGS43.160 with switch contact model 851.3 or 851.33



Scale range	Dimensions in mm		
	Ø d	h ±1	H ±1
≤ 0.25 bar	140	201	117
> 0.25 bar	78	190	120

Ordering information

Model / Nominal size / Type of contact and switching function / Scale range / Scale layout (linear pressure or square root incrementation) / Max. working pressure (static pressure) / Process connection / Connection location / Options

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