

Differential pressure gauge

For the process industry

Models 732.14, 762.14, high overload safety up to 40, 100 or 400 bar

WIKA data sheet PM 07.13



for further approvals
see page 4

Applications

- For measuring locations with a high differential pressure overload and/or high working pressures (static pressures), also in aggressive environments
- For gaseous, liquid, contaminated, viscous and aggressive media
- Pump monitoring and control
- Filter monitoring
- Level measurement on closed vessels

Special features

- Differential pressure measuring ranges from -1 ... +30 bar [-14.5 ... +435 psi] to 0 ... 40 bar [0 ... 580 psi]
- High working pressure (static pressure) and high overload safety, selectable up to 40 bar [580 psi], 100 bar [1,450 psi], 250 bar [3,625 psi] or 400 bar [5,800 psi]
- The transmission fluid in the measuring chamber dampens the indicator in case of high changes of the rate of pressure
- Model 732.14: Stainless steel version
Model 762.14: Version with special materials (Monel, Hastelloy)



Differential pressure gauge model 732.14

Description

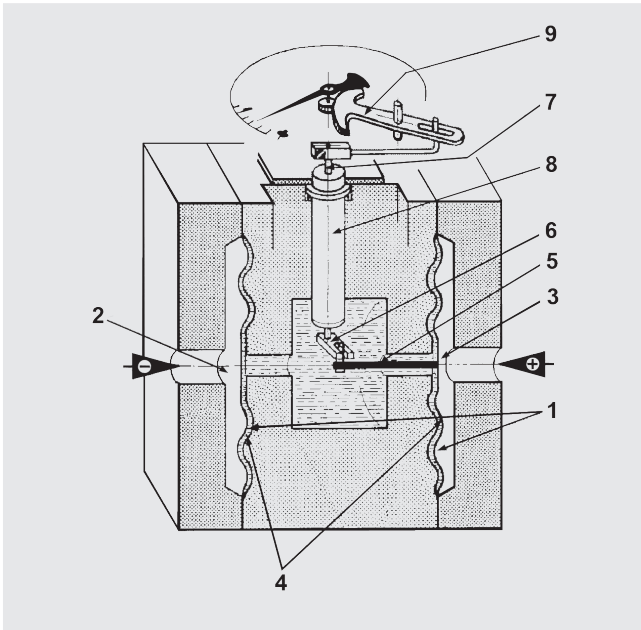
These differential pressure gauges are made of highly corrosion-resistant stainless steel. A high overload safety is achieved by the all-metal construction and the close-fitting design of the diaphragm measuring element.

The use of high-quality stainless steel materials and the robust design are geared to applications in the chemical and process engineering industries. Thus the instrument is suitable for liquid and gaseous media, also in aggressive environments.

The wetted parts for these instruments are also available in special materials such as Monel or Hastelloy.

Scale ranges of 0 ... 60 mbar bar to 0 ... 40 bar [0 ... 0.9 to 0 ... 580 psi] ensure the measuring ranges required for a wide variety of applications.

Illustration of the principle



Design and operating principle

- Pressures p_1 and p_2 act on the \oplus and \ominus side of the measuring chamber (4).
- The media chambers (1) and (2) are separated from the transmission fluid-filled measuring chamber by one diaphragm element each.
- Differential pressure across \oplus and \ominus pressure sides deflects the diaphragm (1) and displaces the transmission fluid.
- The deflection of the link (5) is converted through the use of a transmitting lever (6) into rotation, which is transferred over an axial shaft (7) to the movement (9).
- The torque pipe (8) seals, assuring a frictionless path from the measuring chamber.
- Overload safety is ensured by the all-metal construction and the close-fitting all-metal design.

Mounting according to affixed symbols, \oplus high pressure and \ominus low pressure

Specifications

Models 732.14 and 762.14	
Design	Differential pressure gauge per DIN 16003, highest overload safety either side, pressure ratings PN 40, 100, 250 or 400. The transmission fluid in the measuring chamber dampens the indicator in case of high changes of the rate of pressure. <ul style="list-style-type: none"> ■ Version with special materials (model 762.14) ■ Version with liquid filling (models 733.14 and 763.14) ■ Version with switch contacts ■ Version with output signal ■ Design per NACE MR 0175/ISO 15156-T3
Nominal size in mm	<ul style="list-style-type: none"> ■ 100 ■ 160
Accuracy class	
Model 732.14	1.6
Model 762.14	2.5
Scale ranges	
Instruments with PN 40 and 100	<ul style="list-style-type: none"> ■ 0 ... 60 mbar to 0 ... 160 mbar [0 ... 0.9 to 0 ... 2.3 psi] (measuring chamber □ 140) ■ 0 ... 0.25 bar to 0 ... 40 bar [0 ... 3.6 to 0 ... 580 psi] (measuring chamber □ 82)
Instruments with PN 250	<ul style="list-style-type: none"> ■ 0 ... 60 mbar to 0 ... 250 mbar [0 ... 0.9 to 0 ... 3.6 psi] (measuring chamber □ 140) ■ 0 ... 0.4 bar to 0 ... 40 bar [0 ... 5.8 to 0 ... 580 psi] (measuring chamber □ 82)
Instruments with PN 400	<ul style="list-style-type: none"> ■ 0 ... 0.4 bar to 0 ... 40 bar [0 ... 5.8 to 0 ... 580 psi] (measuring chamber □ 86)
Scale	<ul style="list-style-type: none"> ■ Single scale ■ Dual scale ■ Special scale (e.g. linear pressure or square root incrementation)
Zero point setting	<ul style="list-style-type: none"> ■ External setting, for instruments with liquid filling ■ Setting by means of adjustable pointer, for instruments without liquid filling
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value
Overload safety and max. working pressure (static pressure)	Either side max. 40, 100, 250 or 400 bar [580, 1,450, 3,625 or 5,800 psi]








Models 732.14 and 762.14	
Connection location	<ul style="list-style-type: none"> ■ Lower mount (radial) ■ Other connection location on request
Process connection	<ul style="list-style-type: none"> ■ 2 x G ½ female thread ■ 2 x G ½ B male thread ■ 2 x ½ NPT male thread
Permissible temperature	
Medium	<ul style="list-style-type: none"> ■ ≤ 100 °C ■ > 100 °C
Ambient	<ul style="list-style-type: none"> ■ -20 ... +60 °C [-4 ... +140 °F] ■ -40 ... +60 °C [-40 ... +140 °F] for versions with silicone oil filling
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C [68 °F]): max. ±0.5 %/10 K of full scale value
Transmission fluid in the measuring chamber	<ul style="list-style-type: none"> ■ Silicone oil ■ Glycerine Other transmission fluids on request
Materials (wetted)	
Media chambers with process connection	Stainless steel 1.4571
Pressure element	Model 732.14: <ul style="list-style-type: none"> ■ Stainless steel 316L for scale ranges ≤ 0.25 bar [3.6 psi] ■ Stainless steel 316L / Inconel for scale ranges > 0.25 bar [3.6 psi] Model 762.14: <ul style="list-style-type: none"> ■ Monel 2.4360 ■ Hastelloy C276 for design per NACE MR 0175/ISO 15156-T3
Venting of the media chambers ¹⁾	<ul style="list-style-type: none"> ■ Model 732.14: Stainless steel 316L ■ Model 762.14: Monel 2.4360
Sealings	FPM/FKM
Orifice flanges	<ul style="list-style-type: none"> ■ Model 732.14: Stainless steel 316L ■ Model 762.14: Monel 2.4360
Materials (non-wetted)	
Flange connecting screws	<ul style="list-style-type: none"> ■ PN 40 and 100: Stainless steel ■ PN 250 and 400: Steel, corrosion-protected
Measuring chamber	Chrome steel
Case	Stainless steel, safety level "S1" per EN 837: With blow-out device
Movement, bayonet ring	Stainless steel
Dial	Aluminium, white, black lettering
Instrument pointer	<ul style="list-style-type: none"> ■ Model 7x2.14: Adjustable pointer, aluminium, black ■ Model 7x3.14: Standard pointer, aluminium, black
Window	Laminated safety glass
Ingress protection per IEC/EN 60529	<ul style="list-style-type: none"> ■ IP54 ■ IP65 for instruments with liquid filling
Mounting	Mounting by means of: <ul style="list-style-type: none"> ■ Rigid measuring lines ■ Mounting holes at the back of the instrument

1) For small scale ranges, venting of the media chambers is always provided. For scale ranges ≥ 0.25 bar [3.63 psi], venting of the media chambers can be ordered.

Static pressure influence

Scale range	PN 40	PN 100	PN 250	PN 400
0.06 ... 0.16 bar [0.9 ... 2.3 psi]	±0.5 %/1 bar	±1.0 %/1 bar	±3.0 %/1 bar	-
0.25 bar [3.6 psi]	±0.5 %/1 bar	±1.5 %/1 bar	-	-
0.4 bar [5.8 psi]	±0.5 %/1 bar	±1.0 %/1 bar	±2.5 %/1 bar	-
0.6 ... 40 bar [8.7 ... 580 psi]	±0.5 %/1 bar	±1.0 %/1 bar	±1.5 %/1 bar	±2.5 %/1 bar

Approvals

Logo	Description	Country
 	EU declaration of conformity <ul style="list-style-type: none"> ■ Pressure equipment directive ■ ATEX directive (option) Ignition protection type "c", constructive safety	European Union
	EAC (option) 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
-	CPA (option) Metrology, measurement technology	China
-	CRN Safety (e.g. electr. safety, overpressure, ...)	Canada

Certificates (option)

- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy)

Approvals and certificates, see website

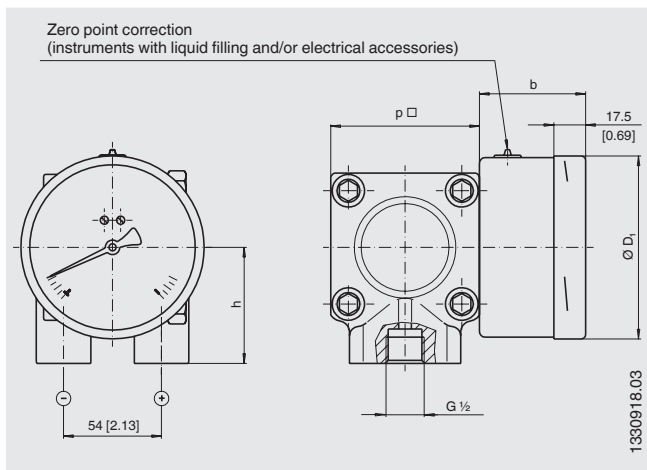
Accessories

- Panel mounting flange
- Instrument mounting bracket for wall or pipe mounting, painted steel or stainless steel
- Valve manifolds (models IV3x, IV5x, see data sheet AC 09.23)
- Differential process connection per DIN EN 61518

Dimensions in mm [in]

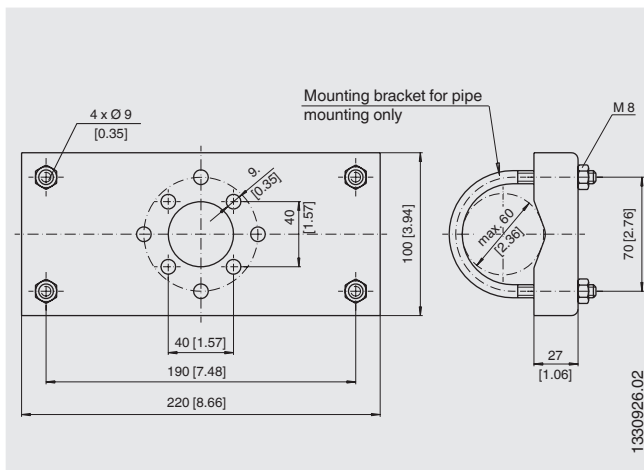
Standard version

Connection 2 x G 1/2 female thread, lower mount



Accessories

Instrument mounting bracket for wall or pipe mounting



Instruments with PN 40 and 100

NS	Scale range	Dimensions in mm [in]					Weight in kg	
		b	D ₁	h ±1	p □ PN 40	p □ PN 100	PN 40	PN 100
100	≤ 0.16 bar [2.3 psi]	58.5 [2.3]	101 [4.0]	86 [3.4]	140 [5.5]	140 [5.5]	12.1	12.1
100	≥ 0.25 bar [3.6 psi]	58.5 [2.3]	101 [4.0]	64 [2.5]	82 [3.2]	82 [3.2]	3.6	3.6
160	≤ 0.16 bar [2.3 psi]	65.5 [2.6]	161 [6.3]	86 [3.4]	140 [5.5]	140 [5.5]	12.5	12.5
160	≥ 0.25 bar [3.6 psi]	65.5 [2.6]	161 [6.3]	64 [2.5]	82 [3.2]	82 [3.2]	4.0	4.0

Instruments with PN 250 and 400

NS	Scale range	Dimensions in mm [in]					Weight in kg	
		b	D ₁	h ±1	p □ PN 250	p □ PN 400	PN 250	PN 400
100	≤ 0.25 bar [3.6 psi]	58.5 [2.3]	101 [4.0]	86 [3.4]	140 [5.5]	-	13.1	-
100	≥ 0.4 bar [5.8 psi]	58.5 [2.3]	101 [4.0]	64 [2.5]	82 [3.2]	86 [3.4]	3.9	4.5
160	≤ 0.25 bar [3.6 psi]	65.5 [2.6]	161 [6.3]	86 [3.4]	140 [5.5]	-	13.5	-
160	≥ 0.4 bar [5.8 psi]	65.5 [2.6]	161 [6.3]	64 [2.5]	82 [3.2]	86 [3.4]	4.3	4.9

Process connection per DIN 16003

Ordering information

Model / Nominal size / Scale range / Scale layout (linear pressure or square root incrementation) / Max. working pressure (static pressure) / Overload safety (one side or both sides to ... bar / Medium (liquid or gaseous, density ρ ...) / Medium temperature (constant ... °C, fluctuating from ... to ... °C / Connection location / Process connection / Options

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We reserve the right to make modifications to the specifications and materials.



Digital pressure gauge Model CPG500

WIKA data sheet CT 09.01



for further approvals see
page 3

Applications

- Calibration service companies and service industry
- Measurement and control laboratories
- Quality assurance
- Easy on-site calibration

Special features

- Measuring ranges from -1 ... +16 bar to 0 ... 1,000 bar (-14.5 ... 230 psi to 0 ... 14,500 psi)
- Accuracy: 0.25 % (incl. calibration certificate)
- Robust case with protective rubber cap
- Simple operation using four buttons
- Complete service cases incl. pressure generation available



Digital pressure gauge model CPG500

Description

General information

The model CPG500 digital pressure gauge enables the measurement and display of pressure values in a single instrument. The accuracy of digital measurement technology and the simplicity of an analogue gauge are combined in this instrument.

Accuracy

The CPG500 offers an accuracy of 0.25 % of span in eight pressure measuring ranges. Readings can be displayed in one of five standard units.

Sampling rate

With a measuring rate of 100 measurements per second, the CPG500 features a very high measuring rate. With this, fast pressure peaks and drops in pressure can be detected. The bar graph display and drag pointer function integrated into the display, as well as retrievable MIN/MAX peak values, enable effective analysis of the measuring point.

Features

In order to prolong the battery life, the CPG500 features an automatic switch-off function. With the ZERO function, the display value can be zeroed with the simple press of a button. An activatable filter function stabilises pressures which fluctuate strongly, and enables the pressure value to be read easily.

Complete test and service cases

For maintenance and service applications, various case systems are available. Service cases with pneumatic or hydraulic pressure generation are available.

Certified accuracy

For each digital pressure gauge, the accuracy is certified by a factory calibration certificate which accompanies the instrument. On request, a DKD/DAkkS calibration certificate will be provided for this instrument.

Specifications

Model CPG500







Sensor technology				
Measuring range	-1 ... +16 bar			
Resolution	0.001			
Measuring range	-1 ... +20 bar	-1 ... +40 bar	0 ... 60 bar	0 ... 100 bar
Resolution	0.01			
Measuring range	0 ... 350 bar	0 ... 700 bar	0 ... 1,000 bar	
Resolution	0.1			
Measuring range	-14,5 ... 230 psi			
Resolution	0.001			
Measuring range	-14,5 ... 290 psi	-14,5 ... 580 psi	0 ... 870 psi	0 ... 1,540 psi
Resolution	0.01			
Measuring range	0 ... 5,000 psi	0 ... 10,000 psi	0 ... 14,500 psi	
Resolution	0.1			
Overload safety	3 times; < 25 bar (< 360 psi) 2 times; > 25 bar ... ≤ 600 bar (> 360 psi ... ≤ 8,700 psi) 1.5 times; > 600 bar (> 8,700 psi)			
Pressure connection	G ¼ up to a max. 40 bar (580 psi) G ½ from > 40 bar (> 580 psi)			
Accuracy	0.25 % FS ±1 digit			

Base instrument	
Indicator	
Display	4 ½ digit, bar graph with drag pointer function, illuminated
Digit height	15 mm (0.59 in)
Rotatable case	> 270 °
Dimensions	50 x 34 mm (1.97 x 1.34 in)
Pressure units	bar, psi, MPa, kPa, kg/cm ²
Functions	
Measuring rate	10 ms
Memory	MIN/MAX
Autopower	Selectable
Zero function	Zero point adjustment
Reset	Delete MIN/MAX value
Material	
Wetted parts ¹⁾	Stainless steel with sealing NBR
Case	Die-cast zinc with TPE protective rubber cap
Voltage supply	
Power supply	2 x 1.5 V AA batteries
Battery life	approx. 1,500 hrs.
Battery status display	Icon in display
Permissible ambient conditions	
Operating temperature	-10 ... +50 °C (14 ... 122 °F)
Medium temperature	-20 ... +80 °C (-4 ... +176 °F)
Storage temperature	-20 ... +60 °C (-4 ... +140 °F)
Relative humidity	< 85 % r. h. (non-condensing)

1) Only for use with safe media per directive 67/548/EEC (article 2, paragraph 2).

Base instrument	
Case	
Dimensions	79 x 79 x 33 mm (3.11 x 3.11 x 1.30 in)
Ingress protection	IP67
Weight	approx. 400 g (0.882 lbs)

Approvals

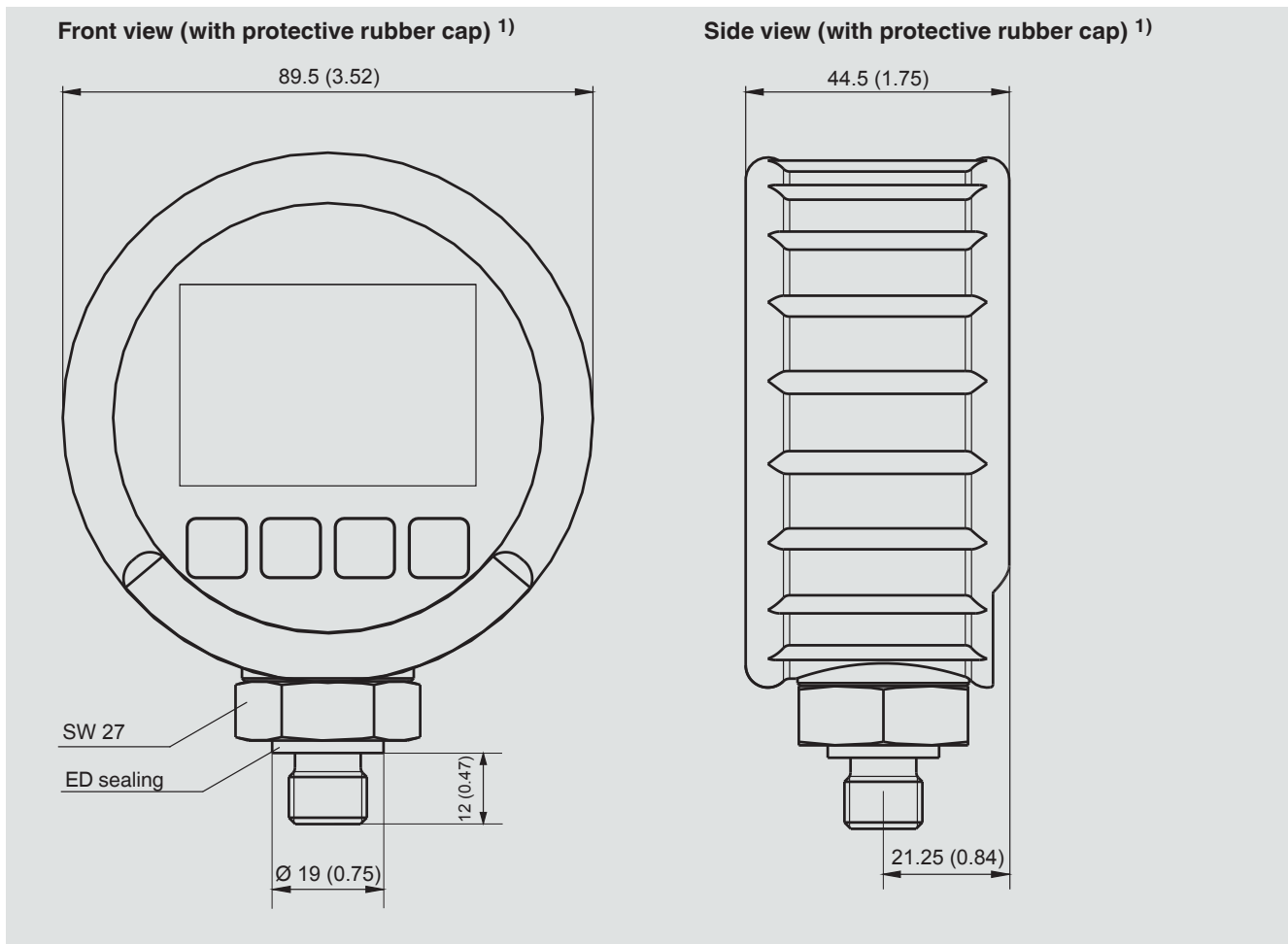
Logo	Description	Country
	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive EN 61326 emission (group 1, class B) and interference immunity (industrial application) ■ Pressure equipment directive ■ RoHS conformity 	European Union
	EAC <ul style="list-style-type: none"> ■ EMC directive ■ Pressure equipment directive 	Eurasian Economic Community
-	MTSCHS Permission for commissioning	Kazakhstan
	KazInMetr Metrology, measurement technology	Kazakhstan
	BelGIM Metrology, measurement technology	Belarus
	UkrSEPRO Metrology, measurement technology	Ukraine
	Uzstandard Metrology, measurement technology	Uzbekistan

Certificates

Certificate	
Calibration	Standard: 3.1 calibration certificate per DIN EN 10204 Option: DKD/DAkkS calibration certificate
Recommended recalibration interval	1 year (dependent on conditions of use)

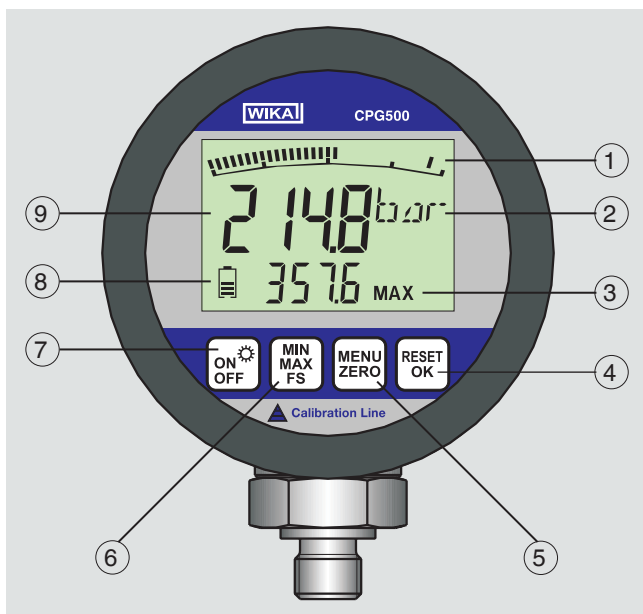
Approvals and certificates, see website

Dimensions in mm (in)



1) Drawing with G ¼ pressure connection

Front foil



- ① Bar graph indicates the current pressure graphically
- ② Currently set unit
- ③ Display of the measuring range or the MIN/MAX value
- ④ Clear the MIN/MAX values
Confirmation function in the menu
- ⑤ Hold down to access the menu
Zero point adjustment carried out by simply pressing
- ⑥ Change display value to MIN/MAX or FS (Full Scale)
- ⑦ With a single press, switch the digital pressure gauge on/off
Press for a while in order to switch the backlighting on
- ⑧ Battery status
- ⑨ Pressure indication

Complete test and service cases



Basic version incl. pneumatic pressure generation

Calibration case with model CPG500 digital pressure gauge and model CPP40 hand test pump, for pressures -0.95 ... +40 bar (13.8 ... 580 psi), consisting of:

- Plastic service case with foam insert
- Digital pressure gauge model CPG500
- Pneumatic hand test pump model CPP40; -0.95 ... +40 bar (13.8 ... 580 psi)

Available measuring ranges see specifications



Basic version incl. hydraulic pressure generation

Calibration case with model CPG500 digital pressure gauge and model CPP700-H or CPP1000-H hand test pumps, for pressures 0 ... 700 bar (0 ... 10,000 psi) or 0 ... 1,000 bar (0 ... 14,500 psi), consisting of:

- Plastic service case with foam insert
- Digital pressure gauge model CPG500
- Hydraulic hand test pump model CPP700-H or CPP1000-H, 0 ... 700 bar (0 ... 10,000 psi) or 0 ... 1,000 bar (0 ... 14,500 psi)

Available measuring ranges see specifications

Recommended pressure generation

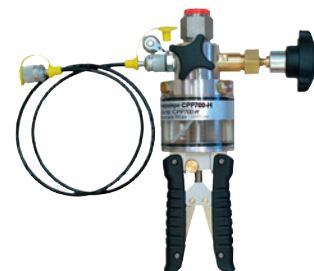
Pneumatic hand test pump model CPP40

Pressure range: -0.95 ... +40 bar (13.8 ... 580 psi)



Model CPP700-H or model CPP1000-H hydraulic hand test pumps

Pressure range: 0 ... 700 bar or 0 ... 1,000 bar
(0 ... 10,000 psi or 0 ... 14,500 psi)



Further specifications see data sheet CT 91.07

Scope of delivery

- Digital pressure gauge model CPG500
- Operating instructions
- 3.1 calibration certificate per DIN EN 10204
- 2 x AA batteries
- Protective rubber cap for case

Option

- DKD/DAkkS certified accuracy

Accessories

Connection adapters

- Various pressure adapters

Pressure generation

- Pneumatic test pumps
- Hydraulic test pumps

Test case

- Various calibration cases incl. pressure generation

Ordering information

Model / Unit / Measuring range / Process connection / Test pump / Transport case / Type of certificate / Further approvals / Additional ordering information

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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 9

switchGAUGE

Applications

- Control and regulation of processes
- 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
- Instruments with switch 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 circuits 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 and electronic contacts are available. Inductive contacts can be used in hazardous areas. For triggering programmable logic controllers (PLC), electronic contacts and reed switches can be used.

Specifications

Models DPGS43.100, DPGS43.160	
Version	Process connections lower mount or lateral (option), highly corrosion-resistant solid metal design, measuring cell protected against unauthorised access. Overload resistance per EN 837-3
Nominal size in mm	<ul style="list-style-type: none"> ■ 100 ■ 160
Accuracy class	1.6 Option: 1.0 on request
Scale ranges	0 ... 16 mbar to 0 ... 250 mbar 0 ... 400 mbar to 0 ... 40 bar other units (e.g. psi, kPa) available or all other equivalent vacuum or combined pressure and vacuum ranges
Scale	Single scale Option: <ul style="list-style-type: none"> ■ Dual scale ■ Scale layout (e.g. linear pressure or square root incrementation)
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
Overpressure safety and max. working pressure (static pressure)	see table on page 3
Connection location	Lower mount (radial) Option: lateral (right, left, front or back)
Process connection	<ul style="list-style-type: none"> ■ G ¼ B female ■ G ½ B male ■ ½ NPT male Other process connections via female or male threads on request
Permissible temperature ¹⁾	
Medium	-20 ... +100 °C Option: Medium temperature > 100 °C on request
Ambient	-20 ... +60 °C (with window from polycarbonate max. 80 °C)
Temperature effect	When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. ±0.5 %/10 K of full scale value
Case	<ul style="list-style-type: none"> ■ Version S1 per EN 837: With blow-out device in case back ■ Safety version S3 per EN 837: With solid baffle wall (Solidfront) and blow-out back
Case filling	Without Option: With case filling
Venting of the media chamber	With scale ranges ≤ 0.25 bar Option: With scale ranges ≥ 0.4 bar

¹⁾ For hazardous areas, the permissible temperature of the contact model 831 will exclusively apply (see page 5). These must not be exceeded at the instrument either (for details see operating instructions). If necessary, measures for cooling (e.g. syphon, instrumentation valve, etc.) have to be taken.

Models DPGS43.100, DPGS43.160

Wetted materials

Media chamber with process connection	Stainless steel 316Ti (1.4571) Lower mount 2 x G ¼ female
Pressure elements	≤ 0.25 bar: Stainless steel 316L > 0.25 bar: NiCr alloy (Inconel)
Venting of the media chamber	Stainless steel 316Ti (1.4571) for scale ranges ≤ 0.25 bar Option: with scale ranges ≥ 0.4 bar
Bellows	Stainless steel 316Ti (1.4571)

Non-wetted materials

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

Ingress protection per IEC/EN 60529	IP54 ¹⁾ Option: IP65 with liquid filling
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Installation	according to affixed symbols: ⊕ high pressure, ⊖ low pressure
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Mounting	<ul style="list-style-type: none"> ■ Rigid measuring lines ■ Mounting holes in measuring flange Option: <ul style="list-style-type: none"> ■ Panel mounting flange ■ Instrument mounting bracket for wall or pipe mounting
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Electrical connection	Cable socket PA 6, black Per VDE 0110 insulation group C/250 V Cable gland M20 x 1.5 Strain relief 6 screw terminals + PE for conductor cross-section 2.5 mm ² For dimensions see page 10 others on request
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1) Ingress protection IP54 with safety version and lower back mount.

Overload safety and max. working pressure

Scale ranges	Overload safety in bar either side max.		Max. working pressure in bar (static pressure)	
	Standard	Option	Standard	Option
0 ... 16 to 0 ... 40 mbar	2.5	-	2.5	6 ²⁾
0 ... 60 to 0 ... 250 mbar	2.5	6	6	10
0 ... 400 mbar	4	40	25	40
0 ... 0.6 bar	6	40	25	40
0 ... 1 bar	10	40	25	40
0 ... 1.6 bar	16	40	25	40
0 ... 2.5 to 0 ... 25 bar	25	40	25	40

2) Accuracy class 2.5

Options

- Zero point adjustment appliance
- Restrictor in the pressure port

Switch contacts

Magnetic snap-action contact model 821

- No control unit and no supply voltage required
- Direct switching up to 250 V, 1 A
- Up to 4 switch contacts per measuring instrument

Inductive contact model 831

- Suitable for use in hazardous areas with corresponding control unit (model 904.xx)
- Long service life due to non-contact sensor
- Low influence on the indication accuracy
- Fail-safe switching at high switching frequency
- Insensitive to corrosion
- Also available in safety version
- 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

Other versions

- Contact model 821 with separate circuits
- Contact model 821 as change-over contact (break or make simultaneously at the set point)
- Contact model 821 with cable break monitoring (parallel resistance 47 k Ω and 100 k Ω)
- Contact materials for contact model 821: Platinum-iridium alloy and gold-silver alloy
- Contacts fixed, without contact adjustment lock
- Contact adjustment lock leaded
- Contact adjustment key fixed
- Connector (instead of cable socket)

Reed switch model 851

- No control unit and no supply voltage required
- Direct switching up to 250 V, 1 A
- For direct triggering of a programmable logic controller (PLC)
- Free from wear as without contact
- NS 100: Up to two change-over contacts per measuring instrument;
NS 160: Up to one change-over contact per measuring instrument (switching voltages AC < 50 V and DC < 75 V, switch contact not adjustable from outside)

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

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

Specifications for instruments with magnetic snap-action contact model 821

Measuring span	Nominal size	Max. number of contacts	Switching current range I	Switch version ¹⁾
≤ 1.0 bar	100, 160	1	0.02 ... 0.3 A	L
> 1.0 bar	100, 160	1	0.02 ... 0.6 A	S
≤ 1.6 bar	100, 160	2	0.02 ... 0.3 A	L
> 1.6 bar	100, 160	2	0.02 ... 0.6 A	S
≤ 4.0 bar	100	4	0.02 ... 0.3 A	L
> 4.0 bar	100	4	0.02 ... 0.6 A	S
≤ 2.5 bar	160	4	0.02 ... 0.3 A	L
> 2.5 bar	160	4	0.02 ... 0.6 A	S

1) Design of the contact coil: Version "L" = light-weight, version "S" = heavy

The recommended setting range of the contacts is 25 ... 75 % of the scale (0 ... 100 % on request).

Contact material (standard): Silver-nickel, gold-plated

Setting the contacts

The recommended minimum clearance between 2 contacts is 20 % of the measuring span.

The switch hysteresis is 2 ... 5 % (typical).

Characteristics	Unfilled instruments		Filled instruments	
	Resistive load		Resistive load	
	Switch version "S"	Switch version "L"	Switch version "S"	Switch version "L"
Rated operating voltage U_{eff}	≤ 250 V		≤ 250 V	
Rated operating current				
Switch-on current	≤ 1.0 A	≤ 0.5 A	≤ 1.0 A	≤ 0.5 A
Switch-off current	≤ 1.0 A	≤ 0.5 A	≤ 1.0 A	≤ 0.5 A
Continuous current	≤ 0.6 A	≤ 0.3 A	≤ 0.6 A	≤ 0.3 A
Switching power	≤ 30 W / ≤ 50 VA		≤ 20 W / ≤ 20 VA	

Recommended contact load with resistive and inductive loads

Operating voltage	Unfilled instruments			Filled instruments		
	Resistive load		Inductive load	Resistive load		Inductive load
	Direct current	Alter-nating current	$\cos \varphi > 0.7$	Direct current	Alter-nating current	$\cos \varphi > 0.7$
DC 220 V / AC 230 V	100 mA	120 mA	65 mA	65 mA	90 mA	40 mA
DC 110 V / AC 110 V	200 mA	240 mA	130 mA	130 mA	180 mA	85 mA
DC 48 V / AC 48 V	300 mA	450 mA	200 mA	190 mA	330 mA	130 mA
DC 24 V / AC 24 V	400 mA	600 mA	250 mA	250 mA	450 mA	150 mA

Specifications for instruments with inductive contact model 831

Measuring span	Nominal size	Case version	Max. number of contacts
0.6 bar	100, 160	S1	1
0.6 bar	160	S3	1
1.0 bar	100, 160	S1	2
1.0 bar	100	S3	1
1.0 bar	160	S3	2
≥ 1.6 bar	100, 160	S1, S3	3

Legend:

S1 = Standard version, with blow-out device (per EN 837)

S3 = Safety version, Solidfront (per EN 837)

The recommended setting range of the contacts is 10 ... 90 % of the scale (0 ... 100 % on request).

Setting of contacts to identical set point

Up to 2 contacts can be set to an identical set point. For a version with 3 contacts this is not possible. The left (no. 1) or right (no. 3) contact may not be set to the same set point as the other 2 contacts. The required displacement is approx. 30°, optionally to the right or to the left.

Available contact versions

- 831-N
- 831-SN, safety version ¹⁾
- 831-S1N, safety version ¹⁾, inverted signal

¹⁾ only operate with a corresponding isolating amplifier (model 904.3x)

Permissible temperature ranges

T6	T5 ... T1	T135°C
-20 ... +60 °C	-20 ... +70 °C	-20 ... +70 °C

For further information on hazardous areas, see operating instructions.

Associated isolating amplifiers and control units

Model	Version	Ex version
904.28 KFA6 - SR2 - Ex1.W	1 contact	yes
904.29 KFA6 - SR2 - Ex2.W	2 contacts	yes
904.30 KHA6 - SH - Ex1	1 contact	yes - safety equipment
904.33 KFD2 - SH - Ex1	1 contact	yes - safety equipment
904.25 MSR 010-I	1 contact	no
904.26 MSR 020-I	2 contacts	no
904.27 MSR 011-I	Two-point control	no

Specifications for instruments with electronic contact model 830 E

Measuring span	Nominal size	Case version	Max. number of contacts
0.6 bar	100, 160	S1	1
0.6 bar	160	S3	1
1.0 bar	100, 160	S1	2
1.0 bar	100	S3	1
1.0 bar	160	S3	2
≥ 1.6 bar	100, 160	S1, S3	2

Legend:

S1 = Standard version, with blow-out device (per EN 837)

S3 = Safety version, Solidfront (per EN 837)

The recommended setting range of the contacts is 10 ... 90 % of the scale (0 ... 100 % on request).

Setting of contacts to identical set point

Up to 2 contacts can be set to an identical set point. For a version with 3 contacts this is not possible. The left (no. 1) or right (no. 3) contact may not be set to the same set point as the other 2 contacts. The required displacement is approx. 30°, optionally to the right or to the left.

Characteristics	
Contact version	Normally open, normally closed
Type of output	PNP transistor
Operating voltage	DC 10 ... 30 V
Residual ripple	max. 10 %
No-load current	≤ 10 mA
Switching current	≤ 100 mA
Residual current	≤ 100 µA
Voltage drop (with $I_{max.}$)	≤ 0.7 V
Reverse polarity protection	Conditional U_B (the switched output 3 or 4 must never be set directly to minus)
Anti-inductive protection	1 kV, 0.1 ms, 1 kΩ
Oscillator frequency	approx. 1,000 kHz
EMC	per EN 60947-5-2

Specifications for instruments with reed switch model 851










Measuring span	Nominal size	Max. number of contacts
≥ 16 mbar	100, 160	2

Switching power P_{\max} 60 W / 60 VA
 Switching current 1 A

Characteristics	
Contact version	Change-over contact
Type of contact	Bistable
Max. switching voltage	AC/DC 250 V
Min. switching voltage	Not required
Switching current	AC/DC 1 A
Min. switching current	Not required
Transport current	AC/DC 2 A
cos φ	1
Switching power	60 W/ VA
Contact resistance (static)	100 mΩ
Insulation resistance	10 ⁹ Ω
Breakdown voltage	DC 1,000 V
Switching time incl. contact chatter	4.5 ms
Contact material	Rhodium
Switch hysteresis	3 ... 5 %

- The limit values presented here must not be exceeded.
- When using two contacts, these cannot be set to the same point. Depending on the switching function, a minimum clearance of 15 ... 30° is required.
- The setting range of the contacts is 10 ... 90 % of the scale.
- The switching function can be set in manufacturing such that the reed contact will actuate exactly at the required switch point. For this, we need the switching direction to be specified on order.

Approvals

Logo	Description	Country
	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive ■ Pressure equipment directive ■ ATEX directive (option) ¹⁾ Hazardous areas <ul style="list-style-type: none"> - Ex ia Gas [II 2G Ex ia IIC T6/T5/T4 Gb] Dust [II 2D Ex ia IIIB T85°C/T100°C/T135°C Db] 	European Union
	IECEx (option) ¹⁾ Hazardous areas <ul style="list-style-type: none"> - Ex ia Gas [Ex ia IIC T6/T5/T4 Gb] Dust [Ex ia IIIB T85°C/T100°C/T135°C Db] 	International
	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

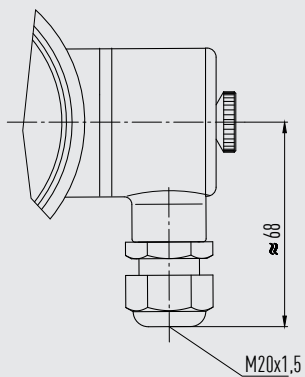
Accessories

- Instrument mounting bracket for wall or pipe mounting
- Panel mounting flange, polished stainless steel
- Instrument mounting bracket for wall or pipe mounting, lacquered steel or stainless steel
- Sealings (model 910.17, see data sheet AC 09.08)
- Valves (models IV3x/IV5x, see data sheet AC 09.23)
- Diaphragm seal

Dimensions in mm

Cable socket

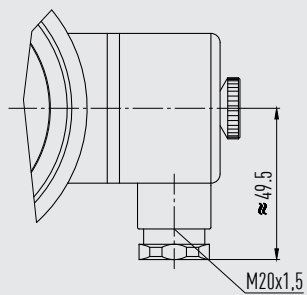
Contact models: 821 and 851



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Only use cable with a diameter of 5 ... 10 mm

Contact models: 831 and 830 E

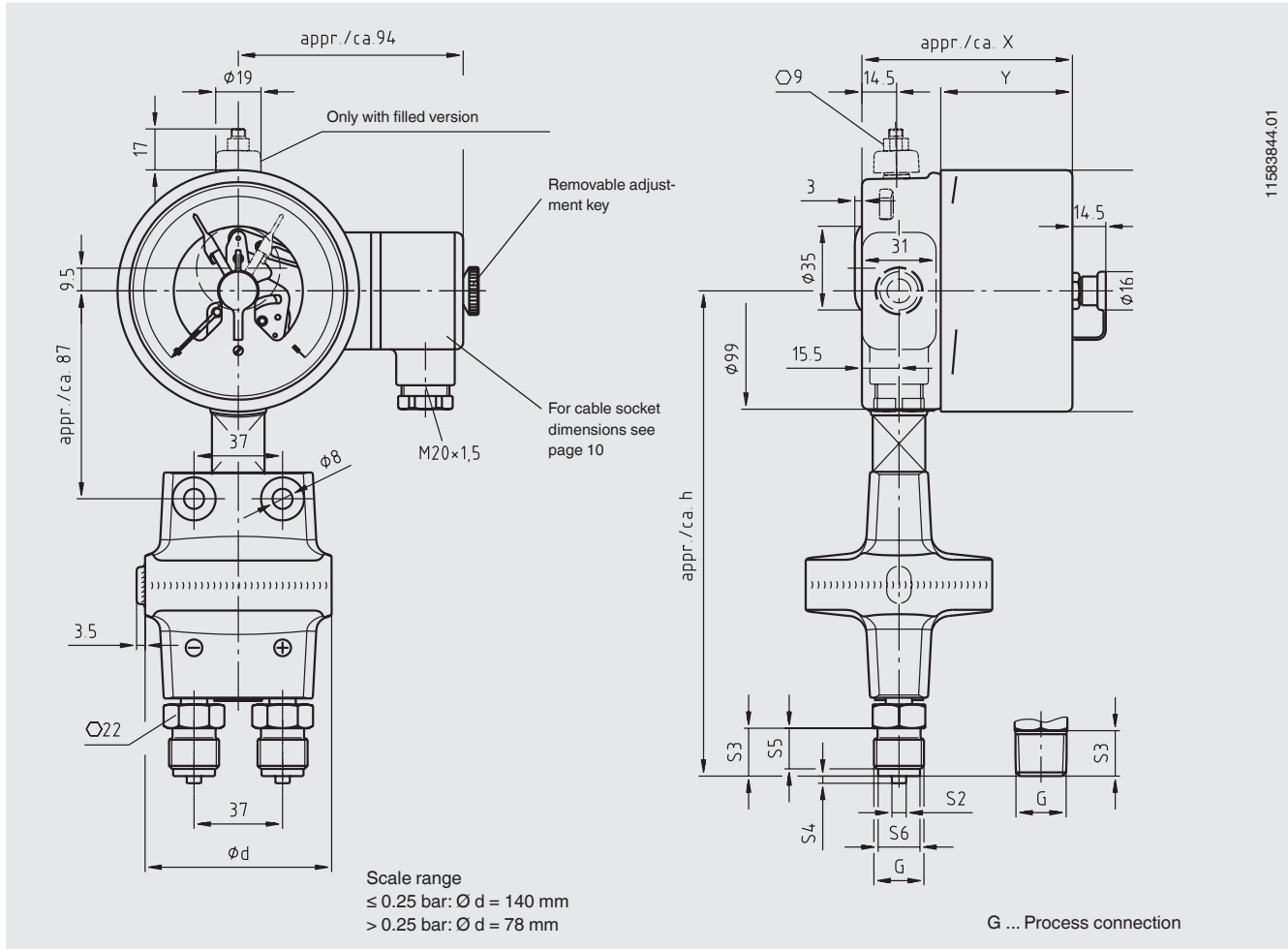


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Only use cable with a diameter of 7 ... 13 mm

Dimensions in mm

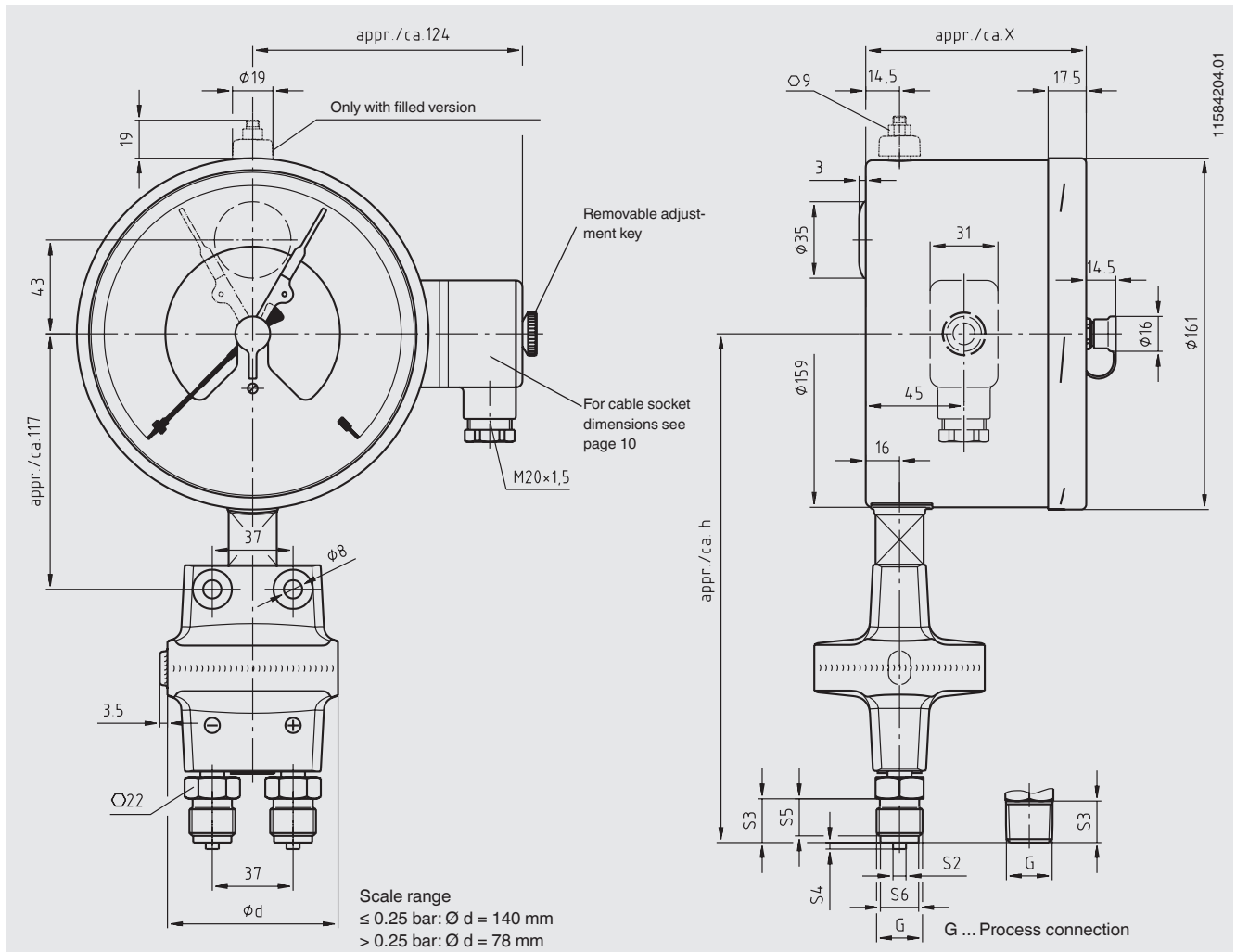
switchGAUGE model DPGS43.100 with switch contact model 821, 831 or 830 E



Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Double (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	-	-	-

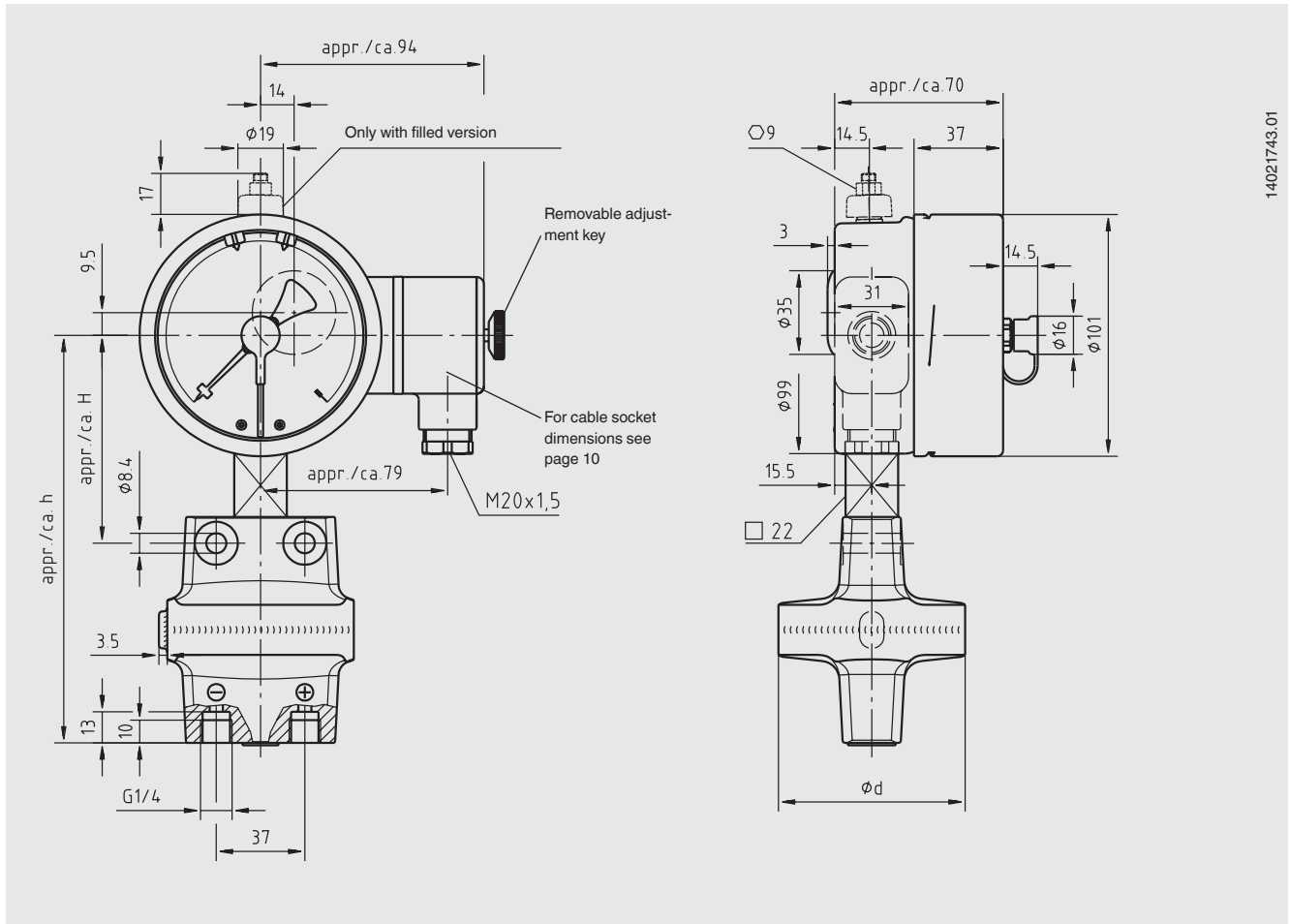
switchGAUGE model DPGS43.160 with switch contact model 821, 831 or 830 E



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					
	$h \pm 1$	S2	S3	S4	S5	S6
G 1/2 B	233	6	20	3	17	17.5
1/2 NPT	231	-	19	-	-	-

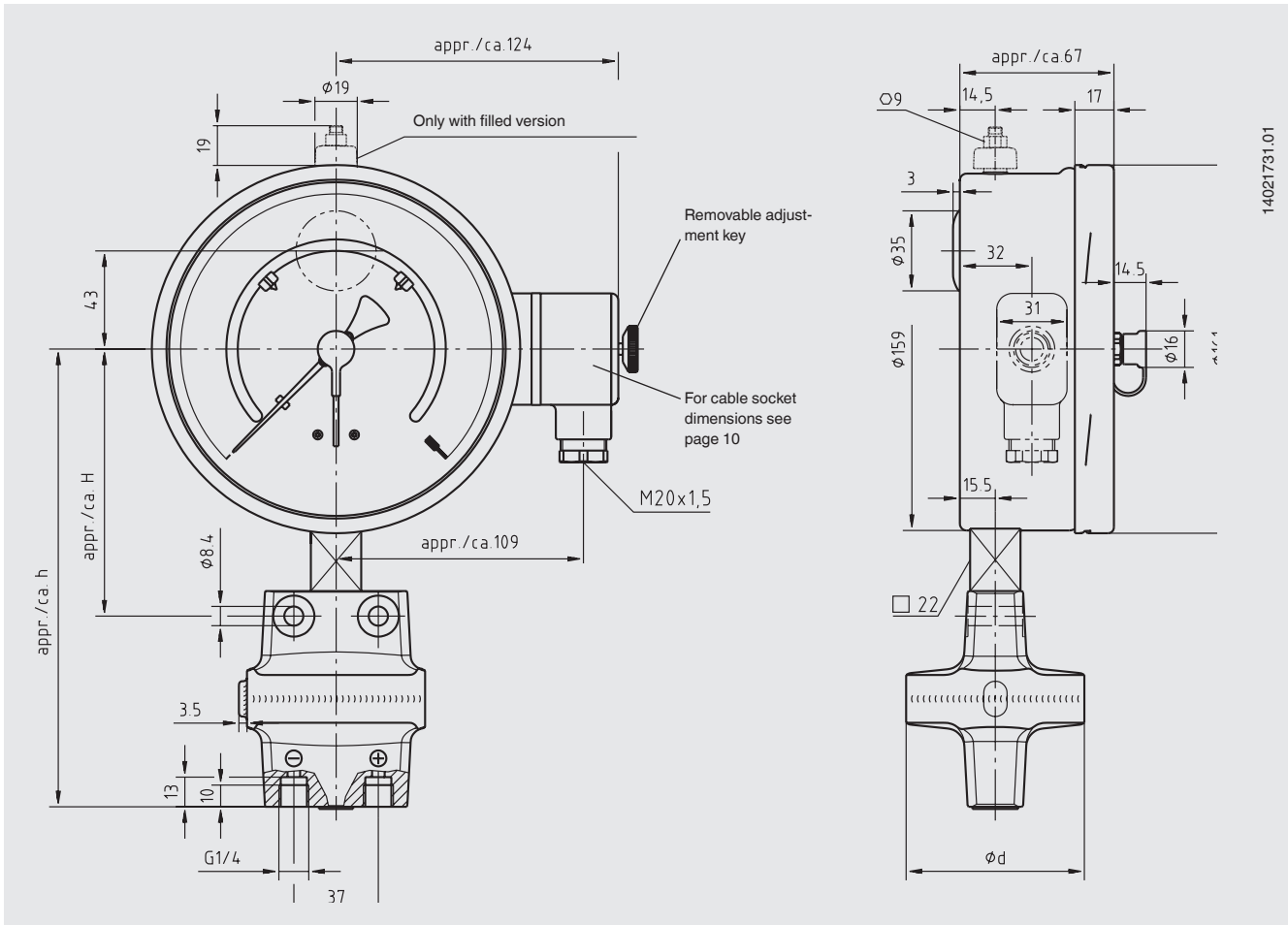
switchGAUGE model DPGS43.100 with switch contact model 851.3 or 851.33



14021743.01

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 / Contact version / Scale range / Scale version (linear pressure or square root incrementation) / Max. working pressure (static pressure) / Process connection / Connection location / Options

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 We reserve the right to make modifications to the specifications and materials.



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Bourdon tube pressure gauge with switch contacts

For the process industry, NS 100 and 160

Models PGS23.100 and PGS23.160

WIKA data sheet PV 22.02



for further approvals see
page 8

switchGAUGE

Applications

- Control and regulation of processes
- Monitoring of plants and switching of circuits
- For gaseous and liquid aggressive media that are not highly viscous or crystallising, also in aggressive environments
- Chemical industry, petrochemical industry, power plants, mining, on-/offshore, environmental technology, machine building and general plant construction

Special features

- Up to 4 switch contacts per instrument
- Also available with case filling for high dynamic pressure loads or vibrations
- Instruments with inductive contacts for use in hazardous areas
- Instruments with contacts for PLC applications
- Instruments optionally available in safety version S3 per EN 837

Description

Wherever the process pressure has to be indicated locally and, at the same time, circuits need to be switched, the model PGS23.1x0 switchGAUGE finds its use.

Switch contacts (electrical switch 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.



Model PGS23.100 with switch contact model 831.1

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 837-1) 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 and electronic contacts are available. Inductive contacts can be used in hazardous areas. For triggering programmable logic controllers (PLC), electronic contacts and reed switches can be used.

Specifications

Models PGS23.100 and PGS23.160	
Nominal size in mm	<ul style="list-style-type: none"> ■ 100 ■ 160
Accuracy class	1.0
Scale ranges	0 ... 0.6 bar [0 ... 8.7 psi] to 0 ... 1,600 bar [0 ... 23,206 psi] other units (e.g. psi, kPa) available or all other equivalent vacuum or combined pressure and vacuum ranges
Scale	Single scale Option: Dual scale
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value
Short time	1.3 x full scale value
Connection location	<ul style="list-style-type: none"> ■ Lower mount (radial) ■ Lower back mount
Process connection	<ul style="list-style-type: none"> ■ G ½ B ■ G ¼ B ■ G ⅜ B ■ ½ NPT ■ M20 x 1.5 others on request
Permissible temperature ¹⁾	
Medium	+200 °C [+392 °F] max. with unfilled instruments +100 °C [+212 °F] max. with filled instruments
Ambient	-20 ... +60 °C [-4 ... 140 °F]
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
Case	<ul style="list-style-type: none"> ■ Version S1 per EN 837: With blow-out device in case back ■ Safety version S3 per EN837: With solid baffle wall (Solidfront) and blow-out back
Case filling	Without Option: With case filling
Wetted materials	
Process connection, pressure element	Stainless steel 316L, option: Monel (model PGS26)
Non-wetted materials	
Case, movement, bayonet ring	Stainless steel
Dial	Aluminium, white, black lettering
Instrument pointer	Aluminium, black
Set pointer	Aluminium, red
Window	Laminated safety glass
Ingress protection per IEC/EN 60529	IP65 ²⁾ Option: IP66
Electrical connection	Cable socket PA 6, black Per VDE 0110 insulation group C/250 V Cable gland M20 x 1.5 Strain relief 6 screw terminals + PE for conductor cross-section 2.5 mm ² For dimensions see page 9 others on request

1) For hazardous areas, the permissible temperatures of the contact model 831 shall apply exclusively (see page 5). These must not be exceeded at the instrument either (for details see operating instructions). If necessary, measures for cooling (e.g. syphon, instrumentation valve, etc.) have to be taken.

2) Ingress protection IP54 with safety version case and connection location lower back mount.

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

- Suitable for use in hazardous areas with corresponding control unit (model 904.xx)
- Long service life due to non-contact sensor
- Low influence on the indication accuracy
- Fail-safe switching at high switching frequency
- Insensitive to corrosion
- Also available in safety version
- 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
- For direct triggering of a programmable logic controller (PLC)
- Free from wear as without contact
- NS 100: Maximum two change-over contacts per measuring instrument
- NS 160: Maximum one change-over contact per measuring instrument (switching voltages AC < 50 V and DC < 75 V, switch contact not adjustable from outside)

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

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

Other versions

- Contact model 821 with separate circuits
- Contact model 821 as change-over contact (break or make simultaneously at the set point)
- Contact model 821 with cable break monitoring (parallel resistance 47 k Ω and 100 k Ω)
- Contact materials for contact model 821: Platinum-iridium alloy and gold-silver alloy
- Contacts fixed, without contact adjustment lock
- Contact adjustment lock leaded
- Contact adjustment key fixed
- Connector (instead of cable socket)

Specifications for instruments with magnetic snap-action contact model 821

Measuring span	Nominal size	Max. number of contacts	Switching current range I	Switch version ¹⁾
≤ 1.0 bar	100, 160	1	0.02 ... 0.3 A	L
> 1.0 bar	100, 160	1	0.02 ... 0.6 A	S
≤ 1.6 bar	100, 160	2	0.02 ... 0.3 A	L
> 1.6 bar	100, 160	2	0.02 ... 0.6 A	S
≤ 4.0 bar	100	3 or 4	0.02 ... 0.3 A	L
> 4.0 bar	100	3 or 4	0.02 ... 0.6 A	S
≤ 2.5 bar	160	3 or 4	0.02 ... 0.3 A	L
> 2.5 bar	160	3 or 4	0.02 ... 0.6 A	S

1) Design of the contact coil: Version "L" = light-weight, version "S" = heavy

The recommended setting range of the contacts is 25 ... 75 % of the scale (0 ... 100 % on request).

Contact material (standard): Silver-nickel, gold-plated

Setting the contacts

The recommended minimum clearance between 2 contacts is 20 % of the measuring span.

The switch hysteresis is 2 ... 5 % (typical).

Characteristics	Unfilled instruments		Filled instruments	
	Resistive load		Resistive load	
	Switch version "S"	Switch version "L"	Switch version "S"	Switch version "L"
Rated operating voltage U_{eff}	≤ 250 V		≤ 250 V	
Rated operating current				
Switch-on current	≤ 1.0 A	≤ 0.5 A	≤ 1.0 A	≤ 0.5 A
Switch-off current	≤ 1.0 A	≤ 0.5 A	≤ 1.0 A	≤ 0.5 A
Continuous current	≤ 0.6 A	≤ 0.3 A	≤ 0.6 A	≤ 0.3 A
Switching power	≤ 30 W / ≤ 50 VA		≤ 20 W / ≤ 20 VA	

Recommended contact load with resistive and inductive loads

Operating voltage	Unfilled instruments			Filled instruments		
	Resistive load		Inductive load	Resistive load		Inductive load
	Direct current	Alternating current	cos φ > 0.7	Direct current	Alternating current	cos φ > 0.7
DC 220 V / AC 230 V	100 mA	120 mA	65 mA	65 mA	90 mA	40 mA
DC 110 V / AC 110 V	200 mA	240 mA	130 mA	130 mA	180 mA	85 mA
DC 48 V / AC 48 V	300 mA	450 mA	200 mA	190 mA	330 mA	130 mA
DC 24 V / AC 24 V	400 mA	600 mA	250 mA	250 mA	450 mA	150 mA

Specifications for instruments with inductive contact model 831

Measuring span	Nominal size	Case version	Max. number of contacts
0.6 bar	100, 160	S1	1
0.6 bar	160	S3	1
1.0 bar	100, 160	S1	2
1.0 bar	100	S3	1
1.0 bar	160	S3	2
≥ 1.6 bar	100, 160	S1, S3	3

Legend:

S1 = Standard version, with blow-out device (per EN 837)

S3 = Safety version, Solidfront (per EN 837)

The recommended setting range of the contacts is 10 ... 90 % of the scale (0 ... 100 % on request).

Setting of contacts to identical set point

Up to 2 contacts can be set to an identical set point. For a version with 3 contacts this is not possible. The left (no. 1) or right (no. 3) contact may not be set to the same set point as the other 2 contacts. The required displacement is approx. 30°, optionally to the right or to the left.

Available contact versions

- 831-N
- 831-SN, safety version ¹⁾
- 831-S1N, safety version ¹⁾, inverted signal

¹⁾ only operate with a corresponding isolating amplifier (model 904.3x)

Permissible temperature ranges

T6	T5 ... T1	T135 °C
-20 ... +60 °C	-20 ... +70 °C	-20 ... +70 °C

For further information on hazardous areas, see operating instructions.

Associated isolating amplifiers and control units

Model	Version	Ex version
904.28 KFA6 - SR2 - Ex1.W	1 contact	yes
904.29 KFA6 - SR2 - Ex2.W	2 contacts	yes
904.30 KHA6 - SH - Ex1	1 contact	yes - safety equipment
904.33 KFD2 - SH - Ex1	1 contact	yes - safety equipment
904.25 MSR 010-I	1 contact	no
904.26 MSR 020-I	2 contacts	no
904.27 MSR 011-I	Two-point control	no

Specifications for instruments with electronic contact model 830 E

Measuring span	Nominal size	Case version	Max. number of contacts
0.6 bar	100, 160	S1	1
0.6 bar	160	S3	1
1.0 bar	100, 160	S1	2
1.0 bar	100	S3	1
1.0 bar	160	S3	2
≥ 1.6 bar	100, 160	S1, S3	2

Legend:

S1 = Standard version, with blow-out device (per EN 837)

S3 = Safety version, Solidfront (per EN 837)

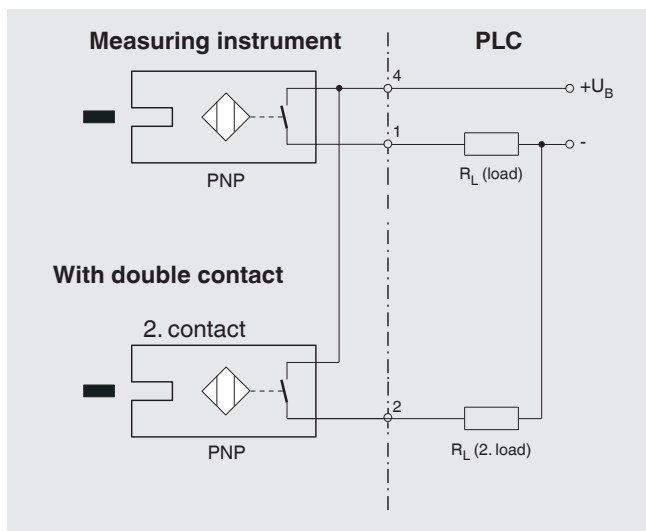
The recommended setting range of the contacts is 10 ... 90 % of the scale (0 ... 100 % on request).

Setting of contacts to identical set point

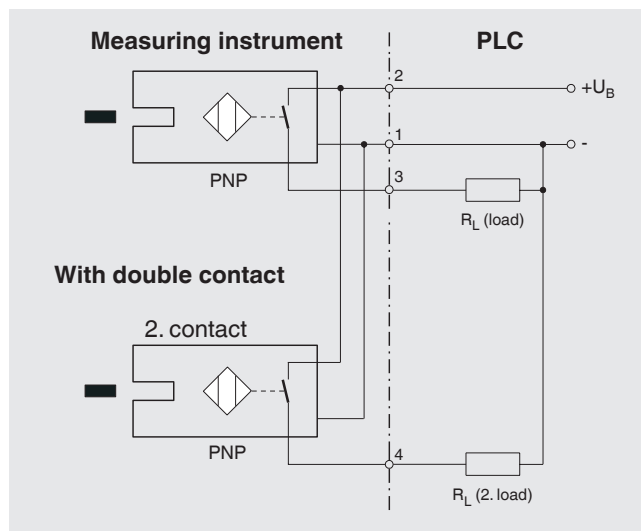
Up to 2 contacts can be set to an identical set point. For a version with 3 contacts this is not possible. The left (no. 1) or right (no. 3) contact may not be set to the same set point as the other 2 contacts. The required displacement is approx. 30°, optionally to the right or to the left.

Characteristics	
Contact version	Normally open, normally closed
Type of output	PNP transistor
Operating voltage	DC 10 ... 30 V
Residual ripple	max. 10 %
No-load current	≤ 10 mA
Switching current	≤ 100 mA
Residual current	≤ 100 μA
Voltage drop (with $I_{max.}$)	≤ 0.7 V
Reverse polarity protection	Conditional U_B (the switched output 3 or 4 must never be set directly to minus)
Anti-inductive protection	1 kV, 0.1 ms, 1 kΩ
Oscillator frequency	approx. 1,000 kHz
EMC	per EN 60947-5-2

2-wire system (standard)



3-wire system



Specifications for instruments with reed switch model 851

Measuring span	Nominal size	Case version	Max. number of contacts
≥ 1.0 bar	100, 160	S1, S3 ¹⁾	1
≥ 1.6 bar	100, 160	S1, S3 ¹⁾	2

1) Case version S3 with NS 100

Legend:

S1 = Standard version, with blow-out device (per EN 837)

S3 = Safety version, Solidfront (per EN 837)





Switching power P_{\max} 60 W / 60 VA

Switching current 1 A

Characteristics	
Contact version	Change-over contact
Type of contact	Bistable
Max. switching voltage	AC/DC 250 V
Min. switching voltage	Not required
Switching current	AC/DC 1 A
Min. switching current	Not required
Transport current	AC/DC 2 A
cos φ	1
Switching power	60 W / VA
Contact resistance (static)	100 m Ω
Insulation resistance	10 ⁹ Ω
Breakdown voltage	DC 1,000 V
Switching time incl. contact chatter	4.5 ms
Contact material	Rhodium
Switch hysteresis	3 ... 5 %

- The limit values presented here must not be exceeded.
- When using two contacts, these cannot be set to the same point. Depending on the switching function, a minimum clearance of 15 ... 30° is required.
- The setting range of the contacts is 10 ... 90 % of the scale.
- The switching function can be set in manufacturing such that the reed contact will actuate exactly at the required switch point. For this, we need the switching direction to be specified on order.

Approvals

Logo	Description	Country
 	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive ■ Pressure equipment directive ■ Low voltage directive ■ RoHS directive ■ ATEX directive (option) ¹⁾ Hazardous areas - Ex ia Gas [II 2G Ex ia IIC T6/T5/T4 Gb] Dust [II 2D Ex ia IIIB T135°C Db]	European Union
 	IECEx (option) ¹⁾ Hazardous areas - Ex ia Gas [Ex ia IIC T6/T5/T4 Gb] Dust [Ex ia IIIB T135°C Db]	International
 	EAC (option) <ul style="list-style-type: none"> ■ EMC directive ■ Pressure equipment directive ■ Low voltage directive ■ Hazardous areas ¹⁾ 	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
-	CRN Safety (e.g. electr. safety, overpressure, ...)	Canada

1) Only for instruments with inductive contact model 831

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

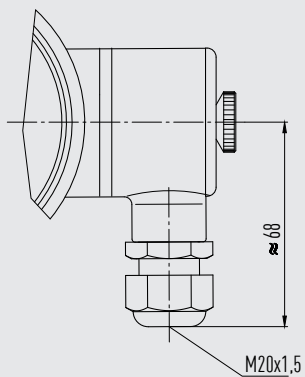
Accessories

- Panel mounting flange, polished stainless steel
- Surface mounting flange, stainless steel
- Sealings (model 910.17, see data sheet AC 09.08)
- Valves (models IV20/IV21, see data sheet AC 09.19, and models IV10/IV11, see data sheet AC 09.22)
- Syphons (model 910.15, see data sheet AC 09.06)
- Overpressure protector (model 910.13, see data sheet AC 09.04)
- Cooling element (model 910.32, see data sheet AC 09.21)
- Diaphragm seal

Dimensions in mm

Cable socket

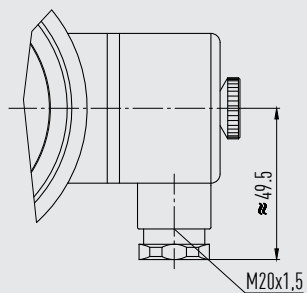
Contact models: 821 and 851



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Only use cable with a diameter of 5 ... 10 mm

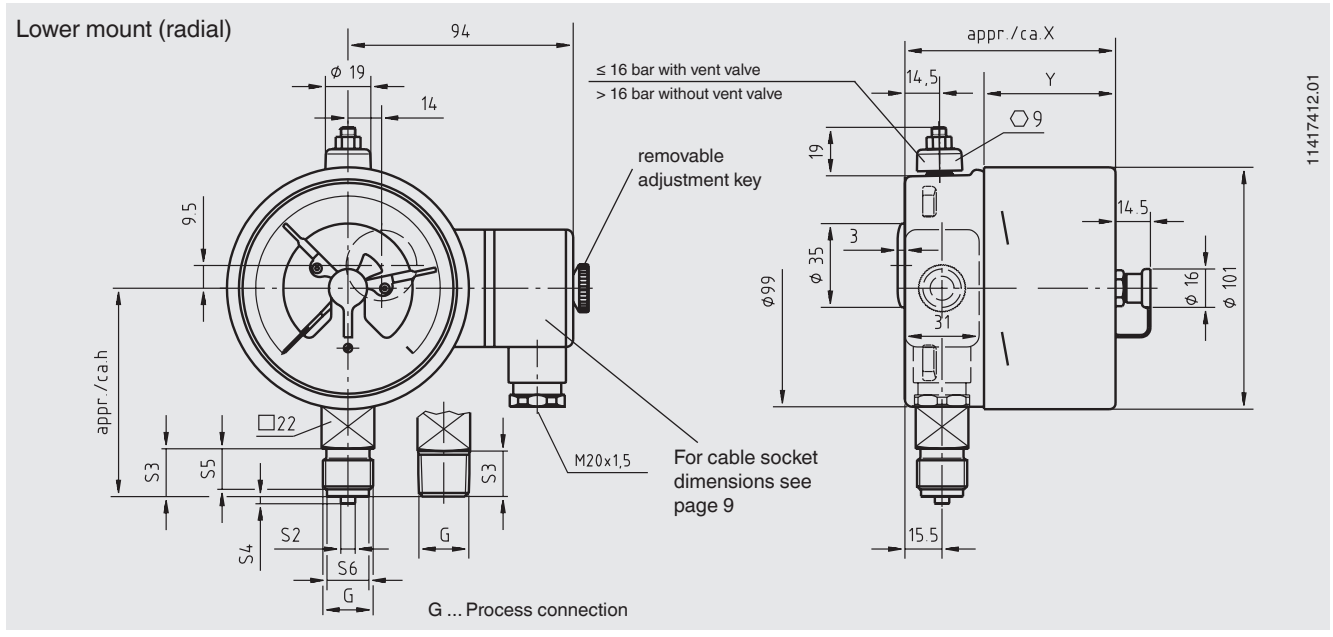
Contact models: 831 und 830 E



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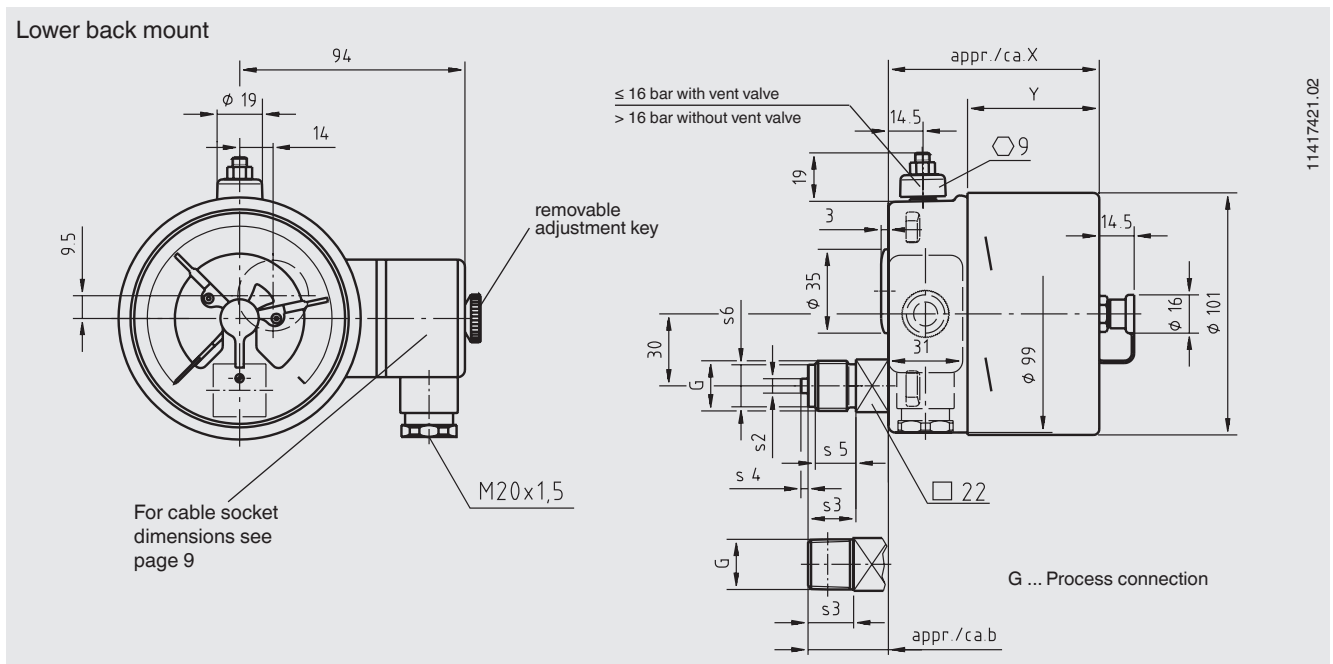
Only use cable with a diameter of 7 ... 13 mm

switchGAUGE model PGS23.100 with switch contact model 821, 831 or 830 E



Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Double (change-over) contact	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	87	6	20	3	17	17.5
G ¼ B	80	5	13	2	11	9.5
G ⅜ B	83	5.5	16	3	13	13
½ NPT	86	-	19	-	-	-

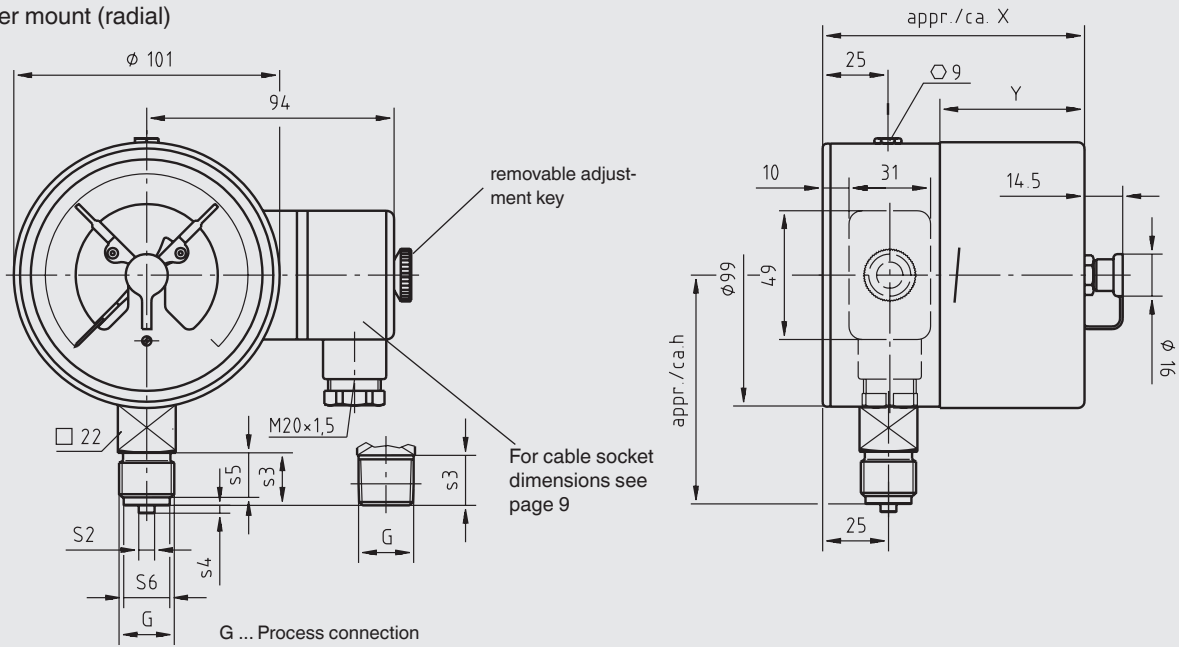


Type of contact	Dimensions in mm	
	X	Y
Single or double contact	88	55
Double (change-over) contact	113	80
Triple contact	96	63
Quadruple contact	113	80

Process connection	Dimensions in mm					
	b	S2	S3	S4	S5	S6
G ½ B	33.5	6	20	3	17	17.5
G ¼ B	26.5	5	13	2	11	9.5
G ⅜ B	29.5	5.5	16	3	14	13
½ NPT	32.5	-	19	-	-	-

switchGAUGE model PGS23.100 (safety version) with switch contact model 821, 831 or 830 E

Lower mount (radial)

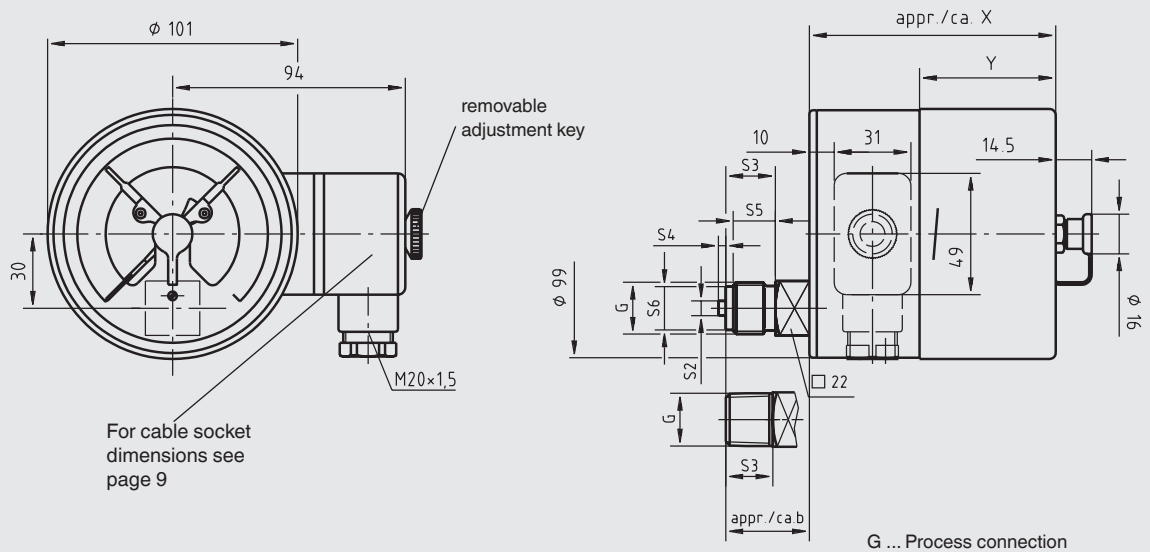


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Type of contact	Dimensions in mm	
	X	Y
Single or double contact	97	55
Double (change-over) contact	122	80
Triple contact	105	63
Quadruple contact	122	80

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	14	13
1/2 NPT	86	-	19	-	-	-

Lower back mount

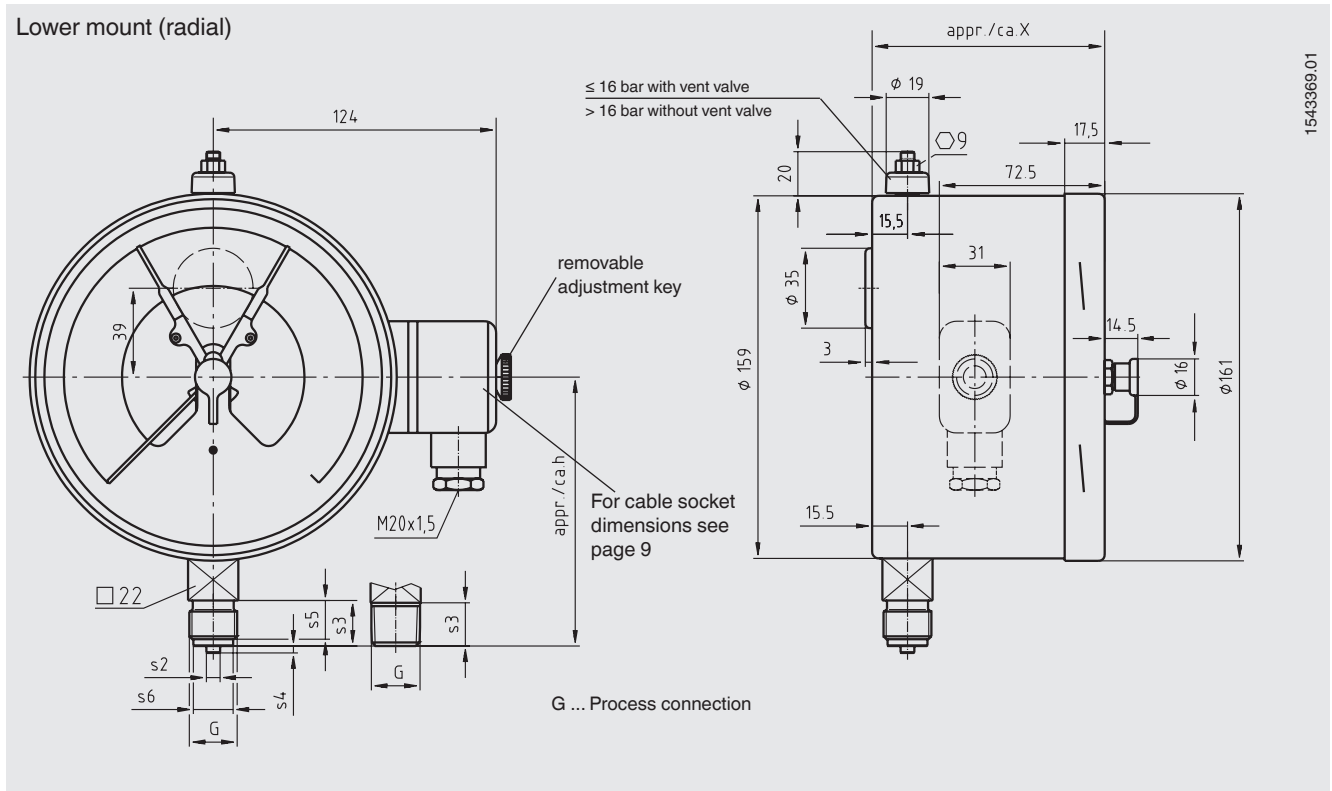


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Type of contact	Dimensions in mm	
	X	Y
Single or double contact	97	55
Double (change-over) contact	122	80
Triple contact	105	63

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 PGS23.160 with switch contact model 821, 831 or 830 E

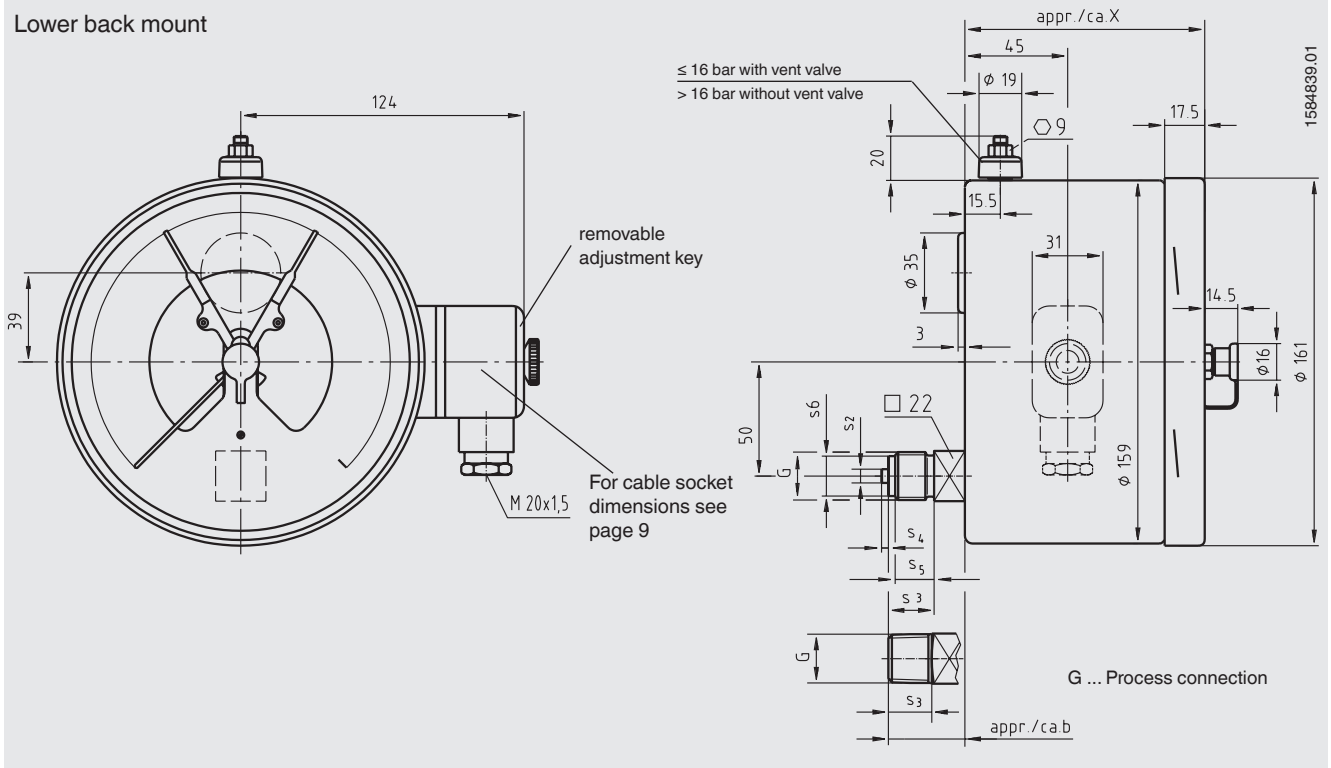


Type of contact	Dimensions in mm
	X
Single, double or triple contact	102 ¹⁾
Double (change-over) contact, quadruple contact	116 ¹⁾

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

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

Lower back mount

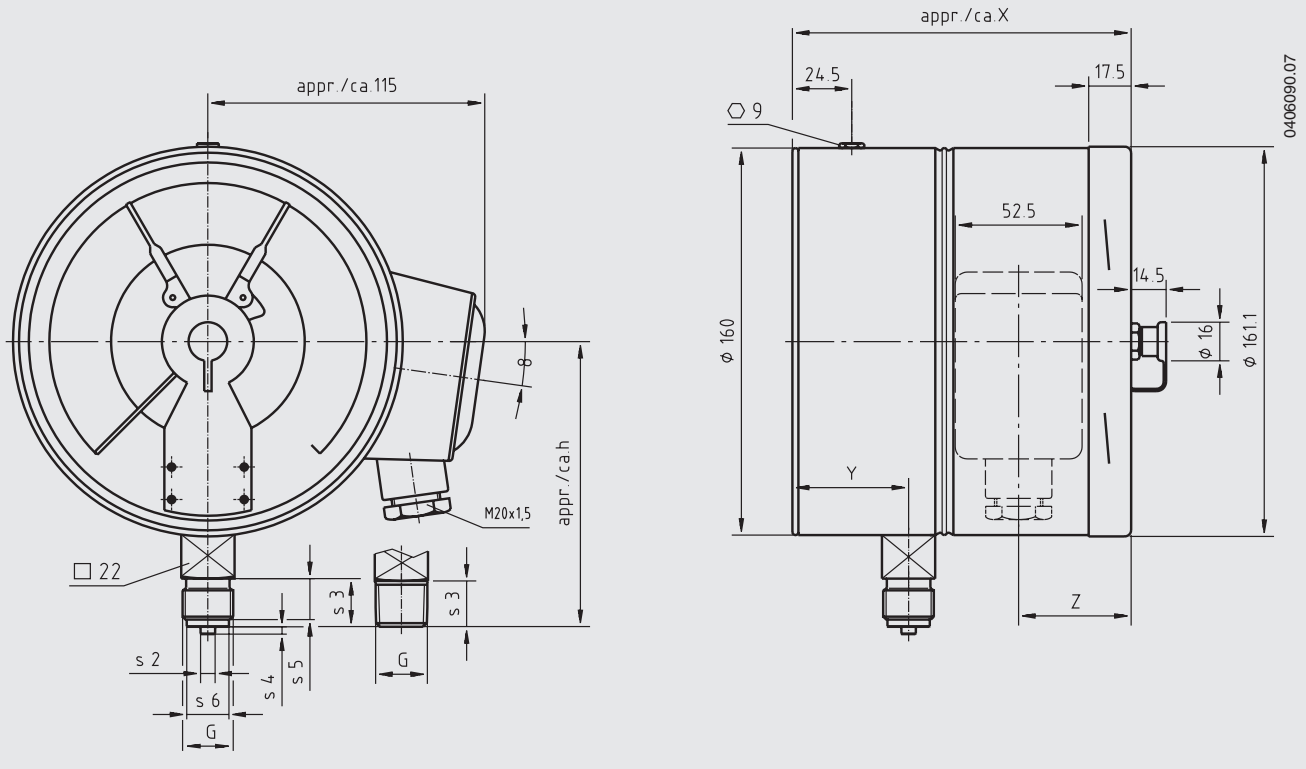


Type of contact	Dimensions in mm
	X
Single, double or triple contact	105
Double (change-over) contact, quadruple contact	119

Process connection	Dimensions in mm					
	b	S2	S3	S4	S5	S6
G ½ B	33.5	6	20	3	17	17.5
G ¼ B	26.5	5	13	2	11	9.5
G ⅜ B	29.5	5.5	16	3	14	13
½ NPT	32.5	-	19	-	-	-

switchGAUGE model PGS23.160 (safety version) with switch contact model 821, 831 or 830 E

Lower mount (radial)



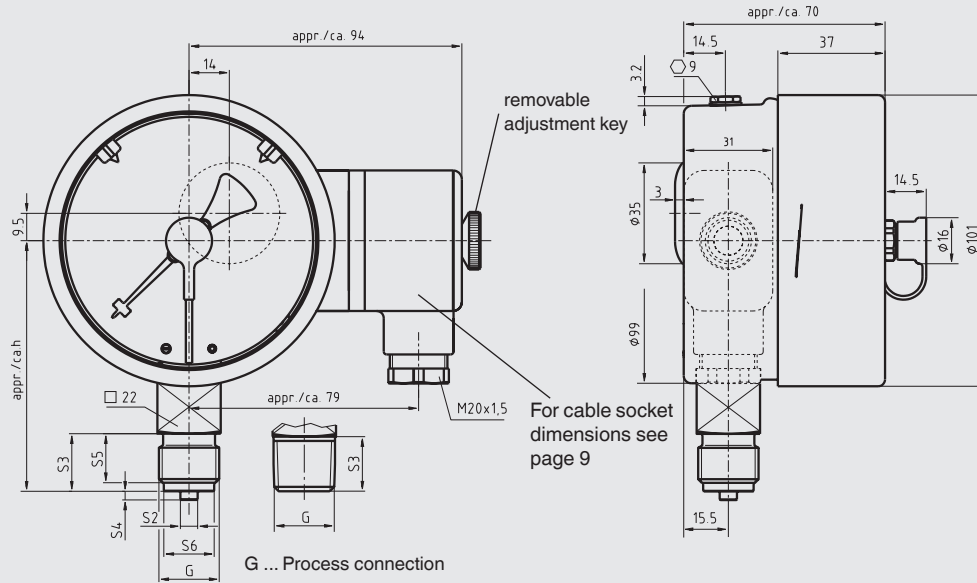
Type of contact	Dimensions in mm		
	X	Y	Z
Single or double contact	141	30.5 ¹⁾	48
Triple contact	153.5	30.5 ¹⁾	60.5

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

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

switchGAUGE model PGS23.100 with switch contact model 851.3 or 851.33

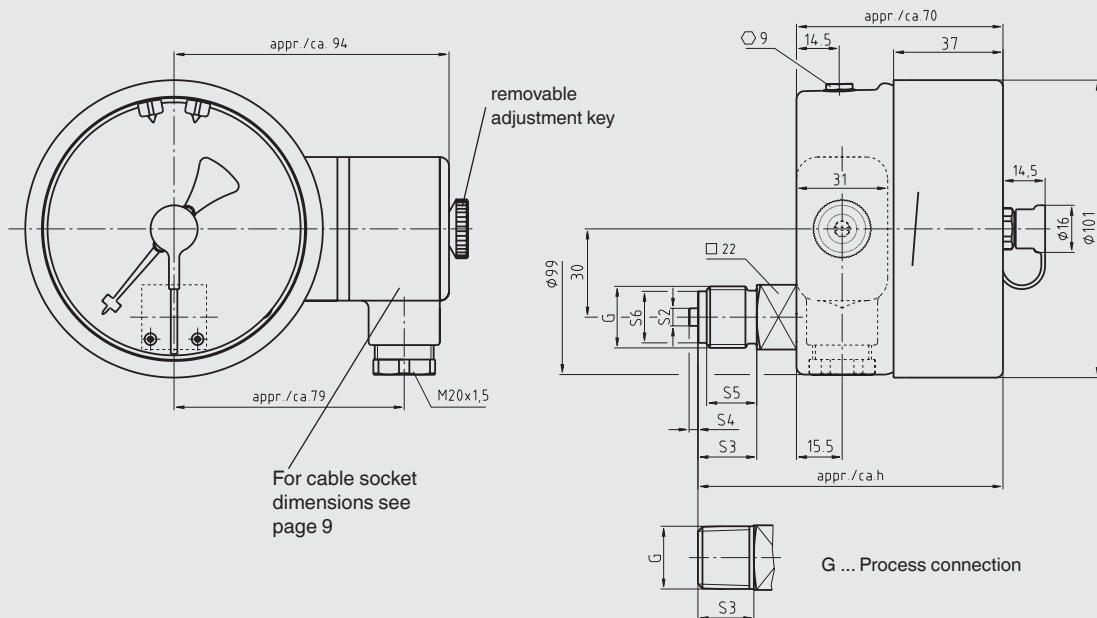
Lower mount (radial)



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Process connection	Dimensions in mm					
	h ±1	S2	S3	S4	S5	S6
G ½ B	87	6	20	3	17	17.5
G ¼ B	80	5	13	2	11	9.5
G ⅜ B	83	5.5	16	3	14	13
½ NPT	86	-	19	-	-	-

Lower back mount

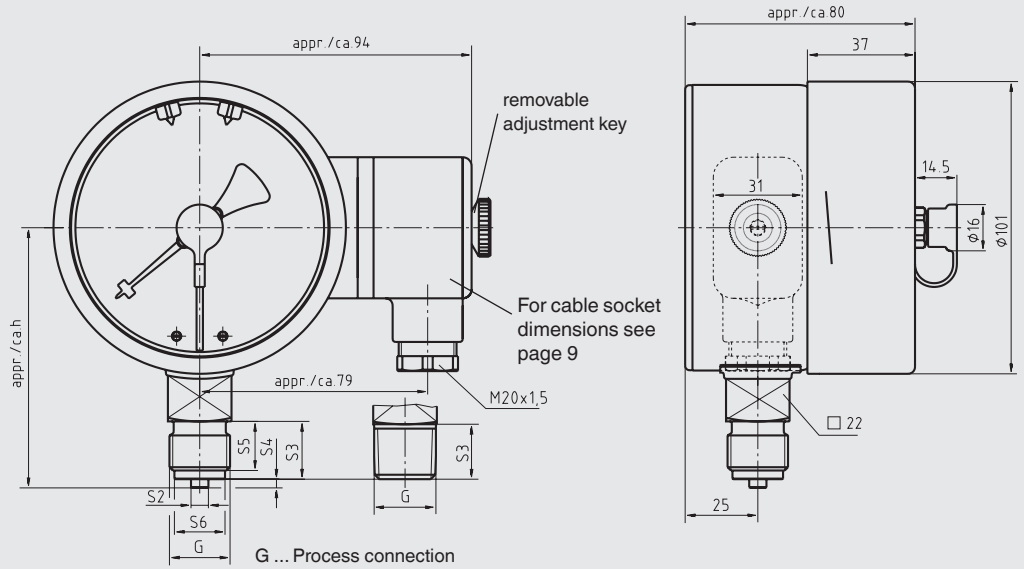


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Process connection	Dimensions in mm					
	h ±1	S2	S3	S4	S5	S6
G ½ B	103	6	20	3	17	17.5
G ¼ B	96	5	13	2	11	9.5
G ⅜ B	99	5.5	16	3	14	13
½ NPT	102	-	19	-	-	-

switchGAUGE model PGS23.100 (safety version) with switch contact model 851.3 or 851.33

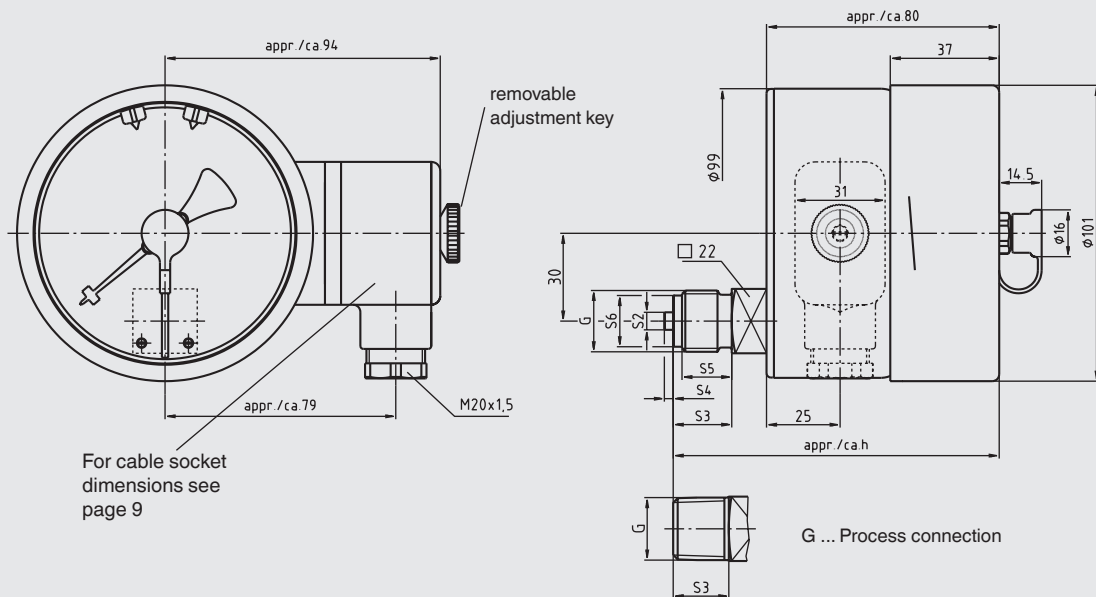
Lower mount (radial)



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Process connection	Dimensions in mm					
	$h \pm 1$	S2	S3	S4	S5	S6
G ½ B	87	6	20	3	17	17.5
G ¼ B	80	5	13	2	11	9.5
G ¾ B	83	5.5	16	3	13	13
½ NPT	86	-	19	-	-	-

Lower back mount



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Process connection	Dimensions in mm					
	$h \pm 1$	S2	S3	S4	S5	S6
G ½ B	112	6	20	3	17	17.5
G ¼ B	105	5	13	2	11	9.5
G ¾ B	108	5.5	16	3	14	13
½ NPT	111	-	19	-	-	-

