

Differential pressure gauge with switch contacts Universal version, high overpressure safety Models DPGS43HP.1x0

WIKA data sheet PV 27.13



switchGAUGE

Applications

- Control and regulation of process values
- Monitoring of plants and switching of electric circuits
- For measuring locations with a high differential pressure overload and/or high working pressures (static pressures), also in aggressive ambience
- Easy-to-read, analogue on-site display needing no external power
- Pump monitoring and control, filter monitoring, level measurement in closed tanks

Special features

- Differential pressure measuring ranges from 0 ... 60 mbar
- High working pressure (static pressure) and high overpressure safety, optionally up to 40, 100, 250 or 400 bar
- Hydraulic cushioning protection against rapid pressure changes
- Gauges with inductive contacts for use in hazardous areas with ATEX approval
- Gauges with electronic contact for PLC applications



Differential pressure gauge model DPGS43HP.100 with switch contact model 821.21

Description

Wherever the process pressure has to be indicated locally, and, at the same time, circuits are to be made or broken, the model DPGS43HP.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.

Standard version

Design

highest overpressure safety either side, pressure ratings
PN 40, 100, 250 or 400
Hydraulic cushioning protection against rapid pressure
changes

Nominal size in mm

100, 160

Accuracy class

1.6 (Monel version: 2.5)

Overpressure safety and max. working pressure (static pressure)

either side max. 40, 100, 250 or 400 bar

Scale ranges

Gauges with PN 40 and 100:

0 ... 60 mbar to 0 ... 160 mbar (measuring cell □ 140)

0 ... 0.25 bar to 0 ... 40 bar (measuring cell □ 82)

Gauges with PN 250:

0 ... 60 mbar to 0 ... 250 mbar (measuring cell □ 140)

0 ... 0.4 bar to 0 ... 40 bar (measuring cell □ 82)

Gauges with PN 400:

0 ... 0.4 bar to 0 ... 40 bar (measuring cell □ 86)

Pressure limitation

Steady: Full scale value

Fluctuating: 0.9 x full scale value

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. ±0.5 %/10 K of full scale value

Measuring flanges with process connection (wetted)

Stainless steel 316L, lower mount (LM), 2 x G ½ female

Flange connecting screws

PN 40 / 100: Stainless steel

PN 250 / 400: Steel, corrosion-protected

Pressure elements (wetted)

Stainless steel 316L / NiCr-alloy (Inconel)

Sealings (wetted)

FPM/FKM

Measuring cell

Chrome steel

Venting of the media chambers (wetted)

Stainless steel 316L

Gauges with PN 40 and 100: Stainless steel 316L

Standard for scale ranges ≤ 0.16 bar

(option for scale ranges ≥ 0.25 bar!)

Gauges with PN 250 and 400:

Standard for scale ranges ≤ 0.25 bar

(option for scale ranges ≥ 0.4 bar!)

Movement

Stainless steel

Dial

Aluminium, white, black lettering

Pointer

Aluminium, black

Zero adjustment

by means of adjustment appliance

Case / Bayonet ring

Stainless steel

Window

Laminated safety glass

Measuring cell filling

Silicone oil

Exception: Glycerine

Mounting

according to affixed symbols

⊕ high pressure,

⊖ low pressure

Mounting by means of:

- Rigid measuring lines
- Drilled mounting holes at the back of the measuring cell
- Panel mounting flange (option)
- Mounting bracket for wall or pipe mounting (option)

Electrical connection

Terminal box

Ingress protection

IP 54 per EN 60529 / IEC 529 (with liquid filling IP 65)

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)
- 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 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 influence 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 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
- 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 cannot be adjusted from outside)

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

Options

- Liquid filling
- Sealings (model 910.17, see data sheet AC 09.08)
- Venting of the pressure chambers for scale ranges ≥ 0.25 bar or ≥ 0.4 bar
- Measuring cell filling with special medium, e.g. for use in oxygen applications
- Combined display of differential pressure and working pressure
- Wetted parts made of special material
- Differential process connection per EN 61518
- Other process connections, e.g. male thread 2 x G 1/2 B or 2 x 1/2 NPT
- Back mount connection or connection at 12 o'clock
- Medium temperature > 100 °C
- Permissible ambient temperature -40 ... +60 °C
- Panel mounting flange
- Mounting bracket for wall or pipe mounting, lacquered steel or stainless steel
- Monel version
- Pressure compensating valve (data sheet AC 09.11)
- Inductive contacts also in safety version (SN, S1N)

CE conformity

EMC directive

2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)

ATEX directive ¹⁾

94/9/EC, II 2 G Ex ia IIC

¹⁾ Option

Approvals

- **ATEX**, Design approval for connection to hazardous zone 0 ¹⁾
- **GOST-R**, import certificate, Russia
- **NEPSI**, ignition protection type „i“, intrinsic safety, China

Certificates ¹⁾

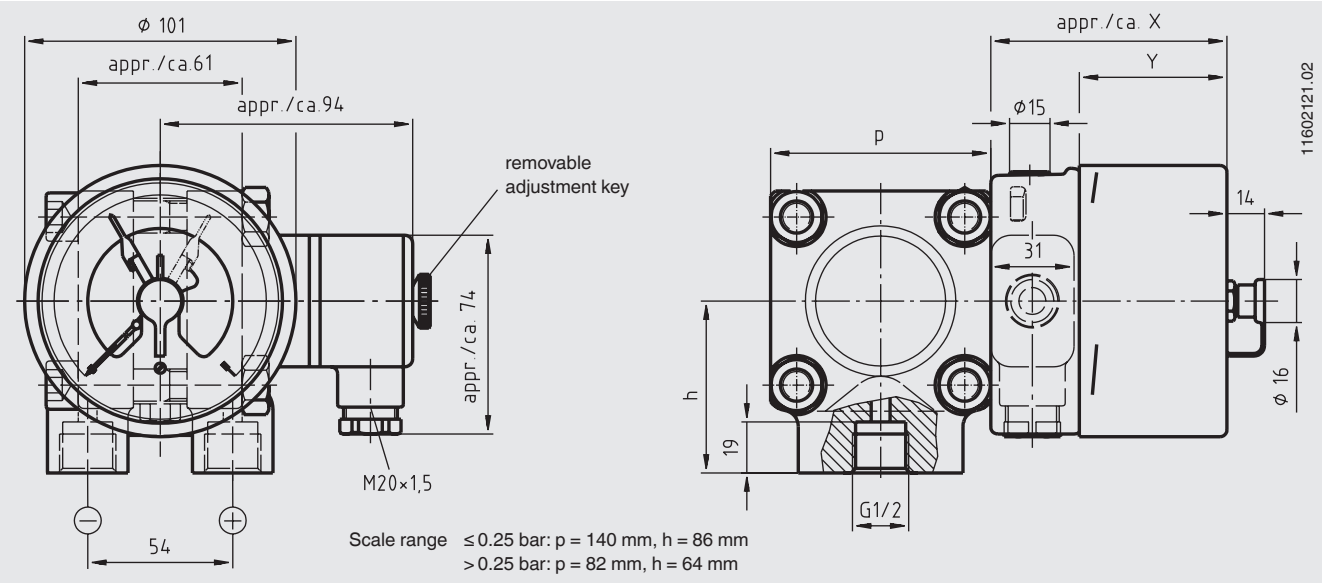
- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. material proof wetted parts metal component, indication accuracy)

¹⁾ Option

Approvals and certificates, see website

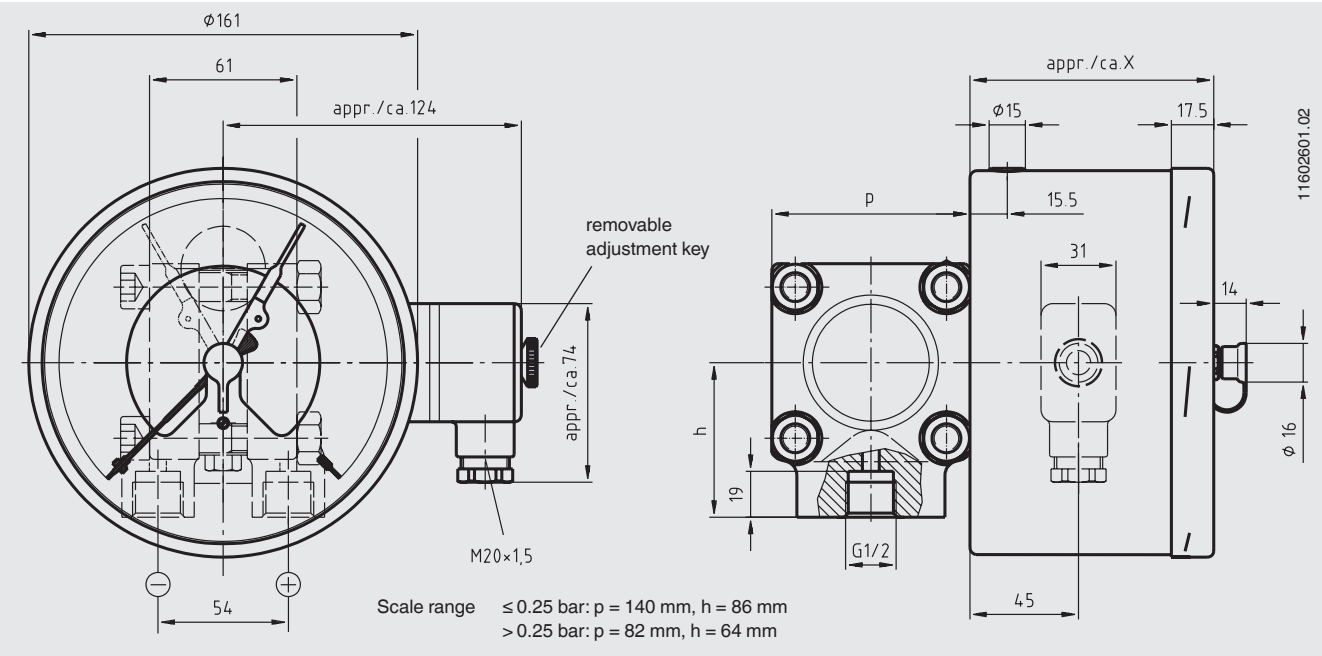
Dimensions in mm

switchGAUGE model DPGS43HP.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

switchGAUGE model DPGS43HP.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	

Technical drawing of the 14022318.01 pressure transmitter, showing front and side views with dimensions and scale range.

Front View Dimensions:

- Overall diameter: $\varnothing 101$
- Approximate width: appr. / ca. 94
- Removable adjustment key: 49
- Approximate height: appr. / ca. 74
- Mounting hole: M20x1,5
- Approximate width (bottom): appr. / ca. 79
- Distance between terminals: 54

Side View Dimensions:

- Approximate total width: appr. / ca. 79
- Port diameter: $\varnothing 15$
- Port distance: 20
- Port distance: 37
- Port diameter: 31
- Port distance: 14.5
- Port diameter: $\varnothing 16$
- Port distance: 24.5
- Port distance: G1/2
- Approximate height: appr. / ca. h

Scale range:

- ≤ 0.25 bar: p = 140 mm, h = 86 mm
- > 0.25 bar: p = 82 mm, h = 64 mm

Part Number: 14022318.01

Technical drawing of the M1000 pressure transmitter, showing front, side, and detail views with dimensions.

Front View Dimensions:

- Overall diameter: $\phi 161$
- Approximate width to center: appr. /ca 124
- Approximate width to mounting flange: appr. /ca 109
- Mounting flange diameter: $\phi 54$
- Mounting flange thickness: 4.9
- Mounting flange thread: M20x1.5

Side View Dimensions:

- Approximate height: appr. /ca 74
- Approximate height to top of mounting flange: appr. /ca h
- Approximate height to bottom of mounting flange: 19
- Approximate width to center: P
- Approximate width to side of mounting flange: 31
- Approximate width to side of mounting flange: 24.5
- Approximate width to side of mounting flange: 17.5
- Approximate width to side of mounting flange: 20
- Approximate width to side of mounting flange: $\phi 15$

Detail View Dimensions:

- Approximate width to center: appr. /ca 65.5
- Approximate width to center: 17.5
- Approximate width to center: 20
- Approximate width to center: $\phi 15$
- Approximate width to center: 31
- Approximate width to center: 24.5
- Approximate width to center: 17.5
- Approximate width to center: 20
- Approximate width to center: $\phi 15$

Scale range:

- ≤ 0.25 bar: p = 140 mm, h = 86 mm
- > 0.25 bar: p = 82 mm, h = 64 mm