

# 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  $\geq 0.25$  bar or  $\geq 0.4$  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)

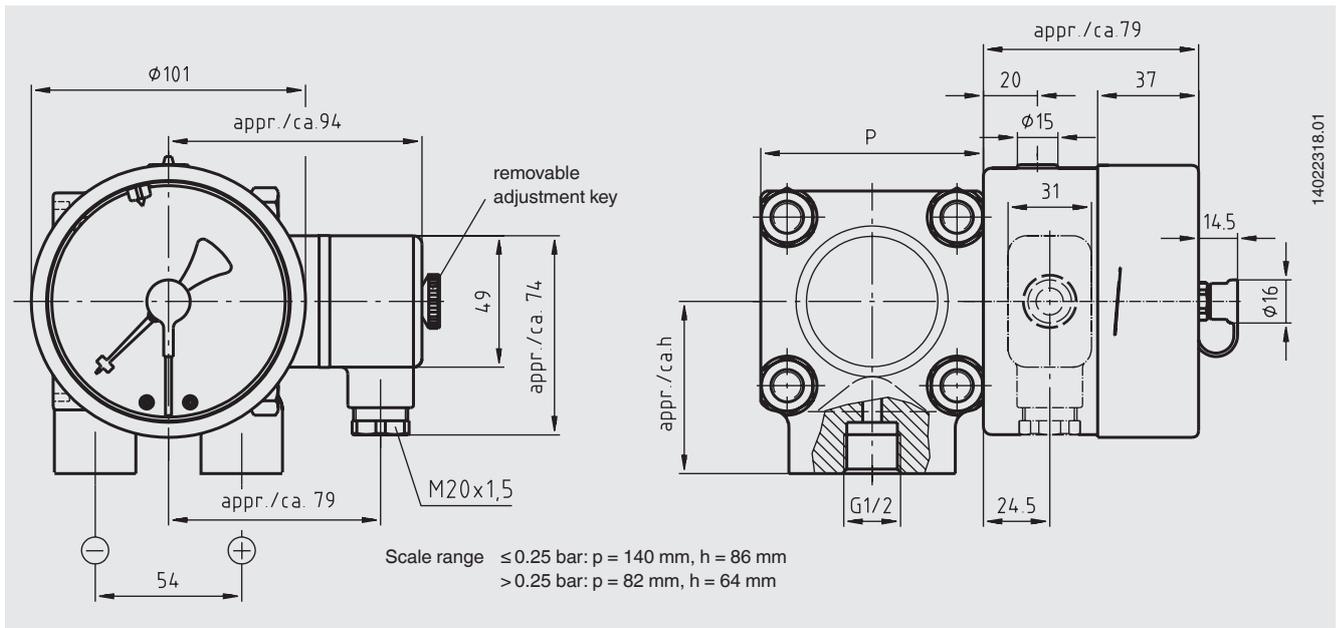
- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. material proof wetted parts metal component, indication accuracy)

1) Option

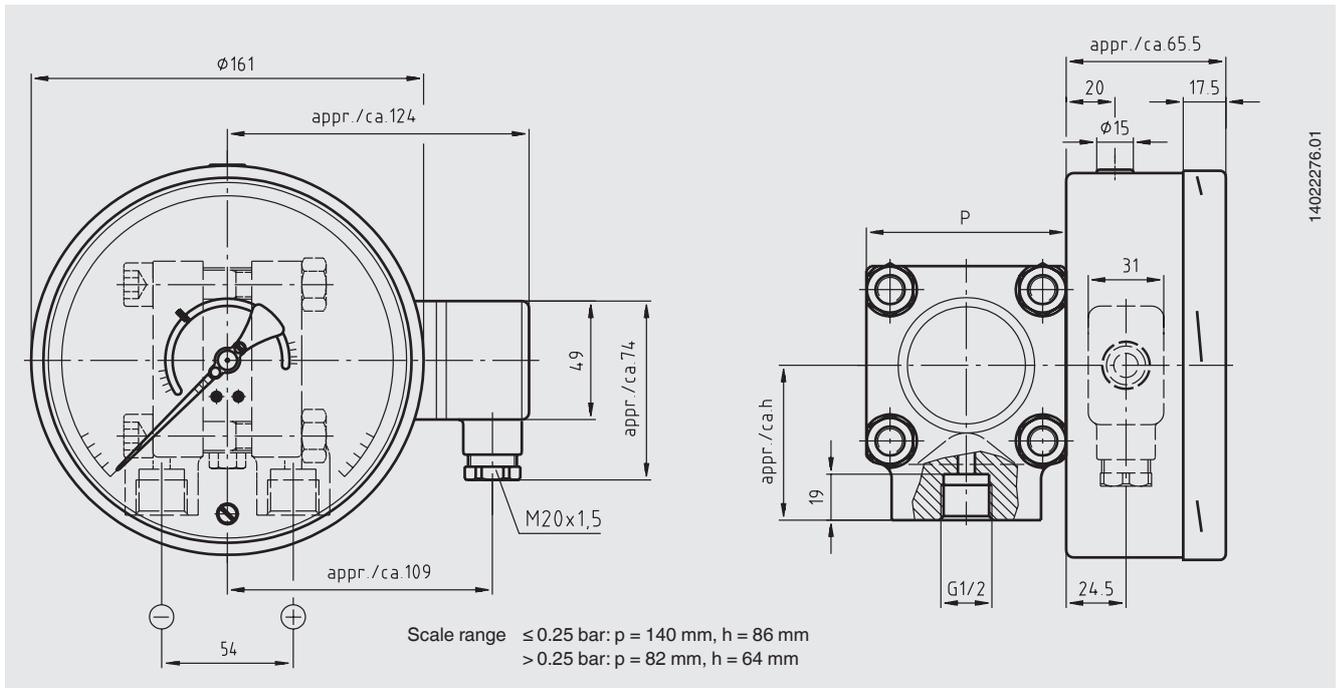
Approvals and certificates, see website



switchGAUGE model DPGS43HP.100 with switch contact model 851.3 or 851.33



switchGAUGE model DPGS43HP.160 with switch contact model 851.3



**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) / Connection size / Connection location / Options

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