

# Differential pressure gauges with switch contacts Model DPGS43.1x0, stainless steel version All welded construction

WIKA data sheet PV 27.05



**switchGAUGE**

## Applications

- Control and regulation of process values
- Monitoring of plants and switching of electric circuits
- For measuring points with increased differential overpressure
- Monitoring and control of pumps
- Filter monitoring
- Level measurement in closed tanks

## Special features

- Differential pressure measuring ranges from 0 ... 16 mbar
- High working pressure (static pressure) and high overpressure safety up to 40 bar
- Also available with liquid-filled case for high dynamic pressure loads or vibrations
- Gauges with inductive contacts for use in hazardous areas with ATEX approval
- Gauges with electronic contacts for PLC applications



**switchGAUGE model DPGS43.100**

## Description

Wherever the process pressure has to be indicated locally, and, at the same time, circuits are to be made or broken, the model DPGS43.1x0 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 operating 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

### Version

Lower mount pressure connections,  
highly corrosion-resistant all-metal construction,  
gauge head secured against unauthorised intervention,  
pressure connection location adjustable to mounting conditions,  
WIKA trade pattern DT - GM 86 08 176

### Nominal size in mm

100, 160

### Accuracy class

1.6 (2.5 at 0 ... 16 mbar and 0 ... 25 mbar)

### Scale ranges

0 ... 16 mbar to 0 ... 25 bar

Scale range 0 ... 16 mbar: scale length approx.  $180^\circ$   
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

see table on page 3

### Max. working pressure (static pressure)

see table on page 3

### 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.  $\pm 0.5\%$  / 10 K of full scale value

### Measuring chamber with process connection (wetted)

Stainless steel 1.4571,  
lower mount (LM),  
2 x G 1/4 female

### Pressure elements (wetted)

$\leq 0.25$  bar: stainless steel 1.4571

$> 0.25$  bar: NiCrCo-alloy (Duratherm)

### Sealing bellows (wetted)

Stainless steel 1.4571

### Venting of the media chambers (wetted)

Stainless steel 1.4571 for scale ranges  $\leq 0.25$  bar  
(optional for scale ranges  $\geq 0.4$  bar!)

### Movement

Stainless steel

### Dial

Aluminium, white, black lettering

### Pointer

Aluminium, black

### Case

Stainless steel, with pressure vent

### Window

Laminated safety glass

### Bezel ring

Cam ring (bayonet type), stainless steel

### Mounting

according to affixed symbols

⊕ high pressure,

⊖ low pressure

### Mounting by means of:

- Rigid tailpipes
- Threaded mounting holes in measuring flange
- Panel mounting flange (option)
- Mounting bracket for wall or pipe mounting (option)

### Electrical connection

Junction 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 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 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)
- No additional control unit required
- Long service life due to non-contact sensor
- Low reaction 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 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: NO - normally open (clockwise pointer motion)

Model 8XX.2: NC - normally closed (clockwise pointer motion)

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

- Liquid filling
- Safety version
- Higher max. working pressure (static pressure) and higher overpressure safety (see table)
- Indication accuracy better than class 1.6
- Venting of the media chambers (wetted) for scale ranges  $\geq 0.4$  bar
- Zero adjustment appliance
- Lateral connection location (right, left, front or back)
- Other threaded pressure connections, female or male
- Combined differential pressure and working pressure readout
- Medium temperature  $> 100$  °C
- Admissible ambient temperature  $-40 \dots +60$  °C (silicone oil filling)
- Mounting bracket for wall or pipe mounting
- Panel mounting flange
- Pressure equalising valve (data sheet AC 09.11)
- Inductive contacts also in safety version

### Instruments with special approvals: 1)

- Gosstandart approval (Russia)

1) Specification on request

## Max. working pressure / Overpressure safety

Scale ranges	Max. working pressure in bar (static pressure)		Overpressure safety in bar either side max.	
	Standard	Option	Standard	Option
0 ... 16 to 0 ... 40 mbar	2.5	6 <sup>1)</sup>	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



Technical drawing of a pressure transmitter, showing front, side, and detail views with dimensions and labels.

**Front View Dimensions:**

- Overall diameter:  $\varnothing 161$
- Mounting flange diameter: 124
- Process connection diameter:  $\varnothing d$
- Process connection thread: M20x1.5
- Adjustment key removable
- Scale range:  $\leq 0.25$  bar:  $\varnothing d = 140$  mm;  $> 0.25$  bar:  $\varnothing d = 78$  mm
- Process connection: G ...

**Side View Dimensions:**

- Overall height: appr. / ca. 117
- Mounting flange thickness: 37
- Process connection diameter:  $\varnothing 8$
- Process connection thread: M20x1.5
- Adjustment key removable

**Detail View Dimensions:**

- Overall diameter:  $\varnothing 161$
- Mounting flange diameter: 124
- Process connection diameter:  $\varnothing d$
- Process connection thread: M20x1.5
- Adjustment key removable
- Scale range:  $\leq 0.25$  bar:  $\varnothing d = 140$  mm;  $> 0.25$  bar:  $\varnothing d = 78$  mm
- Process connection: G ...

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	H	S2	S3	S4	S5	S6
<b>G ½ B</b>	233	66	6	20	3	17	17.5
<b>½ NPT</b>	231	65	-	19	-	-	-

### 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

The specifications given in this document represent the state of engineering at the time of publishing.  
We reserve the right to make modifications to the specifications and materials.



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