

# Differential Pressure Gauges with Electrical Output Signal Stainless Steel, Solid-front Case Type DPGT43.100 and DPGT43.160

WIKA Datasheet DPGT43.100



## Applications

- Acquisition and display of process values
- Transmission of process value to the control room, 4 to 20 mA; 0 to 20 mA; 0 to 10 V
- Differential pressure measurement at points with a high differential pressure overload
- Easy-to-read, local analog display needs no power supply
- Safety-related application

## Special features

- "Plug and play" with no configuration necessary
- Signal transmission in accordance with NAMUR
- Differential pressure measuring ranges from 0/6.5 "H<sub>2</sub>O to 0/400 PSI
- Easy-to-read 4" or 6" analog display
- Individual, non-linear characteristic curves (eg  $x^2$  or  $\sqrt{x}$  for flow measurement, etc)

## Description

Wherever the differential pressure has to be indicated locally, and, at the same time, signal transmission to a central controller or remote control room is needed, the DPGT43 intelliGAUGE can be used.

Through the combination of a high-quality mechanical measuring system and precise electronic signal processing, the process pressure can still be read, even if the power supply is lost. An additional measuring point for the mechanical pressure indication is not longer needed.

The model DPGT43 is built upon a high-quality, stainless steel pressure gauge (Type 43x.30) with nominal size of 4" or 6". The pressure gauge is manufactured in accordance with EN 837-3. These differential pressure gauges are made of highly corrosion-resistant stainless steel and feature an all-metal media chamber sealing. Therefore no elastomer sealing elements are required, so that a better long-term leak tightness is ensured. A high overpressure safety is achieved



intelliGAUGE Type DPGT43.100

by the all-metal construction and the close-fitting design of the measuring element.

The rugged design of the diaphragm measuring system produces a pointer rotation proportional to the pressure. An electronic angle encoder, proven in safety-critical automotive applications, determines the position of the pointer shaft - it is a non-contact sensor and therefore completely free from wear and friction. From this, the pressure-proportional, e.g. 4 to 20 mA electrical output signal is produced.

The electronic WIKA transmitter, integrated into the high quality mechanical pressure gauge, combines the advantages of electrical signal transmission with the advantages of a local mechanical display. The measuring span (electrical output signal) is set automatically along with the mechanical display, i.e. the scale over the full display range corresponds to 4 to 20 mA. The electrical zero point can also be set manually.

## Standard Features

### Design

ASME B40.100 & EN 837-3

### Sizes

4" or 6" (100 or 160 mm)

### Accuracy class

± 2/1/2% of span (ASME B40.100 Grade A)

### Ranges

0/6.5 "H<sub>2</sub>O up to 0/400 PSI

Scale range 0/6.5"H<sub>2</sub>O: full scale length approx. 180° or other equivalent units of pressure or vacuum

### Overpressure safety

See table on page 4

### Operating temperature

Ambient: -4°F to +140°F (-20°C to +60°C)

Medium: +212°F (+100°C) maximum

### Temperature error

Additional error when temperature changes from reference temperature of 68°F (20°C) ±0.5% for every 18°F (10°C) rising or falling. Percentage of span.

### Measuring chamber with pressure connection (wetted)

Material: 316L stainless steel

Lower mount (LM)

2 x 1/4" NPT female

### Pressure element (wetted)

≤ 100"H<sub>2</sub>O: 316L stainless steel

> 100"H<sub>2</sub>O: NiCrCo-alloy (Duratherm)

### Venting of the media chambers (wetted)

316L stainless steel for ranges ≤ 100"H<sub>2</sub>O (optional for ranges ≥ 160 "H<sub>2</sub>O)

### Sealing bellow (wetted)

316L stainless steel

### Movement

Copper alloy

### Dial

White aluminum with black lettering

### Pointer

Black aluminum, adjustable

### Case

Stainless steel, solid-front, blow-out back

### Window

Laminated safety glass

### Cover ring

Bayonet ring, stainless steel

### Weather protection

NEMA 4X / IP 54 per EN 60 529 / IEC 529 (with liquid filling NEMA 6 / IP 65)

## Mounting

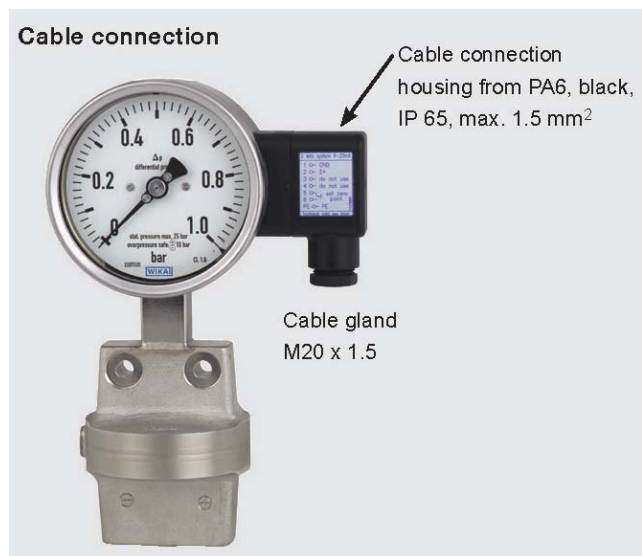
According to engraved symbols on the body, (+) high pressure, (-) low pressure

## Mounting options

- Rigid tailpipes
- Drilled mounting holes in the measuring flange
- Panel mounting flange (optional)
- Pipe or surface mounting bracket (optional)

## Optional extras

- Liquid filling
- Other threaded process connection, male or female
- Higher max. working pressure (static pressure) and higher overpressure safety (see table on page 4)
- Higher accuracy ±1.0% (ASME B40.100 Grade A)
- Output signal 0 to 20 mA, 0 to 10 V
- Customer-specific characteristic line (also non-linear)
- Venting of the pressure chambers (exposed to pressure medium) for scale range ≥ 160 "H<sub>2</sub>O
- Pressure connections on the side (left, right)
- Combined readout of the differential pressure and working pressure
- Pipe or surface mounting bracket
- Panel mounting flange
- Liquid filling with 50 cSt Silicone oil
- Polycarbonate window
- Version to ATEX Ex II 2G Ex ia IIC T4 / T5 / T6 or Ex I M2 Ex ia I
- Gost Standard approval
- Pressure equalizing valve (see data sheet AC 09.11)
- Alarm contacts (see data sheet AC 08.01)
- Custom dial layout
- Other pressure scales available  
bar, kPa, MPa, kg/cm<sup>2</sup> and dual scales



Electrical data

Power supply $U_B$	DC V	$12 < U_B \leq 30$
Supply voltage effect	% v. FS/10 V	$\leq 0.1$
Permissible residual ripple	% ss	$\leq 10$
Output signal	Variant 1 Variant 2 Variant 3 Variant 4	4 to 20 mA, 2-wire, passive, per NAMUR NE 43 4 to 20 mA, per ATEX Ex II 2G Ex ia IIC T4 / T5 / T6 or Ex I M2 Ex ia I 0 to 2 mA, 3-wire 0 to 10 V, 3-wire
Permissible max. load $R_A$ for Variant 1 - 3		$R_A \leq (U_B - 12 \text{ V})/0.02 \text{ A}$ with $R_A$ in Ohm and $U_B$ in Volt, however max. 600Ω
Electrical zero point		through a jumper across terminals 5 and 6 (see Operating Instructions)
Effect of load (Variant 1 - 3)	% FS	$\leq 0.1$
■ Long-term stability of electronics	% FS/a	$< 0.3$
■ Electrical output signal		$\leq 1\%$ of measuring span
■ Linearity	% of span	$\leq 1\%$ (limit point calibration)
Conformity specifications		Ex-Variant
■ Power supply	DC V	14 to 30
■ Short circuit rating	mA	100
■ Rating	mW	1000
■ Internal capacitance	nF	$C_i \leq 12 \text{ nF}$
■ Internal inductance	mH	negligible
EMC Directive		2004/108/EC Interference emission (Limit Class B) and immunity to EN 61 326-1
Wiring		L-plug connector, 180° rotatable, max. 1.5 mm <sup>2</sup> , wire protector, Cable gland M20 x 1.5, Ext. cable diameter 7-13 mm, incl strain relief
Wiring protection		NEMA 4X / IP 54 to EN 60 529 / IEC 529, NEMA 6 / IP 65 filled
Connection details 2-wire (Variant 1 and 2)		

Mechanical data

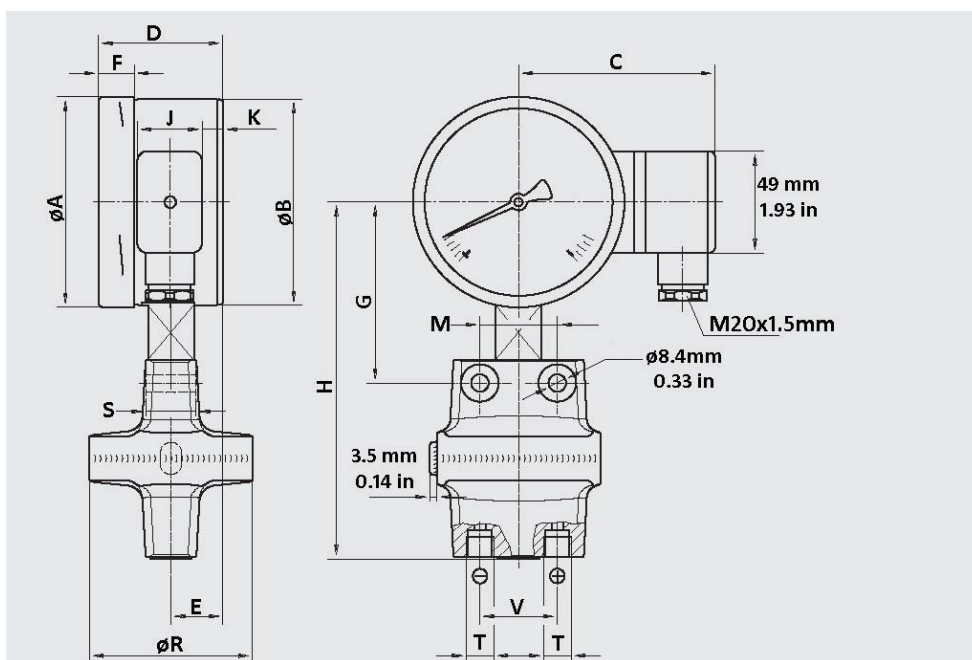
Mechanical design		Safety pressure gauge with solid-front and blow-out back case
Display		Nominal size 4" or 6" (100 or 160 mm)
Measuring ranges		0/6.5 "H <sub>2</sub> O up to 0/100 "H <sub>2</sub> O 0/150 "H <sub>2</sub> O up to 0/600 PSI
■ 6" flange		
■ 4" flange		
Process connection		2 x 1/4" NPT female (others available as options)
Damping options		
■ for dynamic pressure		restrictor in the pressure channel
■ for vibration		fluid filling of case
Operating limits		overload resistance to EN 837-3
Pressure limitation		
■ Steady		full scale value
■ Fluctuating		0.9 x full scale value
Accuracy		The recommendations for the use of mechanical measuring systems in accordance with ASME B40.100 and EN 837-3 must be observed
■ Mechanical display		$\leq 2/1/2\%$ of measuring span (ASME B40.100 Grade A)
Permissible temperature range of		
■ Medium	°F / (°C)	-4°F to +212°F (-20°C to +100°C)
■ Ambient	°F / (°C)	-4°F to +140°F (-40°C to +60°C) (max 176°F for safety glass)
Temperature influence	%/10K	$\pm 0.5$ of measuring span (when temperature of the pressure element deviates from 68°F (20°C) reference temperature). Percentage of span.
Weather protection (front)		NEMA 4X / IP 54 per EN 60 529 / IEC 529 (with liquid filling NEMA 6 / IP 65)
CE-Conformity		ATEX: 94/4
■ Pressure Equipment Directive		97/23/EC

## Max. working pressure / Overpressure safety

Scale ranges	Max. working pressure in PSI		Overpressure safety in PSI	
	Standard	Optional	Standard	Optional
0/6.5 to 0/16 °H <sub>2</sub> O	36	90 <sup>1)</sup>	36	-
0/25 to 0/100 °H <sub>2</sub> O	90	145	36	90
0/150 °H <sub>2</sub> O	350	600	60	600
0/8 PSI	350	600	90	600
0/15 PSI	350	600	150	600
0/25 PSI	350	600	400	600
0/35 to 400 PSI	350	600	350	600

1) Accuracy class 3/2/3% of span

## Dimensions



Size Range	A	B	C	D	E	F	G	H	J	K	M	R	S	V	T	Weight
4" ≤100°H <sub>2</sub> O	mm	101	99	94	59.5	25	17	90	161	31	10	37	140	24	37	2.7 kg
	in	3.98	3.9	3.7	2.34	0.98	0.67	3.54	6.34	1.22	0.39	1.46	5.51	0.95	1.46	2x1/4"
4" >100°H <sub>2</sub> O	mm	101	99	94	59.5	25	17	87	171	31	10	37	78	24	37	1.9 kg
	in	3.98	3.9	3.7	2.34	0.98	0.67	3.43	6.73	1.22	0.39	1.46	3.07	0.95	1.46	2x1/4"
6" ≤100°H <sub>2</sub> O	mm	161	159	124	65	25	17	120	191	31	10	37	140	24	37	3.4 kg
	in	6.34	6.26	4.88	2.56	0.98	0.67	4.72	7.52	1.22	0.39	1.46	5.51	0.95	1.46	2x1/4"
6" >100°H <sub>2</sub> O	mm	161	159	124	65	25	17	117	201	31	10	37	78	24	37	2.4 kg
	in	6.34	6.26	4.88	2.56	0.98	0.67	4.61	7.91	1.22	0.39	1.46	3.07	0.95	1.46	2x1/4"

### Ordering information

Pressure gauge model / Nominal size / Scale range / Size of connection / Optional extras required  
 Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.  
 Modifications may take place and materials specified may be replaced by others without prior notice.



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