

# Differential pressure gauge with output signal With integrated working pressure indication (DELTA-trans) Model DPGT40

WIKA data sheet PV 17.19



weitere Zulassungen  
siehe Seite 5

**DELTA-trans**

## Applications

Monitoring of filters, compressors and pumps in:

- Marine boilers, pressure vessels, bilge-water collection
- Drinking and cooling-water treatment plants
- Pressure-boosting stations, heating technology, fire-extinguishing systems

## Special features

- Transmission of process values to the control room (e.g. 4 ... 20 mA)
- Robust aluminium case with shatterproof window
- High ingress protection, IP65
- Optional: Explosion protection per ATEX



**Differential pressure gauge with output signal,  
model DPGT40**

## Description

The differential pressure gauges of the DELTA-line product family are primarily used for the monitoring of low differential pressures where there are high requirements in terms of one-sided overpressure and static pressure.

Typical markets for these products are the shipbuilding industry, process heating technology, the heating, ventilation and air-conditioning industries, the water/wastewater industry, and machine building and plant construction. For these, the main function of the measuring instruments is the monitoring of filters, compressors and pumps.

Wherever a signal transmission is needed and, at the same time, a differential pressure must be displayed locally, the DELTA-trans finds its use.

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 electrical output signal proportional to the pressure, e.g. 4 ... 20 mA, is produced, which then acts to transmit the signal to the control room. In addition, the electrical zero point can be set manually.

Often in these applications, alongside the indication of the differential pressure, the current working pressure is also relevant. For this reason, a working pressure indication is integrated within the DELTA-trans differential pressure gauge with output signal as standard.

The two local, easily readable, mechanical displays need no power supply and enable the simultaneous reading of the working and the differential pressure. Furthermore, this saves on an additional measuring and sealing point, reducing additional expense for piping and mounting.

The robust aluminium case and shatterproof window enable a long service life of the product, even under harsh ambient conditions. This ensures that there is no danger from the instrument and it is resistant to external mechanical impacts.

The new and functional design completes the appearance of the measuring instrument.

## Design and operating principle

Pressures  $p_1$  and  $p_2$  act on the media chambers  $\oplus$  and  $\ominus$ , which are separated by an elastic diaphragm (1).

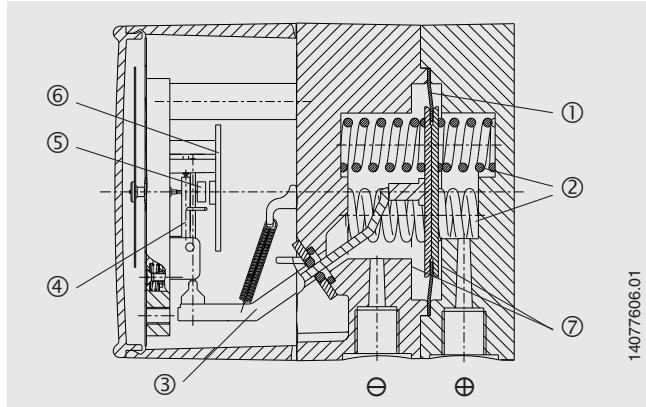
The differential pressure ( $\Delta p = p_1 - p_2$ ) leads to an axial deflection of the diaphragm against the measuring range springs (2).

The deflection, which is proportional to the differential pressure, is transmitted to the movement (4) in the indicating case via a pressure-tight and low friction rocker arm (3).

A magnet (5), fixed to the rear of the movement, affects the electromagnetic field of the HALL sensor. The signal that results from this is converted to a standardised current output signal by the signal conditioning board (6).

Overpressure safety is provided by metal bolsters (7) resting against the elastic diaphragm.

## Illustration of the principle



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

Mounting:

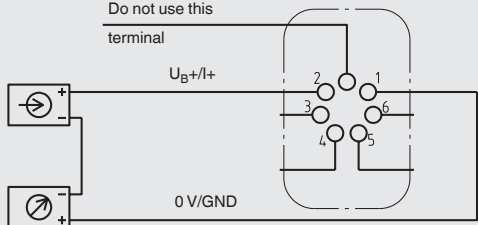
- Rigid measuring line
- Wall mounting with available mounting links

## Standard version

Specifications	DELTA-trans model DPGT40
<b>Mechanical data</b>	
<b>Nominal size</b>	Differential pressure indication: $\varnothing$ 100 mm Working pressure indication: $\varnothing$ 22 mm
<b>Accuracy</b>	Differential pressure indication: $\leq 2.5\%$ of span (option $\leq 1.6\%$ ) Working pressure indication: $\leq 4\%$ of span
<b>Scale ranges (EN 837)</b>	Differential pressure: 0 ... 0.16 to 0 ... 10 bar Working pressure: 0 ... 25 bar
<b>Max. working pressure (stat.)</b>	25 bar
<b>Overpressure safety</b>	Either side max. 25 bar
<b>Permissible temperature</b>	Ambient: -10 ... +70 °C (Ex version: -10 ... +60 °C) Medium: -10 ... +90 °C Storage: -40 ... +70 °C
<b>Ingress protection</b>	IP65 per IEC/EN 60529
<b>Media chamber (wetted)</b>	Aluminium, EN AC-Al Si9Cu3(Fe), black lacquered (option: Stainless steel 1.4571)
<b>Process connections (wetted)</b>	2 x G 1/4 female, lower mount, in-line, centre distance 26 mm
<b>Pressure elements (wetted)</b>	Differential pressure: Compression springs from stainless steel 1.4310 and separating diaphragm from FPM/FKM (option: NBR) Working pressure: Bourdon tube from Cu-alloy
<b>Transmission parts (wetted)</b>	Stainless steel 1.4301, 1.4305, 1.4310, FPM/FKM (option: NBR)
<b>Sealings (wetted)</b>	FPM/FKM (option: NBR)
<b>Movement</b>	Copper alloy
<b>Dial</b>	Differential and working pressure indication: White dial, black lettering
<b>Pointer</b>	Differential and working pressure indication: Blue pointer
<b>Zero adjustment for differential pressure indication</b>	Via screw in the dial
<b>Case</b>	Aluminium, EN AC-Al Si9Cu3(Fe), black lacquered
<b>Window</b>	Plastic, with plug screw for zero adjustment
<b>Weight</b>	approx. 1.3 kg

## Maximum values for the supply circuit (only Ex version)

Parameters	Instrument group II	
	Potentially explosive gas atmosphere	Potentially explosive dust atmosphere
Terminal marking	"I+" and "GND"	
Voltage $U_i$	DC 30 V	
Current $I_i$	100 mA	
Power $P_i$	1 W	$\leq 750 \text{ mW}$ for $-10 \text{ °C} \leq T_a \leq +40 \text{ °C}$ $\leq 650 \text{ mW}$ for $-10 \text{ °C} \leq T_a \leq +60 \text{ °C}$
Effective internal capacitance $C_i$	17.5 nF	
Effective internal inductance $L_i$	Negligible	

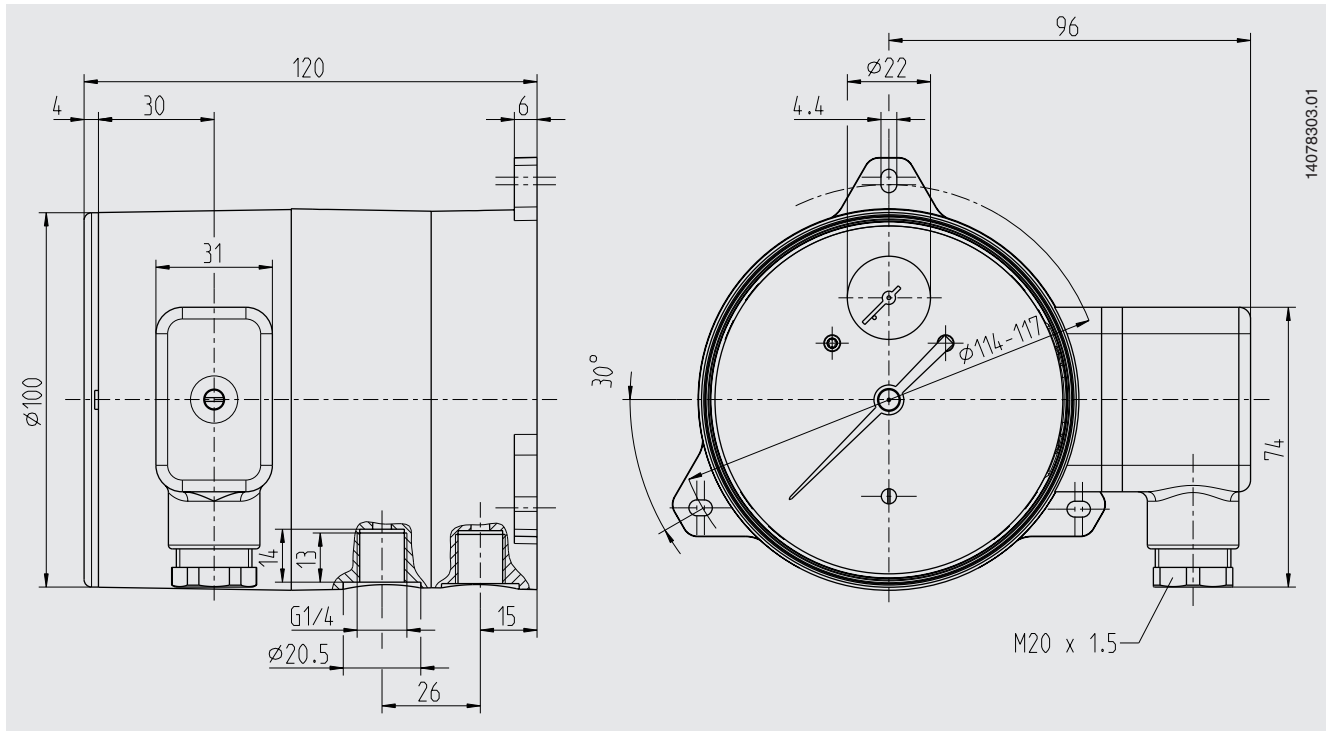
Electrical data	
Power supply $U_B$	DC $12 \text{ V} < U_B \leq 30 \text{ V}$ (variant 1 + 3) DC $14 \text{ V} < U_B \leq 30 \text{ V}$ (variant 2) DC $15 \text{ V} < U_B \leq 30 \text{ V}$ (variant 4)
Influence of power supply	$\leq 0.1 \text{ \% FS}/10 \text{ V}$
Permissible residual ripple	$\leq 10 \text{ \% ss}$
Output signal	4 ... 20 mA, 2-wire, passive, per NAMUR NE 43 (variant 1) 4 ... 20 mA, 2-wire, Ex version (variant 2) 0 ... 20 mA, 3-wire (variant 3) 0 ... 10 V, 3-wire (variant 4)
Permissible max. load $R_A$ (variant 1 - 3)	$R_A \leq (U_B - 12 \text{ V})/0.02 \text{ A}$ with $R_A$ in $\Omega$ and $U_B$ in V, however max. 600 $\Omega$
Effect of load (variant 1 - 3)	$\leq 0.1 \text{ \% FS}$
Electrical zero point	Through a jumper across terminals 5 and 6 (see operating instructions)
■ Long-term stability of electronics	$< 0.3 \text{ \% FS/a}$
■ Electr. output signal	$\leq 2.5 \text{ \%}$ of span (option $\leq 1.6 \text{ \%}$ )
Linear error	$\leq 2.5 \text{ \%}$ of span (option $\leq 1.6 \text{ \%}$ ), terminal method
Electrical connection	Via angular connector, 180° rotatable, wire protection, cable gland M20 x 1.5, incl. strain relief, connection cable: Outer diameter 7 ... 13 mm, conductor cross-section 0.14 ... 1.5 mm <sup>2</sup> , temperature resistance up to 70 °C
Wiring protection	Angular connector: IP65 per IEC/EN 60529
Assignment of terminals, 2-wire (variant 1 and 2) <sup>1)</sup>	

1) For 3-wire connection see operating instructions

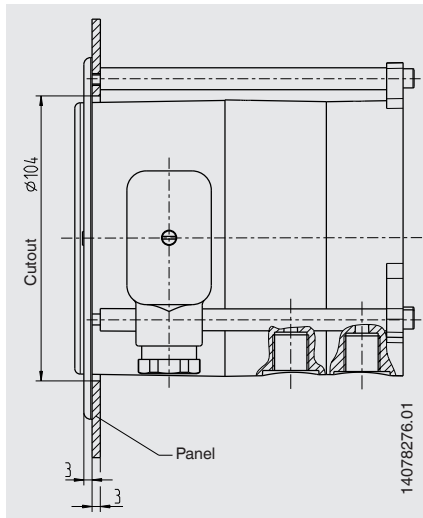
## Options

- Without working pressure indication
- Scale range for working pressure 0 ... 10 or 0 ... 16 bar (max. working pressure and overpressure safety up to 10 or 16 bar)
- Accuracy class 1.6 for differential pressure indication with scale ranges 0 ... 1 bar to 0 ... 10 bar
- 4-way valve manifold from Cu-alloy or stainless steel (1 x pressure compensating valve, 2 x shut-off valve, 1 x valve for purging and ventilating)
- Sealings (model 910.17, see data sheet AC 09.08)
- Other process connections for female and male threads
- Compression fittings with ferrule or clamp ring for pipe diameters 6, 8 and 10 mm
- Panel mounting flange (available in 2 versions: Stainless steel or stainless steel, black lacquered)

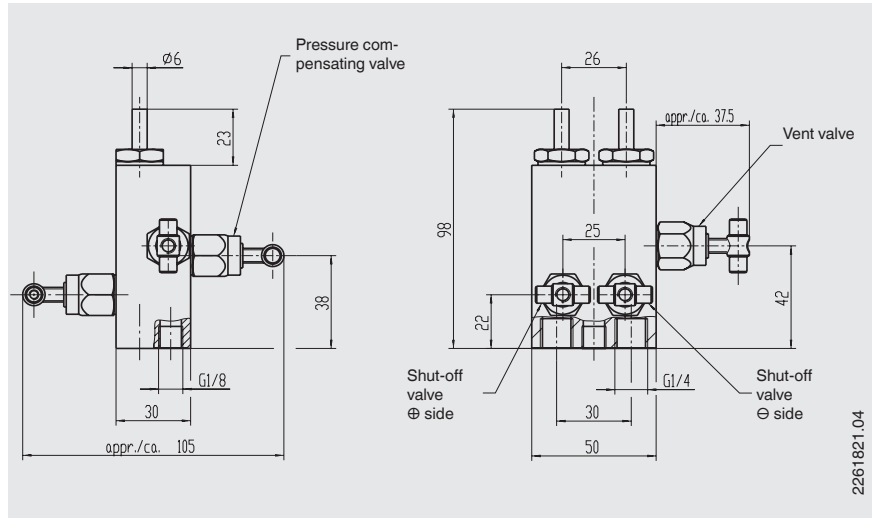
## Dimensions in mm










### Option Panel mounting



### Option 4-way valve manifold



## Approvals

Logo	Description	Country
	<b>EU declaration of conformity</b> <ul style="list-style-type: none"> <li>■ Pressure equipment directive</li> <li>■ Low voltage directive</li> <li>■ RoHS directive</li> <li>■ ATEX directive (option)</li> </ul> Hazardous areas - Ex i Zone 1 gas [II 2G Ex ia IIC T4 ... T6 Gb] Zone 21 dust [II 2D Ex ia IIIB T135 °C Db]	European Union
	<b>IECEx (option)</b> Hazardous areas - Ex i Zone 1 gas [Ex ia IIC T3 ... T6 Gb] Zone 21 dust [Ex ia IIIB T135 °C Db]	International
	<b>EAC (option)</b> <ul style="list-style-type: none"> <li>■ EMC directive</li> <li>■ Pressure equipment directive</li> <li>■ Low voltage directive</li> <li>■ Hazardous areas</li> </ul>	Eurasian Economic Community
	<b>GOST (option)</b> Metrology/measurement technology	Russia
	<b>KazInMetr (option)</b> Metrology, measurement technology	Kazakhstan
	<b>UkrSEPRO (option)</b> Metrology, measurement technology	Ukraine
	<b>Uzstandard (option)</b> Metrology, measurement technology	Uzbekistan
-	<b>CRN</b> 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

## Ordering information

Model / Scale range / Process connection / Material of separating diaphragm and sealings / Output signal / Options

© 2014 WIKA Alexander Wiegand SE & Co. KG, all rights reserved.  
 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.

