

Differential pressure gauge With integrated working pressure indication and micro switch Model DPGS40

WIKA data sheet PV 27.20

DELTA-comb

Applications

Monitoring and control 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

- Differential pressure gauge with integrated working pressure indication and micro switch
- Robust aluminium case with shatterproof window
- Low measuring range from 0 ... 250 mbar



Differential pressure gauge with integrated working pressure indication and two switch contacts, model DPGS40, cable gland

Description

The differential pressure gauges of the DELTA-line product family are primarily used for the monitoring and control 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 differential pressure must be displayed locally and, at the same time, electrical circuits need to be switched safely dependent on a defined differential pressure, the DELTA-comb finds its use. As the pressure passes above or below a defined set point, the switching operation is triggered. The switch point is accessible from the front and can be set in the range of 10 ... 100 % of the full scale value. An assistant scale enables an accurate setting of the switch point and indicates the current set point.

Often in these applications, alongside the display of the differential pressure, the current working pressure is also relevant. For this reason, a working pressure indication is integrated within the DELTA-comb differential pressure switch 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. As a result of the low measuring range of 0 ... 250 mbar, the instrument can also be used for applications with low differential pressures.

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).

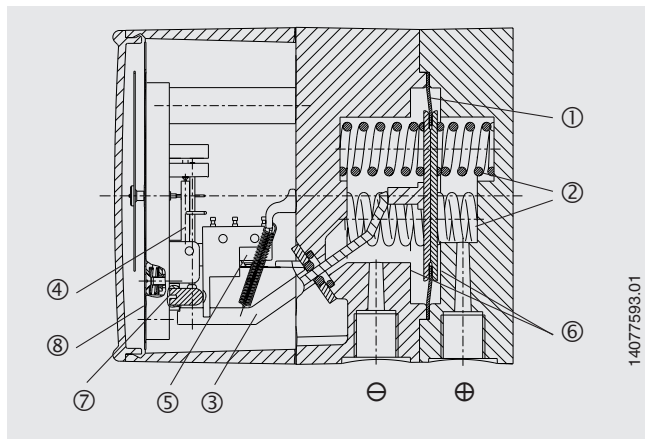
The differential pressure ($\Delta p = p_1 - p_2$) leads to an axial deflection of the diaphragm against the measuring range springs (2).

The deflection, which is proportional to the differential pressure, is transmitted to the movement (4) in the indicating case and to the leaf springs of the micro switches (5) via a pressure-tight and low friction rocker arm (3).

Overpressure safety is provided by metal bolsters (6) resting against the elastic diaphragm.

The adjustment of the switch point is made by the adjustment screws accessible from the front (7). The assistant scales (8) enable an accurate setting of the switch points and indicate the current set point.

Illustration of the principle



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

Mounting by means of:

- Rigid measuring line or
- Wall mounting with available mounting links

Standard version

Specifications	DELTA-comb model DPGS40
Nominal size	Differential pressure indication: \varnothing 100 mm Working pressure indication: \varnothing 22 mm
Accuracy class	Differential pressure indication: ≤ 2.5 % of span (option ≤ 1.6 %) Working pressure indication: 4
Scale ranges (EN 837)	Differential pressure: 0 ... 0.25 to 0 ... 10 bar Working pressure: 0 ... 25 bar
Max. working pressure (stat.)	25 bar
Overpressure safety	Either side max. 25 bar
Permissible temperatures	Ambient: -10 ... +70 °C, medium: -10 ... +90 °C Storage: -40 ... +70 °C
Ingress protection	IP 54 per EN 60529 / IEC 60529
Media chamber (wetted)	Aluminium, EN AC-Al Si9Cu3(Fe), black lacquered
Process connections (wetted)	2 x G 1/4 female, lower mount (LM), in-line, centre distance 26 mm
Pressure elements (wetted)	Differential pressure: Compression springs from stainless steel 1.4310 and separating diaphragm from FPM/FKM (option: NBR) Working pressure: Bourdon tube from Cu-alloy
Transmission parts (wetted)	Stainless steel 1.4301, 1.4305, 1.4310, FPM/FKM (option: NBR)
Sealings (wetted)	FPM/FKM (option: NBR)
Movement	Copper alloy, wear parts argentan
Dial	Differential and working pressure indication: White dial, black lettering
Pointer	Differential and working pressure indication: Blue pointer
Zero adjustment for differential pressure indication	Via screw in the dial
Case	Aluminium, EN AC-Al Si9Cu3(Fe), black lacquered
Window	Plastic
Weight	approx. 1.4 kg

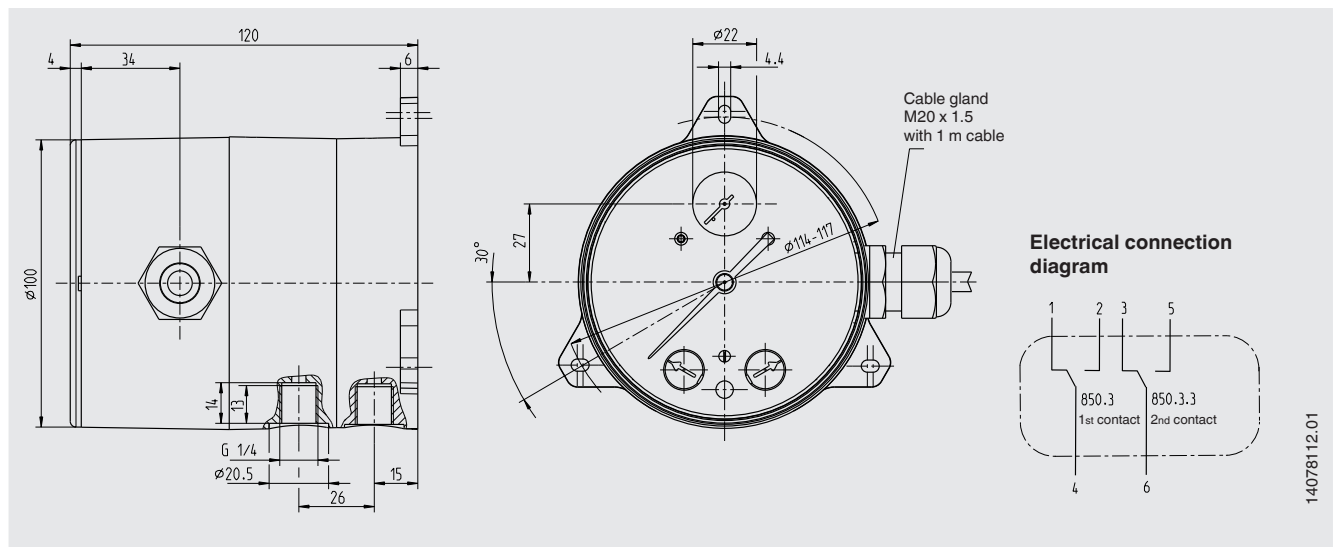
Options

- 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 fixed factory-set switch points for scale ranges from 0 ... 1 bar to 0 ... 10 bar (specify switching direction)
- Ingress protection IP 65
- 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)
- Electrical connection via cable terminal box or angular connector

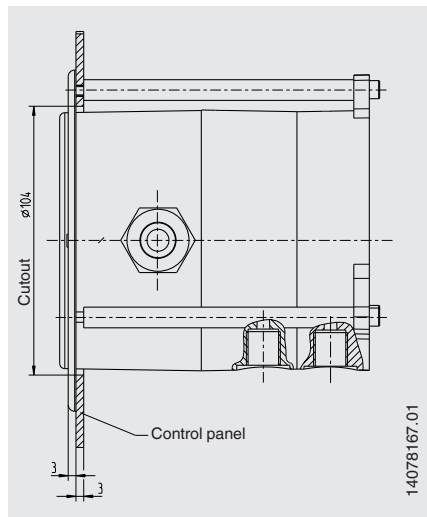
Electrical contact

Type of contact	Micro switch	
Contact functions	Single (change-over) contact 850.3	Double (change-over) contact 850.3.3
Load data	Voltage AC	Voltage DC
U max.	250 V	30 V
I max.	5 A	0.4 A
P max.	250 VA	10 W
Switch point setting	from the outside at assistant scale by means of adjustment screw(s)	
Setting range	from 10 % to 100 % of the full scale value	
Switch point reproducibility	≤ 1.6 %	
Switch hysteresis	max. 5 % of the full scale value (option: max. 2.5 %)	
Electrical connection	cable gland M20 x 1.5 with 1 m free cable	

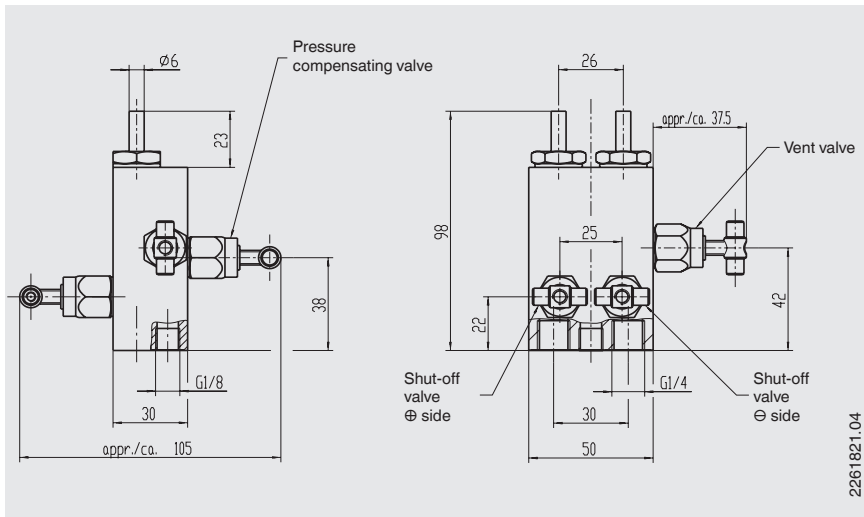
Dimensions in mm



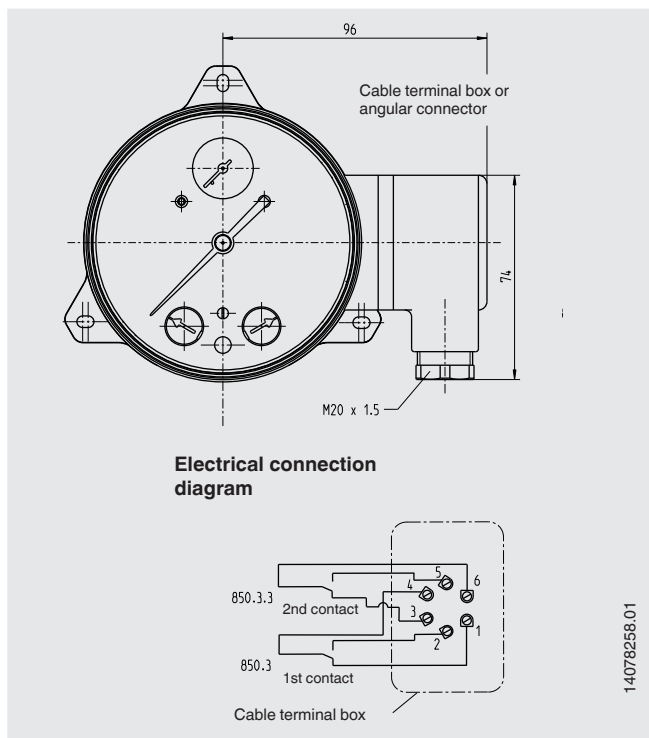
**Option
Panel mounting**



**Option
4-way valve manifold**



**Option
Electrical connection variants**



CE conformity

Low voltage directive
2006/95/EC, EN 61010-1:2010

Certificates ¹⁾

- 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)

1) Option

Approvals and certificates, see website

Ordering information

Model / Scale range / Process connection / Material of separating diaphragm and sealings / Micro switch / Options

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WIKAI Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de