

Differential pressure gauge with switch contacts Integrated working pressure indication and micro switch Model 702.03.100, with component testing

WIKA data sheet PV 27.19



DELTA-comb

Applications

- For gaseous and liquid media that are not highly viscous or crystallising
- Heating, ventilation, air-conditioning, dust removing technology
- Technical building equipment, filter systems, drinking and service water treatment
- Monitoring and control of pumps in pressure boosting and fire-extinguishing systems

Special features

- Differential pressure measuring ranges from 0 ... 250 mbar to 0 ... 6 bar
- High working pressure (static pressure) up to 25 bar
- One or two adjustable micro switches
- High reproducibility of the switch points
- Germanischer Lloyd approval, No. 40 146 - 01 HH



Differential pressure gauge with two micro switches, cable terminal box and compression fitting with ferrule option

Description

These differential pressure gauges are particularly used for the monitoring and control of differential pressures in filter systems, pumps and pipeline systems in the heating, ventilation and air-conditioning sector, technical building equipment and in the water management industry.

Apart from the display of the differential pressure, these applications also require, as a rule, the display of the current working pressure. For this reason, a working pressure indication is integrated in the DELTA-comb differential pressure gauge as a standard.

An additional measuring point for the working pressure indication, involving additional expenses for piping and

mounting, is thus no longer required. The white dial of the working pressure indication distinctly stands out against the blue background of the display of the differential pressure indication, thus enabling a quick and reliable reading of both measurement parameters.

The scale ranges of 0 ... 250 mbar to 0 ... 25 bar are available to meet the requirements of a wide variety of applications. With its robust and compact design the differential pressure gauge can even be used under tough industrial ambient conditions.

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).

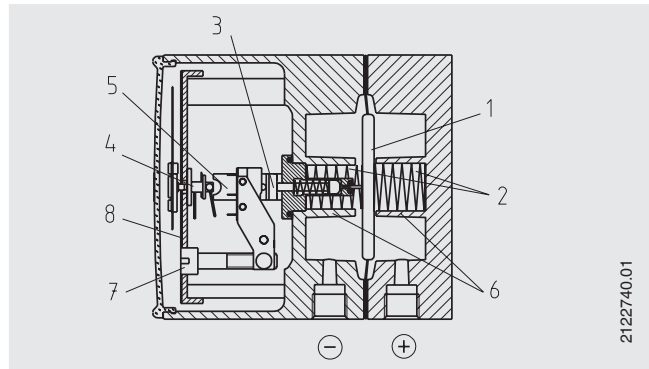
The differential pressure ($\Delta p = p_1 - p_2$) leads to an axial deflection (measuring travel) of the diaphragm against the measuring range spring (2).

The deflection, which is proportional to the differential pressure, is transmitted to the movement (4) in the indicating case and to the plungers of the micro switches (5) via a pressure-tight and low friction link (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 a relatively accurate adjustment of the switch points over 270° and indicate the set point that is currently adjusted.

Illustration of the principle



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

Mounting by means of:

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

Specifications		DELTA-comb model 702.03.100
Nominal size	mm	Differential pressure indication: \varnothing 100
	mm	Working pressure indication: \varnothing 23
Accuracy class		Differential pressure indication: 2.5
		Working pressure indication: 4
Scale ranges per EN 837	bar	Differential pressure: 0 ... 0.25 to 0 ... 6
	bar	Working pressure: 0 ... 25
Max. working pressure (stat.)	bar	25
Overpressure safety	bar	Either side max. 25
Permissible temperature	$^\circ\text{C}$	Ambient: -10 ... +70
	$^\circ\text{C}$	Medium: max. +90
Ingress protection		IP 65 per EN 60529/IEC 529
Media chamber	wetted	GD-AISI 12 (Cu) 3.2982, 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 spring from stainless steel 1.4310 or FD SiCr EN 10270-2 and separating diaphragm from FPM/FKM fabric-reinforced (option: NBR)
		Working pressure: Bourdon tube from Cu-alloy
Transmission parts	wetted	Stainless steel 1.4305, FPM/FKM (option: NBR)
Sealings	wetted	FPM/FKM (option: NBR)
Movement		Cu-alloy, wear parts argentan
Dial		Differential pressure indication: Aluminium, blue, white lettering
		Working pressure indication: Plastic, white, black lettering
Pointer		Differential pressure indication: Adjustable pointer, aluminium, white
		Working pressure indication: Plastic, black
Zero adjustment for differential pressure indication		By means of adjustable pointer
Case		GD-AISI 12 (Cu) 3.2982, black lacquered
Window		PMMA
Weight	kg	approx. 1.4

Options

- Media chamber GD-AISI 12 (Cu) HART-COAT surface protection
- Media chamber of stainless steel (without working pressure indication)
- Accuracy class 1.6 for differential pressure indication with factory-set switch points for scale ranges from 0 ... 1 bar to 0 ... 25 bar (specify the switching direction)
- 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)
- Other threaded process connections female and male
- Sealings (model 910.17, see data sheet AC 09.08)
- Compression fittings with ferrule or clamp ring for pipe diameters 6, 8 and 10 mm
- Panel mounting flange
- Electrical connection via cable terminal box M20 x 1.5 or angular connector

CE conformity

ATEX directive ¹⁾
94/9/EC, II 2 G Ex ia IIC

Approvals

- Germanischer Lloyd approval, No. 40 146 - 01 HH
- **GOST, metrology/measurement technology, Russia**
- **GOST-R, import certificate, Russia**

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. measuring accuracy: Listing of the individual measured values)

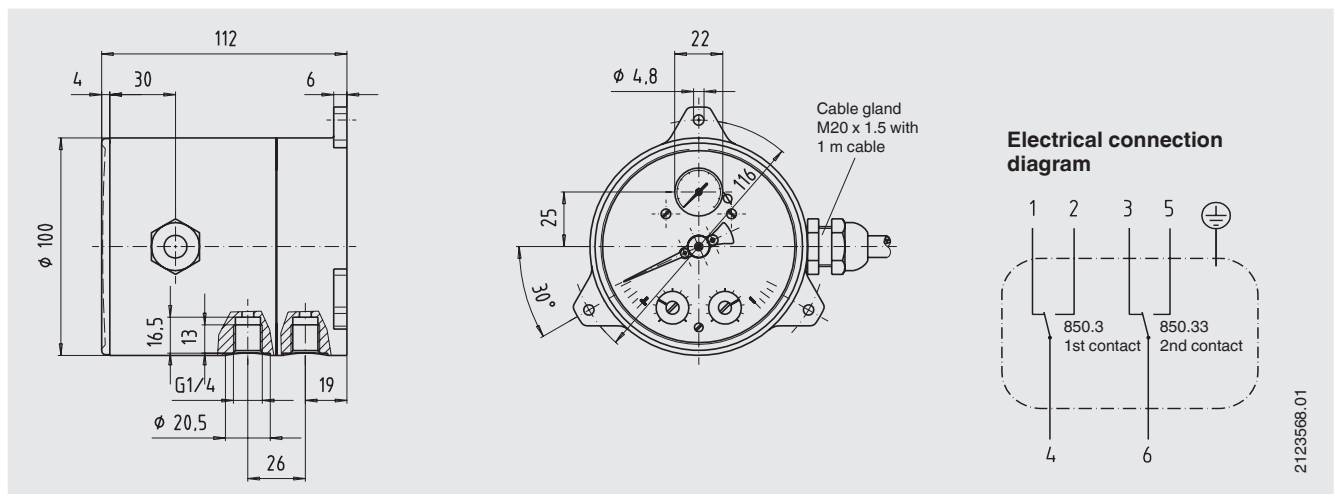
¹⁾ Option

Approvals and certificates, see website

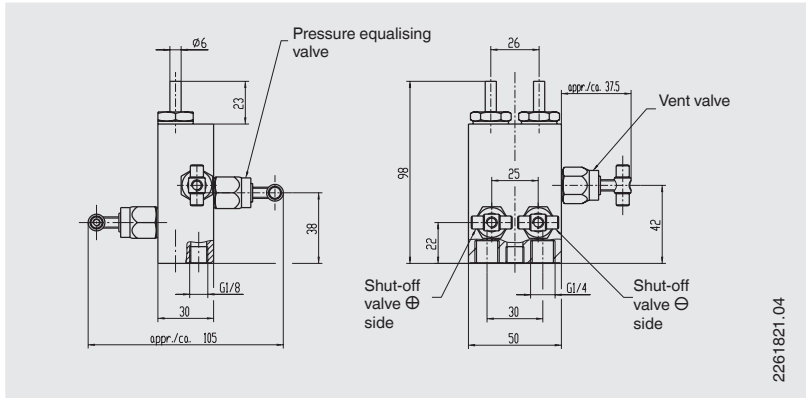
Electrical contact

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	via cable gland M20 x 1.5 with 1 m free cable end	

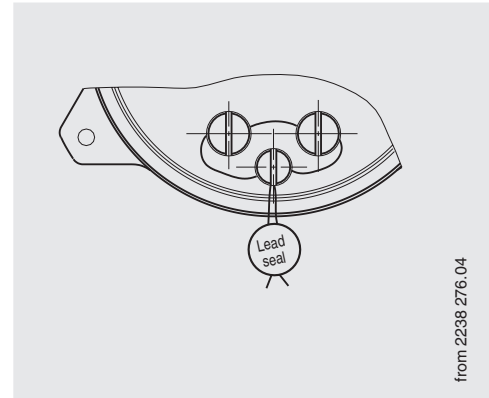
Dimensions in mm



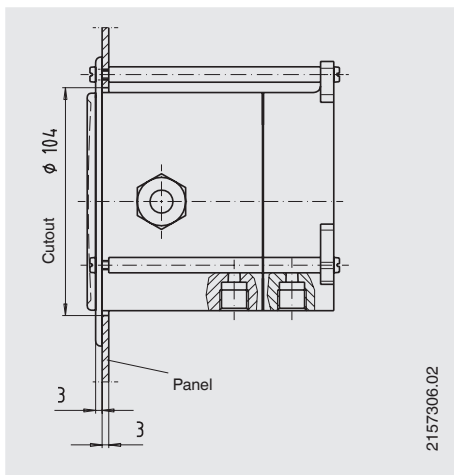
Option 4-way valve manifold



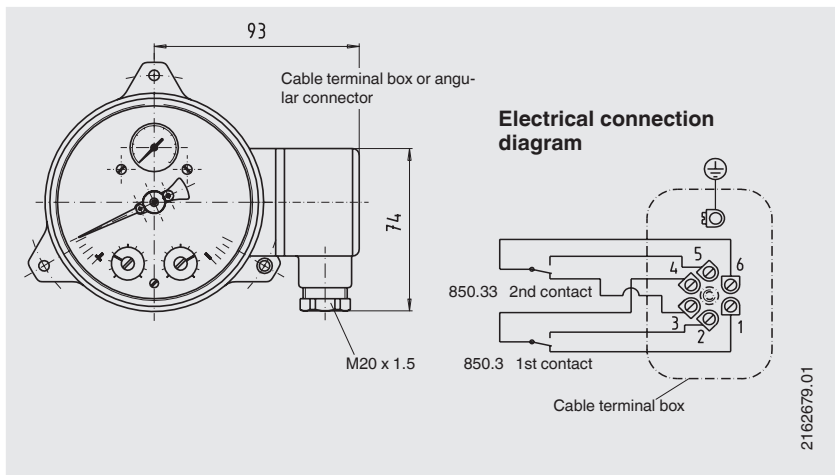
Lead sealing of the set switch points



Option Panel mounting



Option Electrical connection variants



Ordering information

Model / Scale range / Process connection / Material of media chamber / Material of separating diaphragm and sealings / Accuracy class for differential pressure indication / Type of approval / Options

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