Differential pressure switch
Model DPS40

DELTA-switch

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 switch with one or two adjustable micro switches
- Robust aluminium case with shatterproof window
- High ingress protection, IP 65 (option)
- Low measuring range from 0 ... 250 mbar

Differential pressure switch with two micro switches, model DPS40

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 and control of filters, compressors and pumps.

Wherever electrical circuits need to be switched safely dependent on a defined differential pressure, the DELTA-switch 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 assistance scale enables an accurate setting of the switch point and indicates the current set point.

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. In addition, ingress protection of IP 65 protects the unit against ingress from dust and spray water.

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.

Data sheets showing similar products:
DELTA-plus, differential pressure gauge with integrated working pressure indication; model DPG40; see data sheet PM 07.20
DELTA-trans, differential pressure transmitter; model DPGT40; see data sheet PV 17.19
DELTA-comb, differential pressure gauge with working pressure indication and micro switch; model DPGS40; see data sheet PV 27.20

Design and operating principle

Pressures p1 and p2 act on the media chambers ⊕ and ⊖, which are separated by an elastic diaphragm (1).

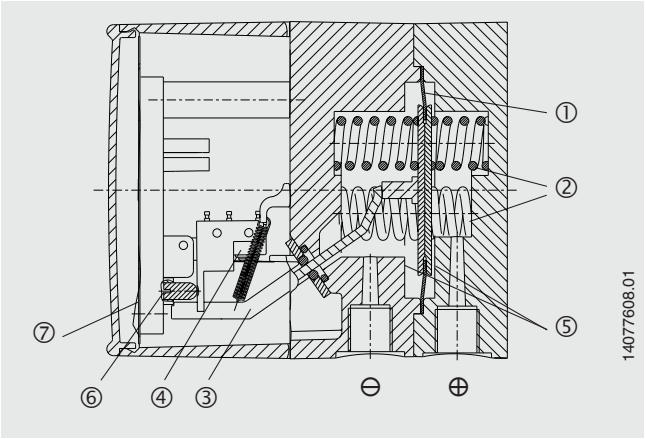
The differential pressure ($\Delta p = p_1 - p_2$) leads to an axial deflection of the diaphragm against the measuring range springs (2).

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

Overpressure safety is provided by metal bolsters (5) resting against the elastic diaphragm.

The adjustment of the switch point is made by the adjustment screws accessible from the front (6). The assistant scales (7) enable an accurate setting of the switch points and indicate the current set point.

Illustration of the principle



Mounting according to affixed symbols,
⊕ high pressure, ⊖ low pressure

Mounting by means of:
- Rigid measuring line or
- Wall mounting with available mounting links

Specifications	DELTA-switch model DPS40
Case diameter	100 mm
Differential pressure measuring ranges	0 ... 0.25 to 0 ... 10 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)
Transmission parts (wetted)	Stainless steel 1.4301, 1.4305, 1.4310, FPM/FKM (option: NBR)
Sealings (wetted)	FPM/FKM (option: NBR)
Case	Aluminium, EN AC–Al Si9Cu3(Fe), black lacquered
Window	Plastic
Weight	approx. 1.4 kg

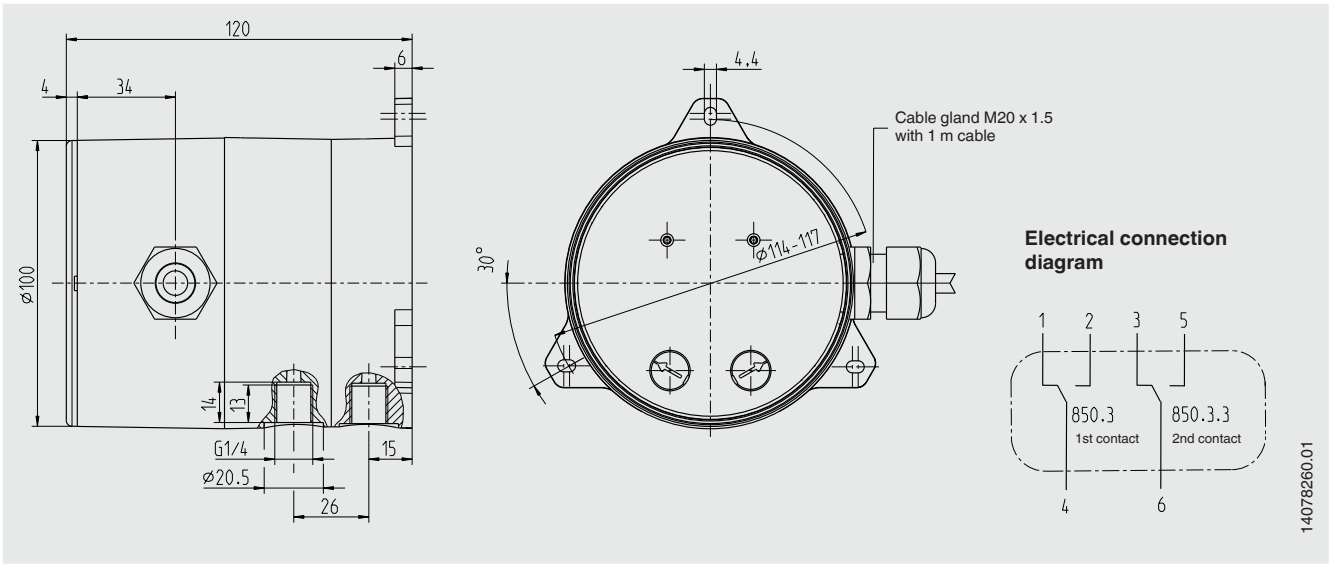
Options

- 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

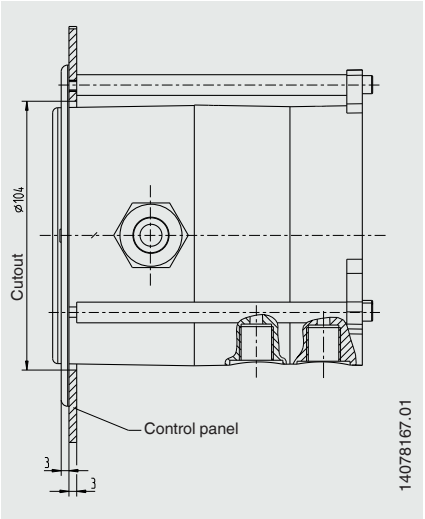
Electrical contact

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	

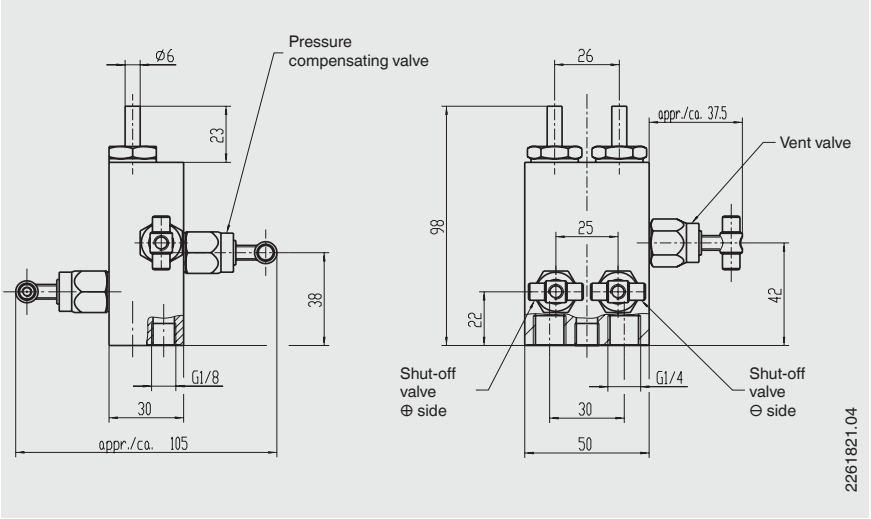
Dimensions in mm



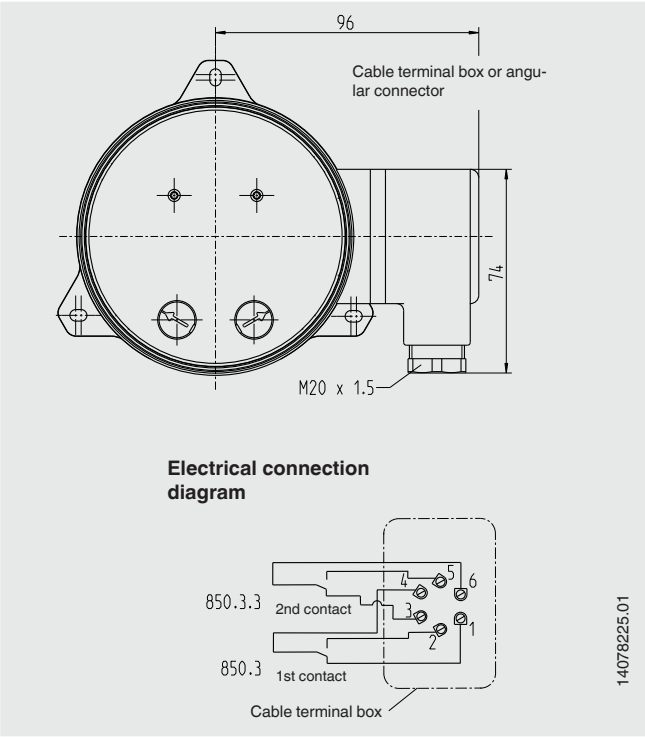
Option
Panel mounting



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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