

DTU Series

3-WIRE DIFFERENTIAL PRESSURE TRANSMITTERS

PRODUCT DATA AND MOUNTING INSTRUCTIONS



GENERAL

The DTU 3-Wire Differential Pressure Transmitters with voltage signal are suitable for measuring differential pressures in liquid and gaseous media. They operate according to the piezo-resistive measuring principle. The measurement cell is welded into a seal-less stainless steel measurement chamber. The device is powered with 24 VAC/DC and has a 0...10 V output. Typical areas of application include:

- Compressors
- Refrigeration and HVAC/R

FEATURES

- Compact, rugged design
- Accurate differential pressure measurement over a wide temperature range
- Rated IP65
- Input reverse voltage protection prevents miswiring
- Rapid response time

TECHNICAL DATA

Connection

Pressure connection 2X G1/8" as per DIN ISO 228
Elect. connection Plug connector as per DIN 175301, Form A, wire cross-section max. 1.5 mm²

Sensor

(Reference conditions: As per DIN 16086 + DIN EN 60770)

Medium temperature -15 ... +100 °C
Operating temperature -20 ... +80 °C
Storage temperature -50 ... +100 °C

Zero-point deviation	≤ 0.3% of FFS
Thermal hysteresis	-15 ... +85 °C in compensated range
Char. curve deviation	≤ ±0.5% of FFS
Hysteresis	≤ ±0.2% of FFS
Reproduceability	≤ 0.1% of FFS
Response time	< 3 ms
Long-term stability	< 1% of measurement range / year

Effect of ambient temperature in compensated range of -20 °C ... +85 °C

Zero	≤ 0.02% / K (typically), ≤ 0.04% / K max.
Measuring range	≤ 0.02% / K (typically), ≤ 0.04% / K max.

Output

Output signal	0...10 V, load ≥ 10 kOhm
Effect of burden	< 0.5% max.
Voltage supply	24 VAC/DC ± 10%
Current consumption	max. 25 mA
Effect of voltage supply	< 0.02% / V

Materials

In contact with medium	stainless steel 1.4571, 1.4435, 1.4305; seal: FPM
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Miscellaneous

EMC	According to EN 61326
Protection rating	IP65 as per EN 60529 with plug connector as per DIN 175301, Form A
Mechanical shock	Max. 100 g / 1 ms (as per DIN IEC 68-2-27)
Mechanical vibrations	Max. 20 g at 15...2000 Hz (as per DIN IEC 68-2-6)
Mounting orientation	As desired
Weight	100 g
Incl. in delivery	Pressure transmitter, incl. plug connector and these instructions in individual packaging
China RoHS Conformity	See accompanying leaflet



Fig. 1. Manufacturer's plate (example)

Table 1. Measuring ranges, max. permissible loads, etc.

Model	measuring range	max. system pressure	max. load			bursting pressure	total error ³⁾ (FFS)	long-term stability (p.a.)
			both sides ²⁾	+ side	- side			
DTU06	0 ... +0.6 bar	5 bar	7.5 bar	7.5 bar	5 bar	≥ 60 bar	≤ 2.3%	≤ 0.6%
DTU1	0 ... +1 bar							
DTU2	0 ... +2.5 bar	10 bar	15 bar	15 bar	10 bar		≤ 2.0%	≤ 0.6%
DTU4	0 ... +4 bar	30 bar ¹⁾	45 bar	25 bar			≤ 1.8%	≤ 0.4%
DTU6	0 ... +6 bar			30 bar			≤ 1.5%	
DTU10	0 ... +10 bar							

¹⁾ Max. ambient temperature +60 °C

²⁾ With simultaneous application of the pressure on the + and - side

³⁾ Incl. linearity, hysteresis, reproducibility, and temperature drift in the range of -15 ... +85 °C

SAFETY REMARKS

**Danger. Minor or moderately severe injuries.**

The DTU pressure transmitter is used for measuring relative (gauge) pressure in liquids and gases. Improper application of the device can be dangerous. The device is to be used only by authorized and professionally qualified personnel who follow these instructions and the relevant technical standards and statutory regulations (depending upon the given application) for installing, connecting, and operating the device. This device does not meet the requirements for a "Component with safety functions" as per the Pressure Directive 2014/68/EU.

The sample medium must **not** be allowed to freeze in the pressure transmitter!

Functional earth (F.E.): The pressure transmitter must be earthed via the process connection. Otherwise: See section "Electrically Non-Conductive Process Connection."

DIMENSIONS

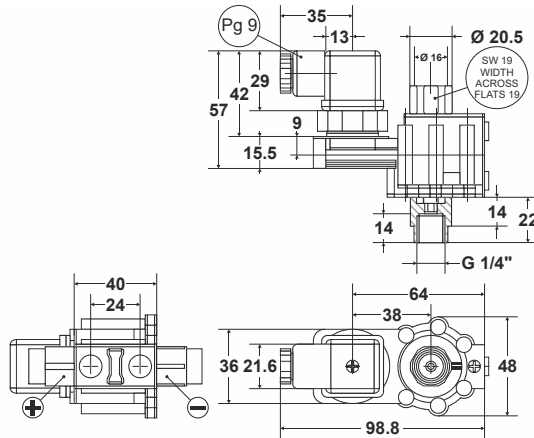


Fig. 2. Dimensions (mm)

ELECTRICAL CONNECTION

Table 2. Electrical connection

Connection		plug connector as per DIN 175301, Form A
Voltage supply 24 VAC/DC		1 + 2 -
Output 0...10 V		2 - 3 +
F.E.		4

Electrically Non-Conductive Process Connection

If the process connection is not electrically conductive and is thus unsuitable for the required functional earth, the functional earth can instead be effected via the plug connector (see Fig. 3). In this case, however, the device must be equipped with an electrical circuit that meets the requirements of EN 61010-1 with regards to "Limited-energy circuits."

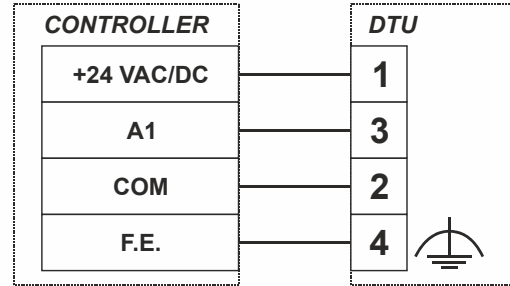


Fig. 3. Typical circuit

CONNECTION OF PLUG CONNECTOR

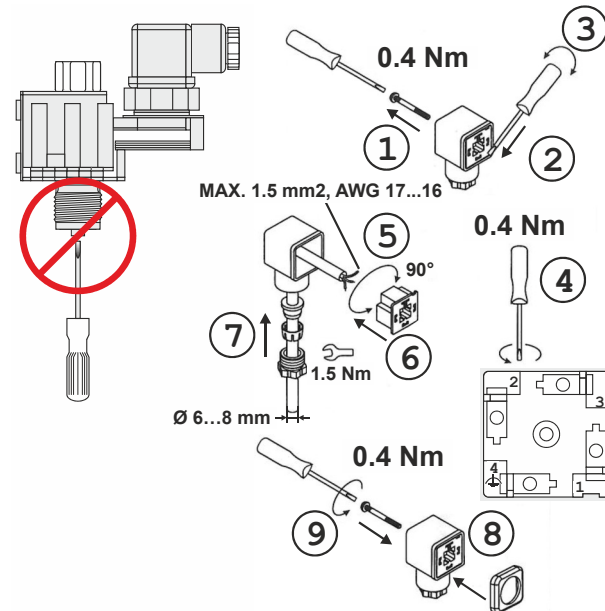


Fig. 4. Connection of plug connector

NOTE:

To ensure protection rating IP65, the plug connector must be completely mounted – with the gaskets included in the delivery (8) – and a cable of appropriate diameter must be used.

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