



DPT 100

Differential Pressure Transmitter for Process Industry

accuracy according to IEC 60770:
0.1 % FSO

Differential pressure

from 10 mbar up to 20 bar

Static pressure

max. 400 bar

Output signal

2-wire: 4 ... 20 mA

RS485 with Modbus RTU protocol

Special characteristics

- ▶ compact design
- ▶ fast response time
- ▶ aluminium die cast case
- ▶ zero adjustment via button

Optional versions

- ▶ several process connections

The differential pressure transmitter DPT 100 has been especially designed for fast test processes in leakage and flow measurement, where a fast response time and high sampling rate are necessary.

The compact design of the DPT 100 facilitates the usage in standardised applications. For instance, the installation in 19" racks.

The DPT 100 with optionally RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master Slave architecture with which up to 247 Slaves can be questioned by a master – the data will transfer in binary form.

Preferred areas of use are

Test engineering / leak testing



Machine and plant engineering



Environmental technology



Energy production



Modbus®

DPT 100

Differential Pressure Transmitter

Technical Data

| Differential pressure ranges | | | | | | |
|--|---|---------------|----------------|--------------------------------|-------------------|------------|
| Pressure range p_N diff. | 10 mbar | 60 mbar | 100 mbar | 400 mbar | 2.5 bar | 20 bar |
| Pressure range p_N symmetric (diff.) | ± 10 mbar | ± 60 mbar | ± 100 mbar | ± 400 mbar | on request | on request |
| Permissible static pressure | 70 bar | 400 bar | 400 bar | 400 bar | 400 bar | 400 bar |
| Output signal / Supply | | | | | | |
| Standard | 2 wire : 4 ... 20 mA / $V_S = 12 \dots 32 V_{DC}$ | | | | | |
| Option | digital: RS 485 with Modbus RTU protocol / $V_S = 9 \dots 32 V_{DC}$ (delay time: 500 msec) | | | | | |
| Performance | | | | | | |
| Accuracy ¹ | $p_N \geq 60$ mbar: $\leq \pm 0.1$ % FSO $p_N < 60$ mbar: $\leq \pm 0.2$ % FSO | | | | | |
| Permissible load | $R_{max} = [(V_S - V_{Smin}) / 0.02 A] \Omega$ | | | | | |
| Influence supply | supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω | | | | | |
| Influence static pressure p_N [Pa/100 bar] | 10 mbar 18 | 60 mbar 30 | 400 mbar 40 | 2.5 bar 250 | 20 bar 2000 | |
| Influence installation position | max. 400 Pa (can be compensated by zero-point correction) for ranges < 60 mbar please state installation position on the order | | | | | |
| Long term stability | $p_N \geq 60$ mbar: $\leq \pm 0.05$ %FSO/ year at reference conditions $p_N < 60$ mbar: $\leq \pm 0.15$ %FSO/ year at reference conditions | | | | | |
| Sampling rate | 250 Hz | | | | | |
| Turn-on time | approx. 260 msec | | | | | |
| Response time (10 ... 90 %) | 10 msec | | | | | |
| ¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) | | | | | | |
| Thermal effects (offset and span) | | | | | | |
| Thermal error | $\leq \pm 0.1$ % FSO / 10 K | | | | | |
| Compensated range | -20 ... 80 °C | | | | | |
| Permissible temperatures | | | | | | |
| Medium | -25 ... 85°C | | | | | |
| Electronics / environment | -25 ... 85°C | | | | | |
| Storage | -25 ... 85°C | | | | | |
| Electrical protection | | | | | | |
| Short-circuit protection | permanent | | | | | |
| Reverse polarity protection | no damage, but also no function | | | | | |
| Electromagnetic compatibility | emission and immunity according to EN 61326 | | | | | |
| Mechanical stability | | | | | | |
| One-sided overload | according to the maximum static pressure of differential pressure sensor | | | | | |
| Vibration | 5 g RMS (25 ... 2000 Hz) | | | according to DIN EN 60068-2-6 | | |
| Shock | 100 g / 1 msec | | | according to DIN EN 60068-2-27 | | |
| Materials | | | | | | |
| Pressure port / flange | stainless steel 1.4401 (316) | | | | others on request | |
| Diaphragm | stainless steel 1.4404 (316L) | | | | others on request | |
| Vent and dump valves, blanking plugs | stainless steel 1.4401 (316) | | | | | |
| Bolts and nuts | steel, zinc flake coated | | | | others on request | |
| Housing | aluminium die cast with epoxy painting (grey) | | | | others on request | |
| Cable gland | polyamide | | | | | |
| Seals (media wetted) | standard: FKM options: EPDM, NBR | | | | others on request | |
| Filling fluids | silicone oil | | | | others on request | |
| Media wetted parts | pressure port, seal of pressure port, diaphragm | | | | | |

DPT 100

Differential Pressure Transmitter

Technical Data

| Miscellaneous | | |
|--|---|-----------------------|
| Mounting bracket (optionally) | material C-steel or stainless steel 1.4401 (304) weight 0.45 kg (incl. bolts and nuts) | |
| Ingress protection | IP 66 / IP 67 | |
| Installation position | any ² | |
| Weight | approx. 1800 g | |
| Current consumption | approx. 23 mA | |
| Operational life | 100 million load cycles | |
| CE-conformity | EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ³ | |
| ² Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point. Press the button for zero adjustment (see operating manual). | | |
| ³ This directive is only valid for devices with maximum permissible overpressure > 200 bar. | | |
| Connections | | |
| Electrical connection | terminal clamps in clamping chamber (for cable-Ø max.2.5 mm ²) | |
| Process connections | internal thread 1/4" - 18 NPT / fixing 7/16 UNF internal thread 1/4" - 18 NPT / fixing M10 others: on request | |
| Standard option | | |
| Wiring diagram | | |
| 2-wire-system (current) | | |
| RS485 / Modbus RTU | | |
| Pin configuration | | |
| Electrical connection | terminal clamps | M12x1 / metal (4-pin) |
| Supply + | + Ub | 1 |
| Supply - | - Ub | 3 |
| for RS485 / Modbus RTU: | | |
| A (+) | A | 2 |
| B (-) | B | 4 |
| Ground | ⊕ | plug housing |
| Dimensions (mm / in) | | |
| | | |

© 2022 BDSENSORS GmbH – 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.

DPT100_E_110422

Tel.: +49 (0) 92 35 / 98 11- 0
Fax: +49 (0) 92 35 / 98 11- 11

www.bdsensors.de
info@bdsensors.de

BDSENSORS
pressure measurement

