

DPS 300



Multi Range Differential Pressure Transmitter for Gas and Compressed Air

Silicon Sensor

accuracy according to IEC 60770:
0.5 % FSO BFSL

Differential pressure

from 0 ... 1.6 mbar up to 0 ... 1000 mbar

Output signals

3-wire: 0 ... 10 V, 0 ... 20 mA
(0 ... 5 V, 4 ... 20 mA switchable)
2-wire: 4 ... 20 mA (optional)

Special characteristics

- ▶ adjustable ranges
- ▶ high overpressure capability
- ▶ adjustable damping
- ▶ compact form
- ▶ LC-display, two-line

Optional versions



- ▶ automatic zero adjustment
- ▶ contacts
(only in combination with display)
- ▶ square root extraction
(only in combination with display)

The pressure transmitter DPS 300 was developed for the differential pressure measuring for dry, non-aggressive gases and compressed air and can be used for several HVAC applications


The DPS 300 is a multi-range transmitter with up to three adjustable ranges.

The device is equipped with a two-line LC display optionally and can be simply parameterized. Values, status of the contact and the unit are shown on the display.

Preferred applications are

-  HVAC
-  medical

Preferred areas of use are

-  gas, compressed air



| Input pressure range | | | | | | |
|--|--|---|--|--|-------------------------|------------|
| Nominal pressure P_N [mbar] (differential, gauge pressure) | 1,6 | 4 | 10 | 40 | 250 | 1000 |
| Adjustable to P_N [mbar] | 1,0 | 2,5 | 6 | 25 | 60 / 160 | 400 / 600 |
| Nominal pressure P_N symmetric (differential pressure) [mbar] | ± 1.6 | ± 4 | ± 10 | ± 40 | ± 250 | ± 1000 |
| Max. static pressure [mbar] | 200 | 200 | 200 | 345 | 1000 | 3000 |
| Output signal / Supply | | | | | | |
| Standard | 3-wire: | switchable on: | 0 ... 10 V / 0 ... 20 mA 0 ... 5 V / 4 ... 20 mA with automatic zero adjustment: | $V_S = 19 \dots 32 V_{DC}$ $V_S = 24 \dots 32 V_{DC}$ | | |
| Option | 2-wire: | 4 ... 20 mA with automatic zero adjustment: | | $V_S = 11 \dots 32 V_{DC}$ $V_S = 24 \dots 32 V_{DC}$ | | |
| Performance | | | | | | |
| Accuracy | for $P_N < 6$ mbar: $\leq \pm 0,5$ % FSO BFSL | | for $P_N \geq 6$ mbar $\leq \pm 1$ % FSO BFSL | | | |
| Permissible load | voltage 3-wire: | $R_{min} = 10$ k Ω | current 3-wire: | 330 Ω | | |
| | current 2-wire: | $R_{max} = [(V_S - V_{S,min}) / 0,02$ A] Ω | | | | |
| Influence effects | supply: | 0.05 % FSO / 10 V | | load: | 0.05 % FSO / k Ω | |
| Response time T_{90} | < 100 ms; adjustable by potentiometer in the range of 0 msec up to 5000 msec | | | | | |
| Turn on time | 500 ms | | | | | |
| Long term stability | $\leq \pm 0.5$ % FSO / year at reference conditions, for $P_N < 6$ mbar $\leq \pm 0.2$ % FSO / year at reference conditions, for $P_N \geq 6$ mbar | | | | | |
| Measuring rate | 12,5 Hz | | | | | |
| Contact (optional) | | | | | | |
| | 3-wire version | | | 2-wire version (optional) | | |
| Number, form | 2 x relay-output (NO/NC) | | | 2 x PNP-open-collector-contact | | |
| switching current | max. 2 A | | | max. 125 mA resistant; short-circuit-proof | | |
| switching voltage | max. 220 V_{DC} ; max. 250 V_{AC} | | | | | |
| switching capacity | max. 60 W | | | | | |
| Accuracy of switching points | $\leq \pm 2$ % FSO | | | $\leq \pm 2$ % FSO | | |
| Accuracy of repeatability | $\leq \pm 0.5$ % FSO | | | $\leq \pm 0.5$ % FSO | | |
| Switching frequency | 5 Hz | | | 5 Hz | | |
| Switching cycles | < 100 x 10 ⁶ | | | < 100 x 10 ⁶ | | |
| Thermal effects / Permissible temperatures | | | | | | |
| Thermal error (offset and span) | for $P_N < 6$ mbar: $\leq \pm 0,5$ % FSO / 10 K (typ.) | | for $P_N \geq 6$ mbar : $\leq \pm 0,3$ % FSO / 10 K (typ.) | | | |
| in compensated range | 0 ... 50 °C | | | | | |
| Permissible temperatures | medium: 0 ... 50°C | electronics / environment: 0 ... 50°C | | | storage: -10 ... 70°C | |
| Electrical protection | | | | | | |
| Short-circuit protection | permanent | | | | | |
| Reverse polarity protection | no damage, but also no function | | | | | |
| Electromagnetic protection | EMC directive: 2014/30/EU emission and immunity according to EN 61326 | | | | | |
| Materials | | | | | | |
| Pressure port | brass nickel plated | | | | | |
| Housing | ABS | | | | | |
| Sensor | Ceramic, silicon, epoxy, RTV | | | | | |
| Media wetted parts | pressure port, PVC / silicone tube, sensor | | | | | |
| Display (optional) | | | | | | |
| Performance | two-line LC-Display, visible range 32.5 x 22.5 mm; 5-digit 7-segment-main display, digit size 8 mm, range of indication: ± 9999 ; 8-digit 14-segment-additional display, digit size 5 mm; 52-segment-bargraph; accuracy: 0,1% ± 1 digit | | | | | |
| Functions | <ul style="list-style-type: none"> - parameterisation of contacts - selection of units - selection of signal (linear, square root extraction) - cut-off-function (only with square root extraction) - min- / max-value - re calibration - auto zeroing - factory setting | | | | | |

DPS 300

Differential Pressure Transmitter

Technical Data

| Miscellaneous | | | | | | | | | | | | | | | | | | | |
|---|---|--------|--------|--------|----------|------|------|----------|------|------|----------------------------|-------------|---|-----------|----------------|----|-----------|----------------|----|
| Current consumption | 2-wire: max. 22 mA (during automatic zero adjustment: +23 mA) 3-wire: max. 30 mA | | | | | | | | | | | | | | | | | | |
| Ingress protection | Approx. 200 g | | | | | | | | | | | | | | | | | | |
| Weight | IP 54 | | | | | | | | | | | | | | | | | | |
| Installation position | vertical ¹ | | | | | | | | | | | | | | | | | | |
| ¹ The devices are calibrated in a vertical position with the pressure port down. If this position is changed on installation there can be slight deviations in the zero point. | | | | | | | | | | | | | | | | | | | |
| Mechanical connections (dimensions in mm) | | | | | | | | | | | | | | | | | | | |
| Standard | Ø 6,6 x 11 (for flex. tubes Ø 6) | | | | | | | | | | | | | | | | | | |
| Option | Ø 4,4 x 10 (for flex. tubes Ø 4) | | | | | | | | | | | | | | | | | | |
| Electrical connections (conductor cross-section) | | | | | | | | | | | | | | | | | | | |
| without ferrule | 1.5 mm ² | | | | | | | | | | | | | | | | | | |
| with ferrule | 1 mm ² | | | | | | | | | | | | | | | | | | |
| Pin configuration | | | | | | | | | | | | | | | | | | | |
| Standard | cable gland M16x1,5 | | | | | | | | | | | | | | | | | | |
| Electrical connections | <table border="1"> <thead> <tr> <th></th> <th>3-wire</th> <th>2-wire</th> </tr> </thead> <tbody> <tr> <td>supply +</td> <td>VS +</td> <td>VS +</td> </tr> <tr> <td>supply -</td> <td>VS -</td> <td>VS -</td> </tr> <tr> <td>signal + (only for 3-wire)</td> <td>Iout / Vout</td> <td>-</td> </tr> <tr> <td>contact 1</td> <td>C1 / NO1 / NC1</td> <td>S1</td> </tr> <tr> <td>contact 2</td> <td>C2 / NO2 / NC2</td> <td>S2</td> </tr> </tbody> </table> | | 3-wire | 2-wire | supply + | VS + | VS + | supply - | VS - | VS - | signal + (only for 3-wire) | Iout / Vout | - | contact 1 | C1 / NO1 / NC1 | S1 | contact 2 | C2 / NO2 / NC2 | S2 |
| | 3-wire | 2-wire | | | | | | | | | | | | | | | | | |
| supply + | VS + | VS + | | | | | | | | | | | | | | | | | |
| supply - | VS - | VS - | | | | | | | | | | | | | | | | | |
| signal + (only for 3-wire) | Iout / Vout | - | | | | | | | | | | | | | | | | | |
| contact 1 | C1 / NO1 / NC1 | S1 | | | | | | | | | | | | | | | | | |
| contact 2 | C2 / NO2 / NC2 | S2 | | | | | | | | | | | | | | | | | |
| Wiring diagram | | | | | | | | | | | | | | | | | | | |
| <p>3-wire-system (current / voltage)</p> | <p>3-wire-system (current / voltage) with 2 contacts</p> | | | | | | | | | | | | | | | | | | |
| <p>2-wire-system (current)</p> | <p>2-wire-system (current) with 2 contacts</p> | | | | | | | | | | | | | | | | | | |
| Dimension (in mm) | | | | | | | | | | | | | | | | | | | |
| <p>standard</p> <p>DPS 300 without display</p> | <p>option</p> <p>DPS 300 with display</p> | | | | | | | | | | | | | | | | | | |