

## БАРОМЕТРЫ

### PDT 101, 102

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# Vaisala Differential Pressure Transmitter PDT101



Vaisala Differential Pressure Transmitter PDT101 with current output (black) and voltage output (green).

## Features

- Easy mounting on wall, DIN rail or panel
- 2 pressure ranges (Pa and in H<sub>2</sub>O)
- Accessible zero and span adjustment potentiometers
- 1/4" brass tubing connections
- LED status indicator
- Specially designed for critical and regulated environments
- Euro style detachable connector
- NIST traceable (certificate included)

## Operating Environment

Vaisala Differential Pressure Transmitter PDT101 is designed especially for demanding life science and high technology cleanroom applications. The PDT101 transmitter is ideal for incorporating into the Vaisala Veriteq Continuous Monitoring System to measure and monitor the critical environmental parameters as required in regulated environments.

## Performance

The PDT101 offers high accuracy, sensitivity and stability with accuracy 0.40% of span providing a highly reliable and repeatable measurement. The sensor uses a micro-machined, ultra-thin silicon diaphragm which provides inherent sensor repeatability and stability. The sensor enables precise measurement and control in high performance

cleanrooms. The PDT101 transmitter is available with voltage output (3-wire) or current output (2-wire).

Zero and span adjustment screws are available on every PDT101 model. Both adjustments are accessible from the front of the unit.

## Applications

The PDT101 is suitable for high performance cleanroom environments in the life science, semiconductor and electronics industries. As part of a continuous monitoring system, it is highly suitable for regulated environments where continuous, documented and redundant data is a requirement to meet FDA regulations. The compact design is well suited for mounting in a cleanroom or in the adjacent corridor with LED indicator lights for quick and easy power status spotcheck.

# Technical Data

## Performance

Measurement ranges (bidirectional)	±60 Pa ±0.25 in H <sub>2</sub> O
Overpressure	
proof pressure	1.0 bar
burst pressure	1.7 bar
static pressure	1.7 bar
Pressure type	differential, gauge, vacuum and compound
Accuracy (incl. non-linearity, hysteresis, repeatability and zero/span calibration settings)	0.4 % span
Long-term stability	≤0.5 % span/year
Response time (10 ... 90 %)	250 ms
Warm-up time	15 s
Compensated temperature range	+2 ... +54 °C (+35.6 ... +129.2 °F)
Temperature dependence	±(0.065 Pa + 0.054 % of reading) / °C or ±(0.00015 in H <sub>2</sub> O + 0.03 % of reading) / °F (reference 21 °C or 70 °F)
Mounting position	
error (zero adjustable)	≤1 %/g (calibration in vertical position is standard)
Adjustments (front accessible)	
zero	±5 % span
span	±3 % span

## Operating Environment

Operating temperature	-18 ... +70 °C (-0.4 ... +158 °F)
Storage temperature	-40 ... +82 °C (-40 ... +179.6 °F)
Electromagnetic compatibility (EN 61326-1), basic immunity test requirements	
Note: If used in an electromagnetic field of 3 V/m, with narrow frequency area of 80 - 120 Mhz, it is possible that the current output of PDT101 can deviate max. 0.8% (with accuracy specified 0.4%).	

## Inputs and Outputs

Process connection	1/4" barbed fittings
Output signal	
2-wire	4 ... 20 mA
3-wire	0 ... 5 VDC (user selectable 0 ... 10 VDC)
Operating voltage	
2-wire output 4 ... 20 mA	12 ... 36 VDC
3-wire output 0 ... 5 VDC	11.5 ... 36 VDC
3-wire output 0 ... 10 VDC	14 ... 36 VDC or 24 VAC
Max. loop resistance for 4 ... 20 mA	≤ (Supply voltage - 12V)/0.022 A
Supply current	max. 20 mA for 4 ... 20 mA output signal

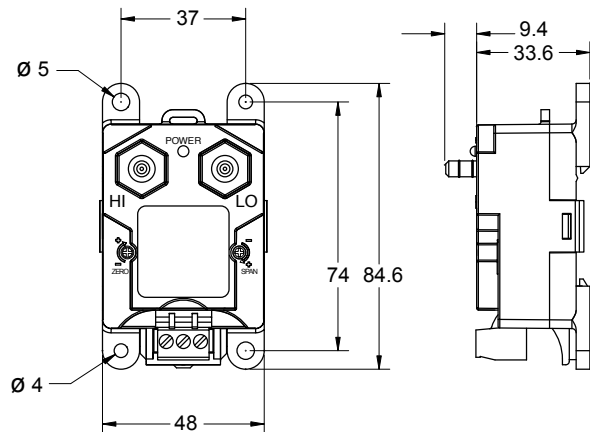
Optical process diagnostics	LED visual indicator
Electrical connection	Euro style pluggable terminal block accepts 12...26 AWG wire (0.13 up to 3.31 mm <sup>2</sup> )

## Mechanics

Medium (measured gas)	clean and dry air, non-conducting and non-corrosive gases
Material	
process connection	brass
sensor element	silicon, aluminium, glass
case	NEMA type 1 fire-retardant ABS 1 (meets UL94-5VA)
Mounting	threaded fastener for wall mounting or DIN rail type EN50022
Housing classification	IP40
Weight	0.07 kg

## Dimensions

Dimensions in mm



## Order Information for PDT101

### PDT101 - XXX

Measurement range: <b>P</b> (+/-60 Pa) or <b>W</b> (+/-0.25 in H <sub>2</sub> O)	↑
Accuracy: <b>4</b> (0.4 % span)	↑
Output: <b>C</b> (current) or <b>V</b> (voltage)	↑

# Vaisala Differential Pressure Transmitter PDT102



*Vaisala Differential Pressure Transmitter PDT102 with process valve actuator and test jacks.*

## Features

- In-place system calibration and on-line monitoring without disturbing process tubes with optional process valve actuator and test jacks
- Ultrathin profile ideally suited for DIN rail mount reduces installation and calibration costs
- High accuracy, two options; 0.25% or 0.50% of span designed for use in critical monitoring of cleanrooms for pharmaceutical, biotechnology, medical device and semiconductor controlled manufacturing environments
- Extremely robust MEMS silicon sensor technology provides very high accuracy, sensitivity, stability and durability
- NIST traceable 9 point calibration with certificate
- Front side accessible zero and span adjustment potentiometers

## Operating Environment

Vaisala Differential Pressure Transmitter PDT102 is a high performance instrument designed primarily for life science and high technology cleanroom applications. The front panel includes zero and span adjustment potentiometers for convenient adjustment. The PDT102 transmitter is ideal for incorporating into the Vaisala Veriteq Continuous Monitoring System to measure and monitor the critical environmental parameters as required in regulated environments.

## Performance

The PDT102 offers very high accuracy, sensitivity and stability with two options for accuracy, 0.25% or 0.50% of span providing a highly

reliable and repeatable measurement. The sensor uses a micro-machined, ultra-thin silicon diaphragm which provides inherent sensor repeatability and stability. The sensor enables precise measurement and control in high performance cleanrooms. The PDT102 transmitter is available with voltage output (3-wire) or current output (2-wire).

## Available Options

Online monitoring of the PDT102 is simple using the optional process valve actuator and the front access test jacks. The front access test jacks provide online process reference signal or calibration signal without disconnecting power supply wiring. Measurements can be made using a standard multimeter.

# Technical Data

## Performance

Measurement ranges (bidirectional)	$\pm 50$ Pa $\pm 0.25$ in H <sub>2</sub> O
Overpressure	
proof pressure	0.7 bar
burst pressure	1.7 bar
static pressure	1.7 bar
Pressure type	differential, gauge, vacuum and compound
Accuracy (incl. non-linearity, hysteresis, repeatability and zero/span calibration settings)	0.25 % span or 0.5 % span, depending on choice
Repeatability	
for 0.25 % span accuracy	0.03 %
for 0.5 % span accuracy	0.05 %
Electrical resolution	$1 \times 10^{-4}$ span
Long-term stability	$\leq 0.5$ % span/year
Response time (10 ... 90 %)	250 ms
Warm-up time	15 s
Compensated temperature range	+2 ... +57 °C (+35.6 ... +134.6 °F)
Temperature dependence	$\pm(0.036 \text{ Pa} + 0.036 \text{ \% of reading}) / \text{°C}$ or $\pm(0.0001 \text{ in H}_2\text{O} + 0.02 \text{ \% of reading}) / \text{°F}$ (reference 21 °C or 70 °F)
Mounting position	
error (zero adjustable)	$\leq 0.25$ %
Adjustments (front accessible)	
zero	$\pm 5$ % span
span	$\pm 3$ % span

## Operating Environment

Operating temperature	-29 ... +70 °C (-20.2 ... +158 °F)
Storage temperature	-40 ... +82 °C (-40 ... +179.6 °F)
Electromagnetic compatibility (EN 61326-1), basic immunity test requirements	
Note: If used in an electromagnetic field of 3 V/m, with narrow frequency area of 80 - 120 Mhz, it is possible that the current output of PDT102 can deviate max. 0.3% (with accuracy specified 0.25%).	

## Inputs and Outputs

Process connection	1/8 NPT female according to ANSI/ASME B1.20.1
Output signal	
2-wire	4 ... 20 mA
3-wire	0 ... 5 V
Operating voltage	12 ... 36 VDC
Max. loop resistance for 4 ... 20 mA	$\leq (\text{Supply voltage} - 12\text{V}) / 0.022 \text{ A}$

Supply current	
for 0 ... 5 V output	max. 10 mA
for 4 ... 20 mA output	max. 20 mA
Electrical connection	Screw terminals, 12 ... 22 AWG (0.33 up to 3.31 mm <sup>2</sup> )

## Mechanics

Medium (measured gas)	clean and dry air, non-conducting and non-corrosive gases
Material	
process connection	brass
sensor element	silicon, aluminium, glass
case	Polycarbonate, glass filled (UL94-V-1)
Mounting	DIN rail types EN 50022, EN 50035 and EN 50045
Housing classification	IP30
Weight	0.16 kg

## Dimensions

Dimensions in mm

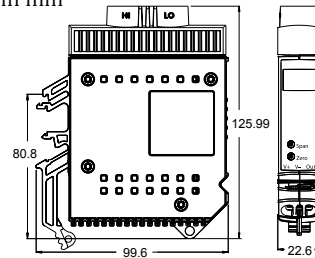


Figure 1

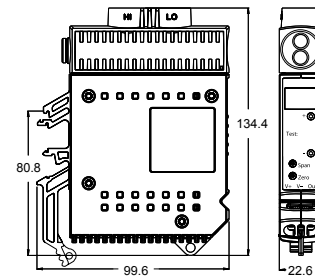


Figure 2 with Process Valve Actuator and Test Jacks

## Order Information for PDT102

### PDT102 - XXXT

Measurement range:	
<b>P</b> (+/-50 Pa) or <b>W</b> (+/-0.25 in H <sub>2</sub> O)	↑
Accuracy: <b>2</b> (0.25 % span) or <b>5</b> (0.5 % span)	↑
Output: <b>C</b> (current) or <b>V</b> (voltage)	↑
Option: (blank) or <b>T</b>	↑

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