

Die deutschsprachige Version kann von www.vaisala.com/PDT101 heruntergeladen werden.

Vous pouvez télécharger la version française sur www.vaisala.com/PDT101.

日本語版は www.vaisala.com/PDT101 からダウンロードできます。

您可以访问 www.vaisala.com/PDT101 下载简体中文翻译。

WARNING - READ BEFORE INSTALLATION

Vaisala Differential Pressure Transmitter PDT101 is a high-performance instrument designed primarily for use in life science and cleanroom applications. PDT101 is not authorized for use as a critical component in life support devices or systems. Consult Vaisala before installing if there are any questions or concerns.

Overpressure: Pressure spikes in excess of the rated overpressure capability of the transmitter may cause irreversible electrical and/or mechanical damage to the transmitter.

Static electrical charges: To avoid damage to the transmitter the operator/installer should follow proper ESD (electrostatic discharge) protection procedures.

TECHNICAL SPECIFICATION

Performance

| | | |
|---|---|---|
| Measurement range (bidirectional) | | ±60 Pa or ±0.25 in H ₂ 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 | (terminal point, incl. effect of linearity, hysteresis and repeatability) | 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 | | ±0.54 %/10 K (reference 20 °C (68 °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 | EN61326-1, Basic immunity test requirements |

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

Electrical connection

LED visual indicator
Euro style pluggable terminal block accepts 12...26 AWG wire (0.13 up to 3.31 mm²)

Mechanics

| | |
|------------------------|--|
| Medium (measured gas) | Clean and dry air, non-conducting and non-corrosive gases |
| Material | Brass |
| Process connection | Silicon, aluminum, glass |
| Sensor element | NEMA type 1 fire-retardant ABS 1 (meets UL94-5VA) |
| Case | Threaded fastener for wall mounting or DIN rail type EN50022 |
| Mounting | IP40 |
| Housing classification | 0.07 kg |
| Weight | |

MOUNTING

The transmitter can be mounted on an EN550022 rail or with M4 (#8) or M5 (#10) screws using the mounting holes provided.

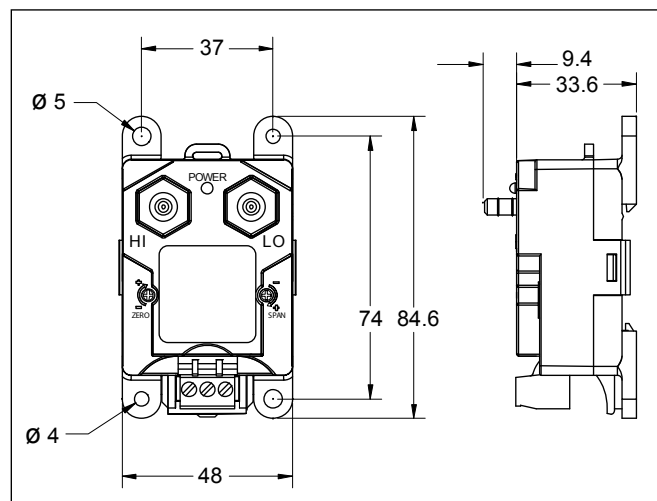


Figure 1 Dimensions (in mm)

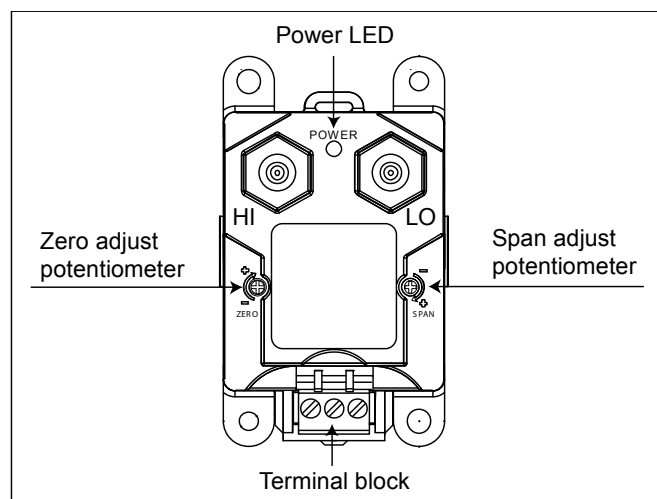


Figure 2 PDT101 Transmitter

SETUP

The transmitters are calibrated at the factory in the vertical position. Mounting in the horizontal position can cause a zero shift of as much as ±1 % of span. Any minor zero offset can be minimized using the zero adjust potentiometer located on the front, left side of the instrument. Use a 3/32" or 2.5 mm slotted or phillips screwdriver to turn the potentiometer.

To apply true zero differential pressure, pneumatically connect the high and low pressure connections together using the tubing provided with the transmitter. The barbed connection accepts 1/4" O.D. 1/8" I.D. tubing. The tubing should remain in place until the transmitter is to be connected to the tubing of the building control system (BCS).

ELECTRICAL WIRING

1. Remove the terminal block on the front of the transmitter.
2. Follow the terminal block label markings on the PDT101 to identify the terminals, and connect the wires.
3. Firmly reinstall the terminal block plug to its mating connector.

Current Output Wiring

The left, negative (-), and right, positive (+) terminals are used, ignore the center terminal which is not used. Connect the power supply positive lead to the PDT101 positive terminal, connect the negative power supply lead to the negative terminal of the BCS 4...20 mA input. Last, connect the (-) negative terminal on the PDT101 to the (+) positive BCS input.

Use of a shielded cable, with the shield grounded, is required. Do not connect the shield to the transmitter.

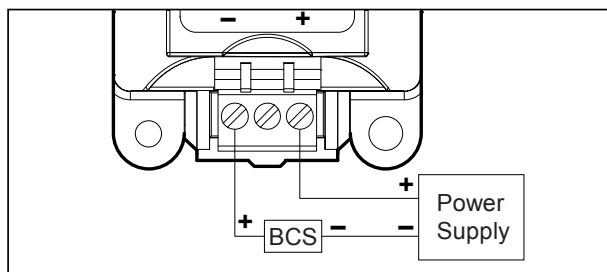


Figure 3 Current Output Wiring

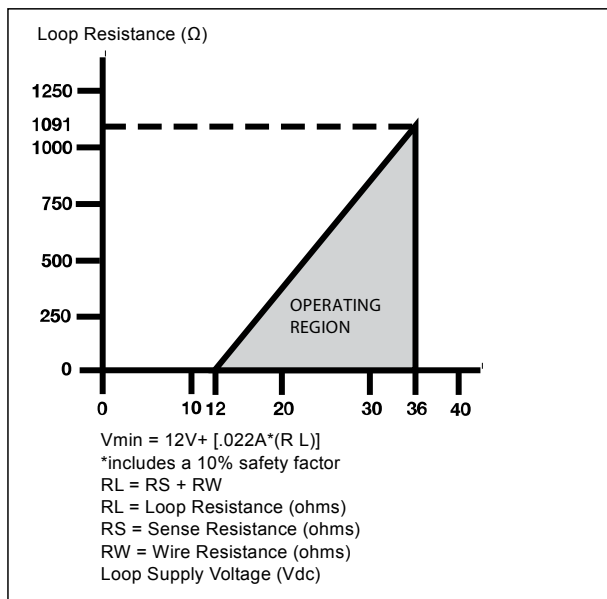


Figure 4 Load Limitations

Voltage Output Wiring

The left terminal is the common (supply and output negative), the right terminal is the Vin (supply positive). The middle terminal is the Vout (output signal).

Use of a shielded cable, with the shield grounded, is required. Do not connect the shield to the transmitter. Maximum cable length for voltage output wiring is 30 m (98.4 ft).

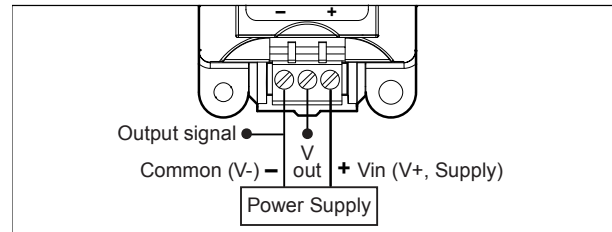


Figure 5 Voltage Output Wiring

The PDT101 voltage output model is supplied as standard with 0...5 VDC output. You can convert the unit to 0...10 VDC output by moving a jumper inside the transmitter. Access the jumper by simultaneously pushing both housing tabs away from the housing. Change jumper (orange) to the left as shown below, and carefully reattach the housing cover. When finished, mark the checkbox on front label indicating that the unit now provides a 0...10 VDC output.

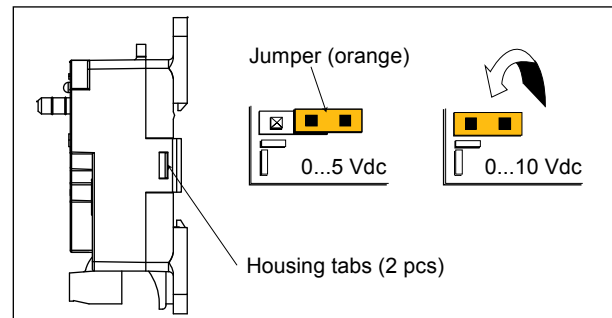


Figure 6 Voltage Output Jumper

ROUTINE MAINTENANCE

To troubleshoot or verify performance, it is recommended to pneumatically connect the pressure ports to each other and establish a zero offset reading in the as-installed position. Adjusting zero will not affect span calibration.

Adjusting span should only be attempted when a high accuracy pressure standard and high quality electrical meter are available.

REMOVAL FROM DIN RAIL

1. Unplug the wiring terminal block from the transmitter.
2. Insert a small slotted screwdriver into the black plastic clip extending slightly below the transmitter case.
3. Raise the screwdriver handle up thereby forcing the spring clip down.

WARRANTY

For warranty information, visit our Internet pages at: www.vaisala.com/warranty.

DISPOSAL

Dispose of the unit according to local regulations. Do not dispose of with regular household waste. Recycle all applicable material.