

INTRODUCTION

Thank you for choosing a Sensocoon DPT Series Differential Pressure Transducer. The DPT Series is intended for use in commercial environments. It is designed with four (4) unit selections (inWC, mmWC, Pa, mbar) and eight (8) field selectable measurement ranges (Unidirectional and Bidirectional) to meet your job measurement requirements. The DPT-R8 Series Differential Pressure Transducers is comprised of the DPT1-R8 with ranges from 0.1 to 1.0 inWC, the DPT10-R8 with ranges from 0.5 to 10.0 inWC, and the DPT30-R8 with ranges 10.0 to 30.0 inWC.

All DPT-R8 Series Differential Pressure Transducers are available with display, **Zero** and NIST standard calibration certificates.

WARNING

- READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THIS DEVICE.
- Failure to observe safety information and comply with instructions could result in PERSONAL INJURY, DEATH AND/OR PROPERTY DAMAGE.
- To avoid electrical shock or damage to equipment, disconnect power before installing or servicing and use only wiring with insulation rated for full device operating voltage.
- To avoid potential fire and/or explosion do not use in potentially flammable or explosive atmospheres.
- Retain these instructions for future reference.
- This product, when installed, will be part of an engineered system whose specifications and performance characteristics are not designed or controlled by Sensocoon. Review applications and national and local codes to assure that the installation will be functional and safe. Use only experienced, knowledgeable, technicians to install this device.

APPLICATIONS

DPT-R8 series devices are commonly used in HVAC/R systems for:

- Fan, blower and filter monitoring
- Pressure and flow monitoring
- Valve and damper control
- Pressure monitoring in clean rooms

SPECIFICATIONS

Performance

Accuracy (at applied pressure)
 Ranges < 0.5 inWC = ±0.01 inWC
 Ranges ≥ 0.5 inWC = ±1.5% inWC
 Accuracy specifications include: general accuracy, temperature drift, linearity, hysteresis, long term stability, and repetition error.

Thermal Effects

Temperature compensated across the full spectrum of capability.

Overpressure

Proof Pressure: 100 inWC

Burst Pressure: 120 inWC

Zero Point Calibration

Automatic with **Zero** function or Manual push-button Auto-Zero

Response Time

4.0 – 0.8 sec, Selectable via Jumper

Technical Specifications

Media Compatibility

Dry air or non-aggressive gases

Measuring Units (select via Jumper)

Pa, kPa, mbar, inWC, mmWC

Measuring Element

Piezoresistive

Environment:

Operating Temperature: 14 –122°F (-10 – 50°C)

Storage Temperature: -4 –158°F (-20 – 70°C)

Humidity: 0 to 95 % rH, non condensing

Physical

Case
 Dimensions: 3.54" x 3.74" x 1.4"
 (90.0 x 95.0 x 36.0 mm)

Weight: 5.3 oz (150 g)

Mounting:

2 each 0.1875" (4.3 mm) screw holes, one slotted

Materials:

Case: ABS (UL 94 V-0 Approved)

Lid: PC (UL 94 V-1 Approved)

Protection standard:

IP54 / NEMA3

Display (optional)

3 1/2 Digit LCD Backlit Display

2-Line Display (12 character/line)

Size: 1.81" W x 0.57" H

(46.0 x 14.5 mm)

Electrical connections:

4 screw terminal block

Wire: 12-24AWG (0.2 – 1.5 mm²)

Cable Entry

Strain Relief: M16

Knockout Ø : 0.625" (16mm)

Pressure Fittings

3/16" Ø (5.2mm) barbed brass

+ High pressure

- Low pressure

Electrical

Voltage

Circuit: 3-wire (V Out), 24V, GND)

Input: 24VAC or VDC, ±10%

Output: 0-10V or 0-5V, selectable via Jumper

Power Consumption: <1.0W

Resistance Minimum: 1kΩ

Current

Circuit: 3-wire (mA Out, 24V, GND)

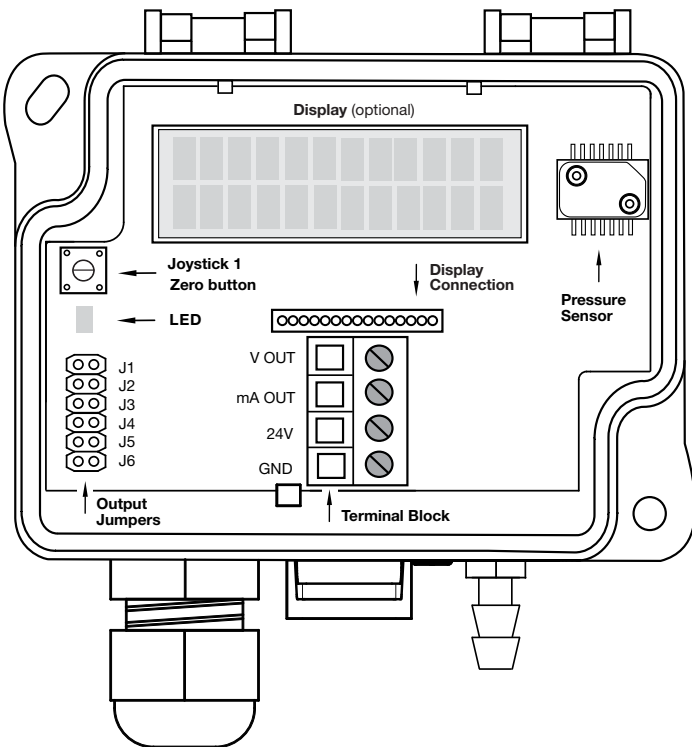
Input: 24VAC or VDC, ±10%

Output: 4-20 mA

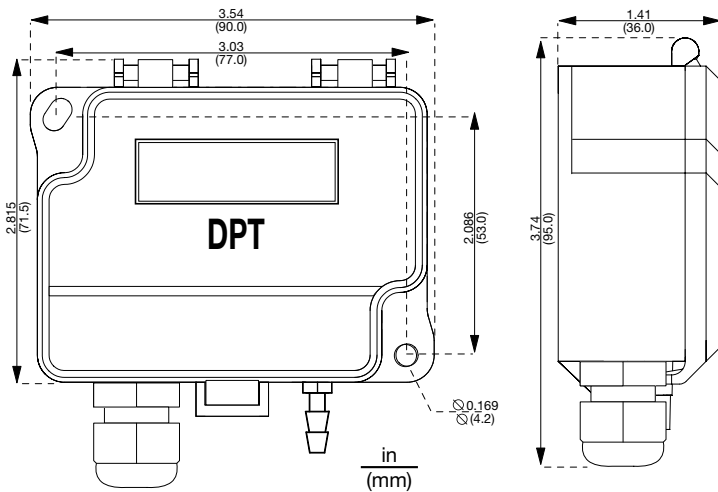
Power Consumption: <1.2W

Maximum load: 500Ω

SCHEMATIC



DIMENSIONAL DRAWINGS



INSTALLATION

- 1) Mount the device in the desired location, see STEP 1.
- 2) Open the lid and route cable through strain relief and connect the wires to terminal block, see STEP 2.
- 3) The device is now ready for configuration.

⚠ WARNING! Apply power only after the device is properly wired.

STEP 1: MOUNTING DEVICE

- 1) Select mounting location (duct, wall, panel).
- 2) Use the device as a template and mark the screw holes.
- 3) Mount with appropriate screws, not included.

Figure 1a - Surface mounting

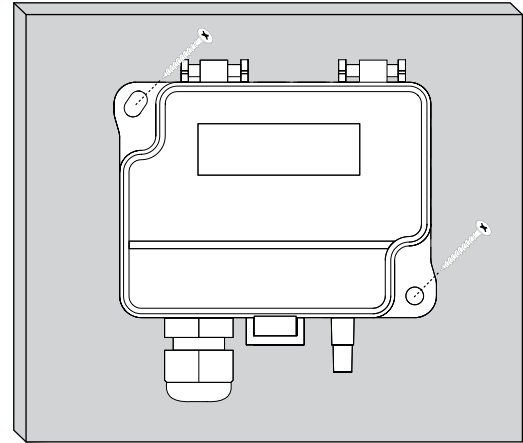


Figure 1b - Mounting orientation

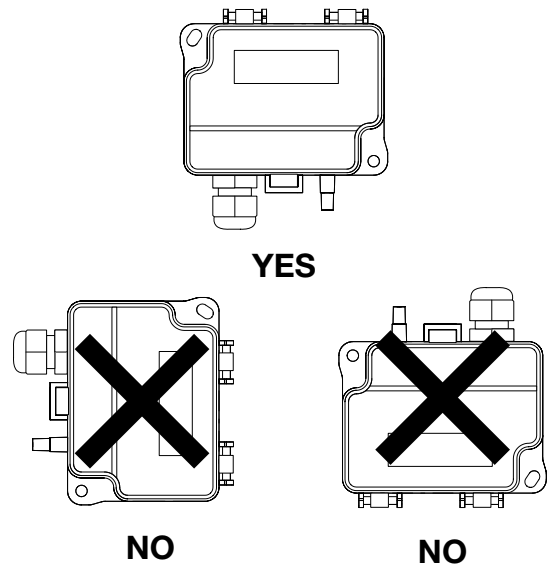
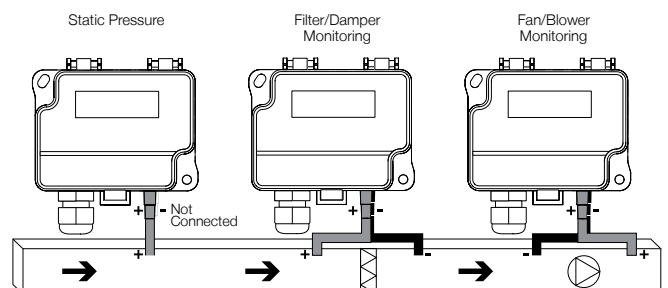
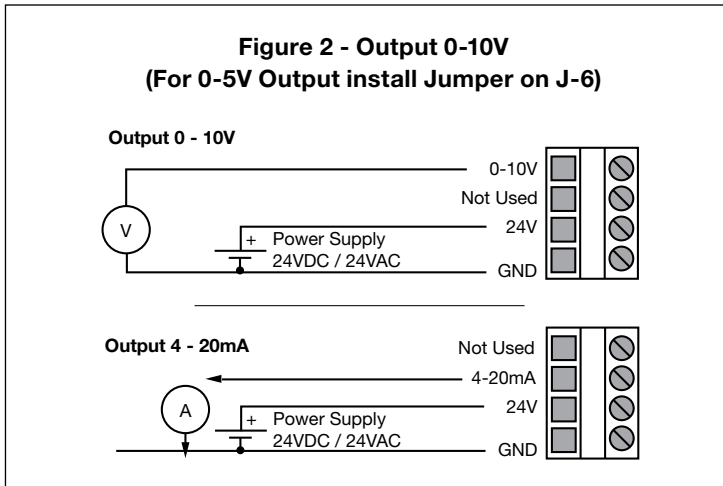


Figure 1c - Application connections



STEP 2: WIRING DIAGRAM

For CE compliance a shielded cable with both ends properly grounded is required.



STEP 3: CONFIGURATION

- 1) Select the desired measurement unit, see STEP 4.
- 2) Select the desired measurement range, see STEP 5.
- 3) Select the desired response time, see STEP 6.
- 4) Zero the device, see STEP 7.
- 5) Connect the pressure tubes. Connect positive pressure to port labeled "+" and negative pressure to port "-".
- 6) Close the lid. The device is now ready to be used.

STEP 4: SELECT MEASUREMENT UNIT

- 1) To change the measurement unit appearing on the display, install a Jumper to both pins of J5, see Figure 3.
- 2) Push down/tilt the Zero button (Joystick) and the measurement unit options (inWC, mmWC, Pa, mbar) will cycle on display.
- 3) To select a unit option to display, remove the jumper from J5 while the measurement unit is visible on the display.

STEP 5: SELECT MEASUREMENT RANGE

- 1) Determine Range Number
 - a. Find Model Number in Chart 1.
 - b. Find Measurement Unit (selected in step 4), in the left column, under applicable Model Number.
 - c. Find required Measurement Range on the same line as the Measurement Unit (b above) and determine Range Number in the header.
- 2) Install Jumpers on J1, J2 and J3 as required.
 - a. Using the Range Number from 1c above, find the corresponding range number in Chart 2.
 - b. Install jumpers on J1, J2 and J3 on device, as shown under the Range Number in Chart 2. Grey colour indicates that a jumper is installed. Reference figure 3 for jumper installation.

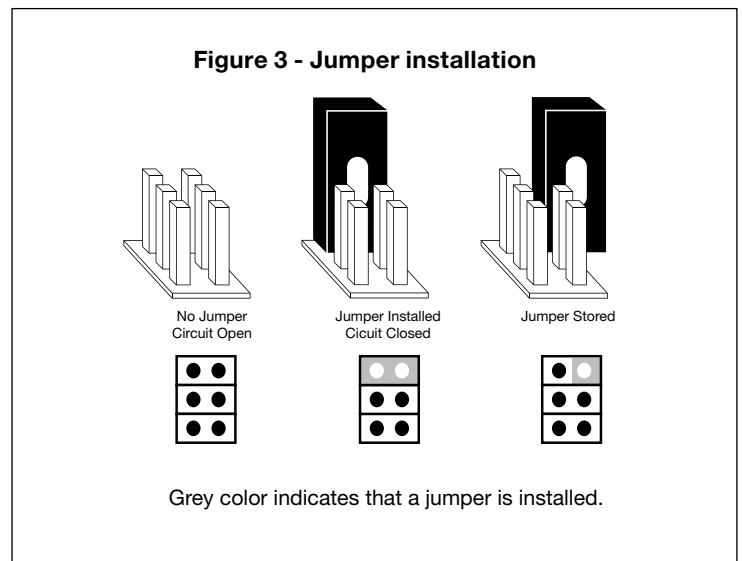
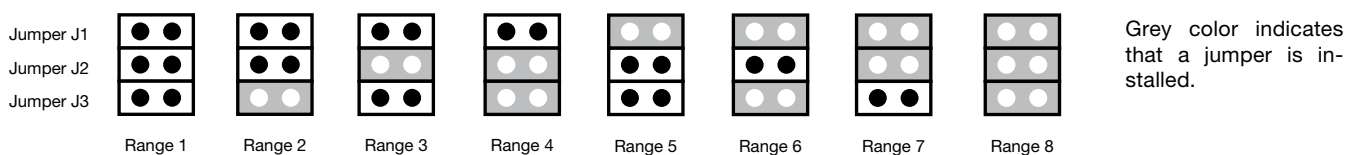


Chart 1 - Configuration

DPT1-R8	Range 1	Range 2	Range 3	Range 4	Range 5	Range 6	Range 7	Range 8
inWC	-0.1 - 0.1	-0.25 - 0.25	-0.5 - .05	-1.0 - 01.0	0 - 0.1	0 - 0.25	0 - 0.5	0 - 1.0
Pa	-25 - 25	-62 - 62	-125 - 125	-250 - 250	0 - 25	0 - 62	0 - 125	0 - 250
mbar	-0.25 - 0.25	-0.62 - 0.62	-1.25 - 1.25	-2.5 - 2.5	0 - 0.25	0 - 0.62	0 - 1.25	0 - 2.5
mmWC	-2.5 - 2.5	-6.4 - 6.4	-12.7 - 12.7	-25.4 - 25.4	0 - 2.5	0 - 6.4	0 - 12.7	0-25.4
DPT10-R8								
inWC	-0.5 - 0.5	-2.5 - 2.5	-5.0 - 5.0	0 - 0.5	0 - 1.0	0 - 2.5	0 - 5.0	0 - 10.0
Pa	-125 - 125	-622 - 622	-1250 - 1250	0 - 125	0 - 250	0 - 622	0 - 1250	0 - 2500
mbar	-1.25 - 1.25	-6.2 - 6.2	-12.5 - 12.5	0 - 1.25	0 - 2.5	0 - 6.2	0 - 12.5	0 - 25
mmWC	-12.7 - 12.7	-64 - 64	-127 - 127	0 - 12.7	0 - 25.4	0 - 64	0 - 127	0 - 254
DPT30-R8								
inWC	-5.0 - 5.0	-10.0 - 10.0	-15.0 - 15.0	0 - 10	0 - 15	0 - 20	0 - 25	0 - 30
Pa	-1250 - 1250	-2500 - 2500	-3750 - 3750	0 - 2500	0 - 3750	0 - 5000	0 - 6250	0 - 7500
mbar	-12.5 - 12.5	-25 - 25	-37.5 - 37.5	0 - 25	0 - 37.5	0 - 50	0 - 62.5	0 - 75
mmWC	-127 - 127	-254 - 254	-380 - 380	0 - 254	0 - 380	0 - 508	0 - 635	0 - 762

SELECT MEASUREMENT RANGE CONTINUED

Chart 2 - Jumper Configuration



STEP 6: SELECT RESPONSE TIME

This device supports response time settings of 0.8 or 4.0 seconds. Increasing the response time can reduce the influence of air turbulence.

To change response time, install or remove jumper on J4, see figure 3.

- 1) Install jumper on J4 for 4.0 Second response time.
- 2) Remove jumper from J4 for 0.8 Second response time.

STEP 7: ZERO POINT CALIBRATION

To zero the device two options are available:

- 1) Manual Push button Auto Zero
- 2) **e-zero** zero point calibration function

Does my transducer have an **e-zero** function?

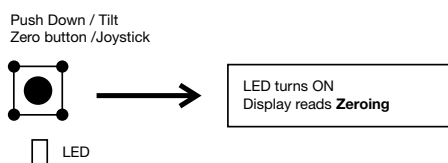
See the product label. If it shows -eZ in the model number, then you have the **e-zero** function.

Note! Supply voltage must be connected one-hour before the Zero Point calibration is carried out.

Manual Push button auto zero

- 1) Disconnect both pressure tubes from the pressure ports labeled "+" and "-".
- 2) Push down/tilt Zero button for at least 4-seconds until the LED light (red) turns on and the display reads zeroing (display option only), see Figure 6.
- 3) The zeroing of the device will proceed automatically. Zeroing is complete when the LED turns off.
- 4) Reinstall the pressure tubes, ensuring the high-pressure tube is connected to the port labeled "+", and the low-pressure tube is connected to the port labeled "-."

Figure 4 - Zero Device



e-zero (-eZ) is a True Automatic Zeroing circuit, in the form of a peripheral connected directly to the PCB board. The **e-zero** peripheral electronically adjusts the transmitter's zero point every 10-minutes. During the 4-second adjustment period, output and display values are frozen to the last measured value, eliminating any conflict with the BAS/controller. After the electronic adjustment the device returns to its normal measuring mode.

Transmitters equipped with the **e-zero** peripheral are virtually maintenance free eliminating all output signal drift due to thermal, electronic, or mechanical effects. Also, the **e-zero** peripheral eliminates the need for technicians to remove high and low pressure tubing from the device, when performing initial or periodic zero point calibration.

WARRANTY POLICY

Sensocon, Inc. (Sensocon)

(a) **WARRANTY COVERAGE:** Sensocon warrants to the original end user of the Products that the Products will, at the date of initial purchase, meet the applicable specification for such Products (as described by Sensocon in its product literature) and, under normal use and service, will be free from any defects in materials or manufacture for (a) one (1) year from date of sale to end user for electromechanical Products and (b) five (5) years from date of manufacture for electronic Products.

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(d) **REMEDIES FOR NON-CONFORMITY OR BREACH OF WARRANTY:** If the Product purchased does not conform to the applicable warranty, Sensocon will provide, at its option, one of the following remedies: (1) repair of the non-conforming Product, (2) replacement with a conforming Product, or (3) refund of the original purchase price. THESE REMEDIES SHALL BE THE EXCLUSIVE AND SOLE REMEDY for any breach of warranty. Sensocon and Manufacturer have no other responsibility or liability for breach of warranty or otherwise.

(e) **LIMITATION OF LIABILITY:** NEITHER SENSOCON NOR MANUFACTURER WILL BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES UNDER ANY CIRCUMSTANCE, INCLUDING WITHOUT LIMITATION ANY DEFECT IN THE PRODUCT PURCHASED.

(f) **FURTHER LIMITATIONS:** The warranty herein does not cover damage caused by lightning, flood or other natural phenomenon; normal wear and tear; accident, improper or careless handling, abnormal use, overloading, improper storage or abuse; incorrect installation, care or reconstruction; or alteration, calibration, reconfiguration, maintenance or installation work done by unqualified personnel. Should Manufacturer alter the structure of any Product in the future, Sensocon and Manufacturer shall not be obligated to make comparable changes to Products already purchased. Sensocon will give a new warranty for Products being replaced or repaired within the warranty period, however only to the expiration of the original Product's warranty period. The warranty includes the repair of a defective part or device, or if needed, a new part or device, but no other costs except as otherwise stated in the Sensocon Distributor Terms and Conditions.