

INTRODUCTION

Thank you for choosing an HK Instruments DPT-Dual series differential pressure transmitter. DPT-Dual combines two differential pressure transmitters into one device. It offers a possibility to measure pressure from two different points. DPT-Dual is designed with five unit selections (Pa, kPa, mbar, inchWC, mmWC) and eight field selectable measurement ranges (unidirectional and bi-directional) to meet your application requirements. The DPT-Dual series is comprised of the DPT-Dual-2500 with ranges from -100–2500 Pa and DPT-Dual-7000 with ranges from 0–7000 Pa.

APPLICATIONS

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

- fan, blower and filter monitoring
- pressure and flow monitoring
- valve and damper control

WARNING

- READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THIS DEVICE.
- Failure to observe safety information and comply with instructions can 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 HK Instruments. Review applications and national and local codes to assure that the installation will be functional and safe. Use only experienced and knowledgeable technicians to install this device.

SPECIFICATIONS

Performance

Accuracy (from applied pressure):

Model 2500:

Pressure < 125 Pa = 1 % + ± 2 Pa

Pressure > 125 Pa = 1 % + ± 1 Pa

Model 7000:

Pressure < 125 Pa = 1.5 % + ± 2 Pa

Pressure > 125 Pa = 1.5 % + ± 1 Pa

(including: general accuracy, linearity, hysteresis, long term stability, and repetition error)

Overpressure:

Proof pressure: 25 kPa

Burst pressure: 30 kPa

Zero point calibration:

Manual pushbutton

Response time:

4.0 s or 0.8 s, selectable via jumper

Technical Specifications

Media compatibility:

Dry air or non-aggressive gases

Measuring units:

Pa, kPa, mbar, inchWC, mmWC, selectable via jumper

Measuring element:

MEMS no flow-through

Environment:

Operating temperature: -20...+50 °C

Temperature compensated range 0...+50°C

Storage temperature: -40...+70 °C

Humidity: 0 to 95 % rH, non condensing

Physical

Dimensions:

Case: 102.0 x 71.5 x 36.0 mm

Weight:

150 g, with accessories 290 g

Mounting:

2 each 4.3 mm screw holes, one slotted

Materials:

Case: ABS

Lid: PC

Pressure inlets: Brass

Duct connectors: ABS

Tubing: PVC

Protection standard:

IP54

Display (Optional)

2-line display (12 characters/line)

Line 1: active measurement, inlet A

Line 2: active measurement, inlet B

Electrical connections:

4 spring loaded terminals, max 1.5 mm²

Wire: 0.2–1.5 mm² (12–24 AWG)

Cable entry: M20

Pressure fittings:

Male $\varnothing$ 5.0 mm and 6.3 mm

Electrical

Voltage:

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

Input: 24 VAC or VDC, ± 10 %

Output: 2x 0...5/10V (selectable via jumper)

Power consumption: <1.0 W

Resistance minimum: 1 k Ω

Conformance

Meets requirements for CE marking:

EMC Directive 2014/30/EU

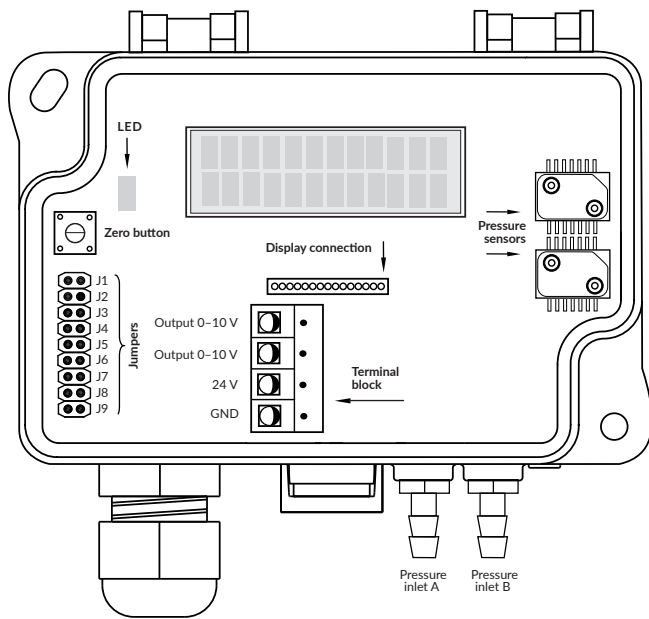
RoHS Directive 2011/65/EU

WEEE Directive 2012/19/EU

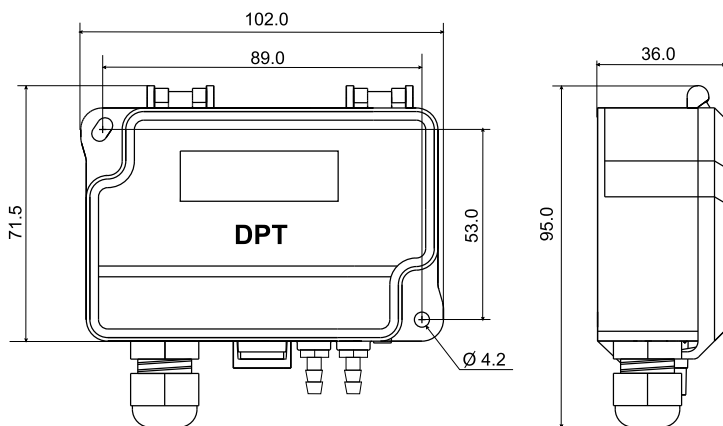
**COMPANY WITH
MANAGEMENT SYSTEM
CERTIFIED BY DNV GL
= ISO 9001 = ISO 14001 =**



SCHEMATICS



DIMENSIONAL DRAWINGS



INSTALLATION

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

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

STEP 1: MOUNTING THE DEVICE

- 1) Select the mounting location (duct, wall, panel).
- 2) Use the device as a template and mark the screw holes.
- 3) Mount with appropriate screws.

Figure 1a - Surface mounting

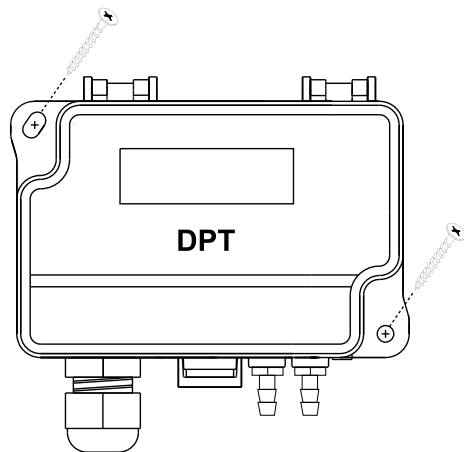


Figure 1b - Mounting orientation

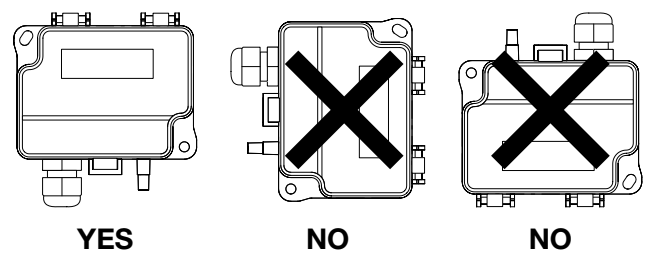
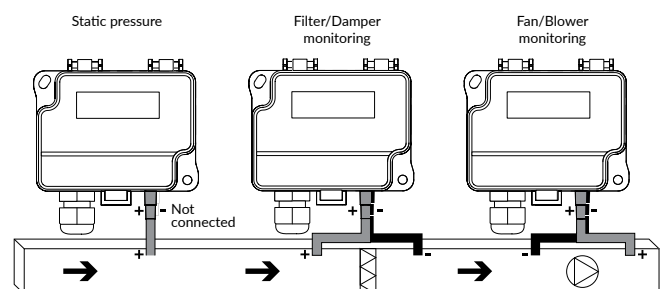


Figure 1c - Application connections

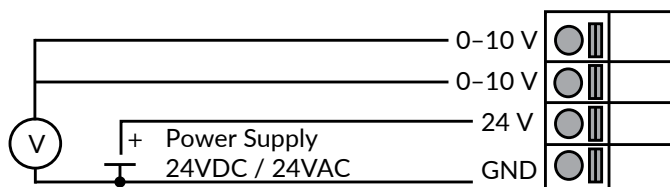


STEP 2: WIRING DIAGRAMS

For CE compliance, a properly grounded shielding cable is required.

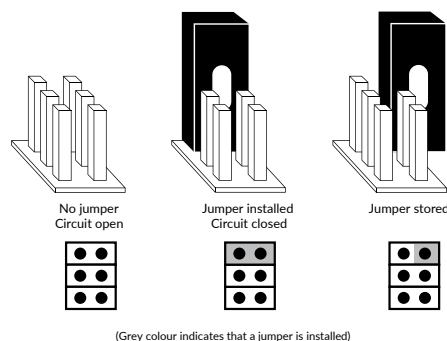
- 1) Unscrew the strain relief and route the cable(s).
- 2) Connect the wires as shown in figure 2.
- 3) Tighten the strain relief.

Figure 2 - Wiring diagram



SELECTING THE MEASUREMENT UNIT CONTINUED

Figure 3 - Jumper installation



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: SELECTING THE MEASUREMENT UNIT

- 1) To change the measurement unit appearing on the display, install a jumper to both pins of J8 (see Figure 3).
- 2) Push down the zero button and the measurement unit options (Pa, kPa, mbar, inchWC, mmWC) will cycle on the display.
- 3) To select a unit option to display, remove the jumper from J8 while the measurement unit is visible on the display.

STEP 5: SELECTING THE MEASUREMENT RANGE

- 1) Determine the range number
 - a. Find the model in Chart 1.
 - b. Find the measurement unit (selected in step 4).
 - c. Find the required measurement range on the same line as the measurement unit (b above) and determine the range number in the header.
- 2) For inlet A: 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

Model DPT-Dual-2500

	Range 1	Range 2	Range 3	Range 4	Range 5	Range 6	Range 7	Range 8
Pa	-100-100	0-100	0-250	0-500	0-1000	0-1500	0-2000	0-2500
kPa	-0.10-0.10	0-0.10	0-0.25	0-0.50	0-1.00	0-1.50	0-2.00	0-2.50
mbar	-1.00-1.00	0-1.00	0-2.50	0-5.00	0-10.0	0-15.0	0-20.0	0-25.0
inchWC	-0.40-0.40	0-0.40	0-1.00	0-2.00	0-4.00	0-6.00	0-8.00	0-10.00
mmWC	-10.2-10.2	0-10.2	0-25.5	0-51.0	0-102.0	0-153.0	0-204.0	0-255.0

Model DPT-Dual-7000

	Range 1	Range 2	Range 3	Range 4	Range 5	Range 6	Range 7	Range 8
Pa	0-1000	0-1500	0-2000	0-2500	0-3000	0-4000	0-5000	0-7000
kPa	0-1.00	0-1.50	0-2.0	0-2.50	0-3.00	0-4.00	0-5.00	0-7.00
mbar	0-10.0	0-15.0	0-20.0	0-25.0	0-30.0	0-40.0	0-50.0	0-70.0
inchWC	0-4.00	0-6.00	0-8.00	0-10.0	0-12.00	0-16.00	0-20.00	0-28.00
mmWC	0-102.0	0-153.0	0-204.0	0-255.0	0-306.0	0-408.0	0-510.0	0-714.0

SELECTING THE MEASUREMENT RANGE CONTINUED

Chart 2 - Inlet A

	Range 1	Range 2	Range 3	Range 4	Range 5	Range 6	Range 7	Range 8
Jumper J1								
Jumper J2								
Jumper J3								

(Grey colour indicates that a jumper is installed. Reference Figure 3 and Schematics for jumper installation.)

3) For inlet B: Install jumpers on J4, J5 and J6 as required.

- Using the range number from 1c above, find the corresponding range number in Chart 3.
- Install jumpers on J4, J5 and J6 on device, as shown under the range number in Chart 3. (Grey colour indicates that a jumper is installed. Reference figure 3 for jumper installation.)

Chart 3 - Inlet B

	Range 1	Range 2	Range 3	Range 4	Range 5	Range 6	Range 7	Range 8
Jumper J4								
Jumper J5								
Jumper J6								

(Grey colour indicates that a jumper is installed. Reference Figure 3 and Schematics for jumper installation.)

STEP 6: SELECTING THE RESPONSE TIME

The response time affects how fast the transmitter reacts to changes in the system. The response time is the time the device takes to reach 63 % of the measured value. To smooth out unstable pressure fluctuations in airflow applications, select a longer response time.

Example:

Selected response time: 4.0 seconds

Result: Output signal achieves a new value in 20 seconds (Response time*5)

To change response time, install or remove jumper on J7.
(see Figure 3)

- Install jumper on J7 for 4.0 second response time.
- Remove jumper from J7 for 0.8 second response time.

NOTE: This will change the response time for both differential pressure measurements.

STEP 7: ZEROING THE DEVICE

NOTE! Always zero the device before use.

Manual Pushbutton zero point calibration:

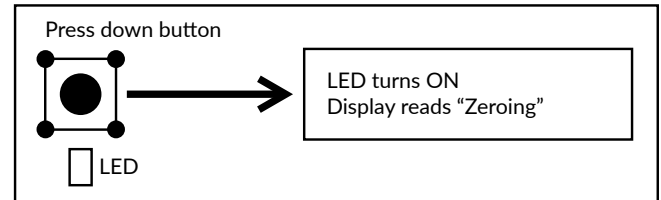
NOTE: Supply voltage must be connected at least one hour prior to zero point adjustment.

- Disconnect both pressure tubes from the pressure ports labeled + and -.
- Push down the zero button until the LED light (red) turns on and the display reads "zeroing" (display option only). (see Figure 4)
- The zeroing of the device will proceed automatically. Zeroing is complete when the LED turns off, and the display reads 0 (display option only).

ZEROING THE DEVICE CONTINUED

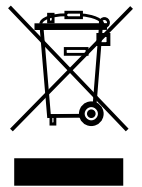
- Reinstall the pressure tubes ensuring that the High pressure tube is connected to the port labeled +, and the Low pressure tube is connected to the port labeled -.

Figure 4



RECYCLING/DISPOSAL

The parts left over from installation should be recycled according to your local instructions. Decommissioned devices should be taken to a recycling site that specializes in electronic waste.



WARRANTY POLICY

The seller is obligated to provide a warranty of five years for the delivered goods regarding material and manufacturing. The warranty period is considered to start on the delivery date of the product. If a defect in raw materials or a production flaw is found, the seller is obligated, when the product is sent to the seller without delay or before expiration of the warranty, to amend the mistake at his/her discretion either by repairing the defective product or by delivering free of charge to the buyer a new flawless product and sending it to the buyer. Delivery costs for the repair under warranty will be paid by the buyer and the return costs by the seller. The warranty does not comprise damages caused by accident, lightning, flood or other natural phenomenon, normal wear and tear, improper or careless handling, abnormal use, overloading, improper storage, incorrect care or reconstruction, or changes and installation work not done by the seller or his/her authorized representative. The selection of materials for devices prone to corrosion is the buyer's responsibility, unless otherwise is legally agreed upon. Should the manufacturer alter the structure of the device, the seller is not obligated to make comparable changes to devices already purchased. Appealing for warranty requires that the buyer has correctly fulfilled his/her duties arisen from the delivery and stated in the contract. The seller will give a new warranty for goods that have been replaced or repaired within the warranty, however only to the expiration of the original product's warranty time. The warranty includes the repair of a defective part or device, or if needed, a new part or device, but not installation or exchange costs. Under no circumstance is the seller liable for damages compensation for indirect damage.