Sontay®
Four Elms Road - Edenbridge
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PA-DPT
Multi-Range Air Differential Pressure Transmitter

Issue Number 7.1
18/04/2023

Features and Benefits

- User selectable measurement range
- 2-wire Loop powered 4-20mA output
- IP65 Housing
- Duct fixing kit included
- Manual Re-zero

Technical Overview

The PA-DPT differential pressure transmitter is ideal for measuring filter conditions, as well as many other applications in ventilation/air conditioning systems in buildings, laboratory's and clean rooms (air and non- corrosive gases).

Featuring a 2-wire 4-20mA output signal and 8 pressure ranges, unidirectional or bi-directional via jumpers. An optional LCD display is also available.

Product Codes

PA-DPT-04	Air DP transmitter with multi selectable ranges and user selectable 2-wire 4-20mA output; 0 - 25Pa, 0 - 50Pa, 0 - 100Pa, 0 -150Pa, 0 - 250Pa, 0 - 300Pa, 0 - 500Pa & ±50Pa
PA-DPT-05	Air DP transmitter with multi selectable ranges and user selectable 2-wire 4-20mA output; 0 - 125Pa, 0 - 250Pa, 0 - 500Pa, 0 - 750Pa, 0 - 1250Pa, 0 - 1500Pa, 0 - 2500Pa & ±250Pa

Suffixes (add to above part code (at extra cost):

-LCD	Integral LCD display
-S	Static pressure probe

Accessories

DFK	Duct fixing kit
TEE	Tee piece air pressure (pack of 10)
PITOT	Aluminium pitot tubes (pair)
PA-TUBE-CLEAR	Clear tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-RED	Red tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-BLUE	Blue tube 8mm o/d x 1.5mm wall, 30m reel

A ‘duct fixing kit’ is supplied with the PA-DPT, consisting of 2m of 6mm ID plastic tubing, 2 x pitot tubes and 4 x fixing screws.

Specification

Power supply	24Vc ±10% (2-wire)
Output accuracy (mA)	±0.04mA typical, at 25°C, load 100Ω
Electrical connections	Terminals to suit 0.2-1.5mm² (12-24 AWG) cables
Accuracy	1.5% AP + ±2Pa Ap = Applied Pressure
Long term stability	0… ±8Pa (typical 1 year)
Overpressure:	
Proof pressure	25kPa
Burst pressure	30kPa
Response time	4.0 or 0.8s selectable
Measuring element	MEMS, no flow though
Pressure connections	5mm ID tubing
Housing:	
Material	PC/GF (Halogen free, flame retardant & UV stabilized)
Dimensions	125 x 105 x 85mm
Environmental:	
Operating temp.	0 to +50°C
Storage:	-20 to 60°C 0 to 95% non-condensing
Protection	IP65
Country of origin	UK
Conformity	EMC, CE & UKCA Marked

WEEE Directive:

At the end of the products useful life please dispose as per the local regulations.
Do not dispose of with normal household waste.
Do not burn.

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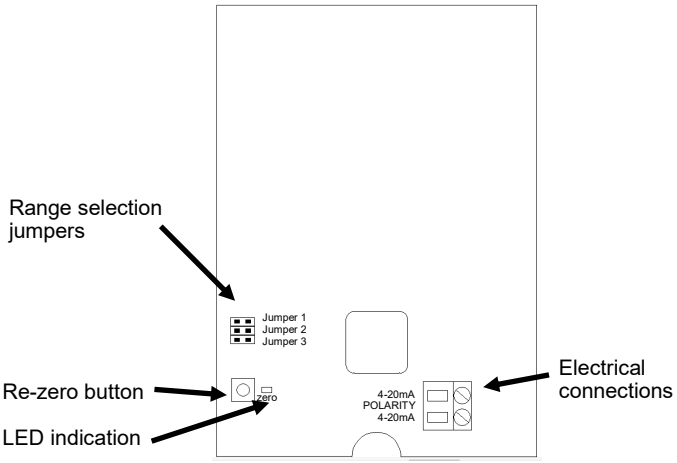
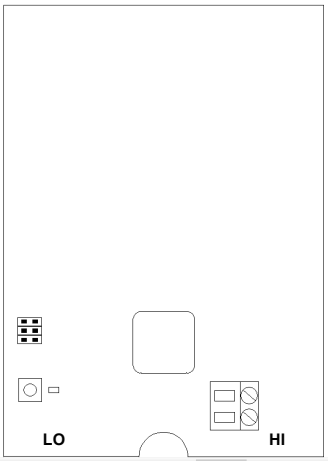
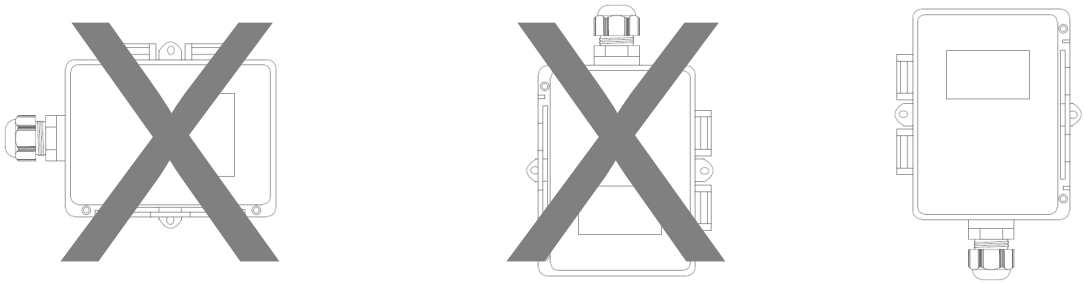
PCB Layout



Pressure Connections



Mounting The Sensor



NO **NO** **YES**

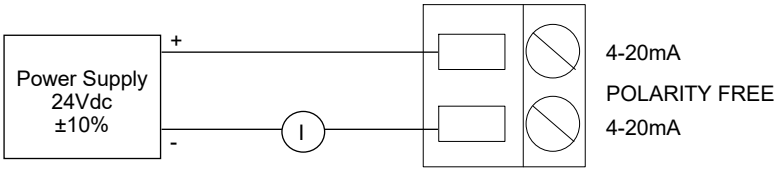
Installation

Antistatic precautions must be observed when handling these sensors. The PCB contains circuitry that can be damaged by static discharge.

1. If the sensor is to be mounted outside, it is recommended that the unit be mounted with the cable entry at the bottom. If the cable is fed from above then into the cable gland at the bottom, it is recommended that a rain loop be placed in the cable before entry into the sensor.

2. In a suitable location, drill two holes at 92mmø and fix the housing with appropriate screws (see mounting positions above).

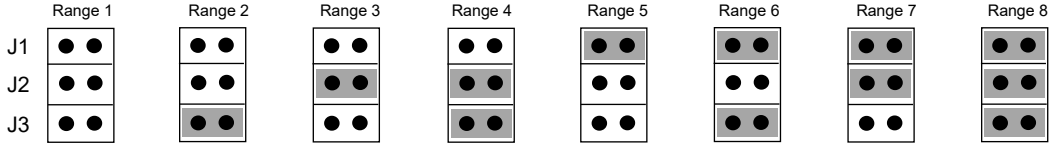
3. Release the snap-fit lid by gently squeezing the locking tab and feed the cable through the waterproof gland & terminate the cores at the terminal block.



Installation (continued)

4. Using the PCB jumper headers, select (Please note, the grey shaded area indicates that a jumper is fitted):

Pressure range



PA-DPT-04	0-25Pa	0-50Pa	0-100Pa	0-150Pa	0-250Pa	0-300Pa	0-500Pa	±50Pa
PA-DPT-05	0-125Pa	0-250Pa	0-500Pa	0-750Pa	0-1250Pa	0-1500Pa	0-2500Pa	±250Pa

Response time

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

To change response time:

Push down and release the button quickly.	LED emits 2 blinks. Device is set with 4.0 second response time
Push down and release the button quickly again.	LED emits 3 short blinks. Device is set with 0.8 second response time

5. Manual Push button zero point calibration NOTE: Supply voltage must be connected at least one hour prior to zero point adjustment

   i) Disconnect both pressure ports.
   ii) Press the zero button for 4 seconds until the LED (red) turns on
   iii) Release the butt, the LED is switched off and zeroing function starts
   iv) Zeroing function is ready when LED emits 2 short blinks.

   Re-install the pressure tubes ensuring that the high pressure tube is connect to the port labelled as + & the low pressure tube is connect to the port labelled as –.

7. Ensure the tubing is cut square and push the pressure tubing firmly over the barb and thread of the pressure ports on the unit. Ensure that the Hi and Lo ports have been correctly identified (see PCB for identification)

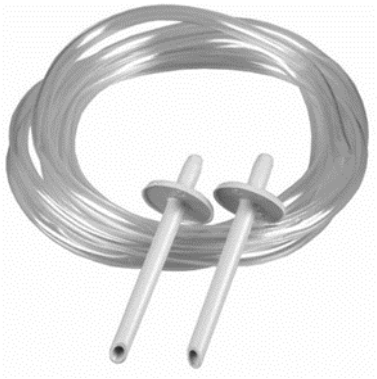
6. Snap shut the lid. Leaving some slack inside the unit, tighten the cable gland onto the cable to ensure water tightness.

It is recommended that screened cable be used and that the screen should be earthed at the controller only. Care should be taken not to lay control signal wiring in close proximity to power or other cables which may produce significant electromagnetic noise.

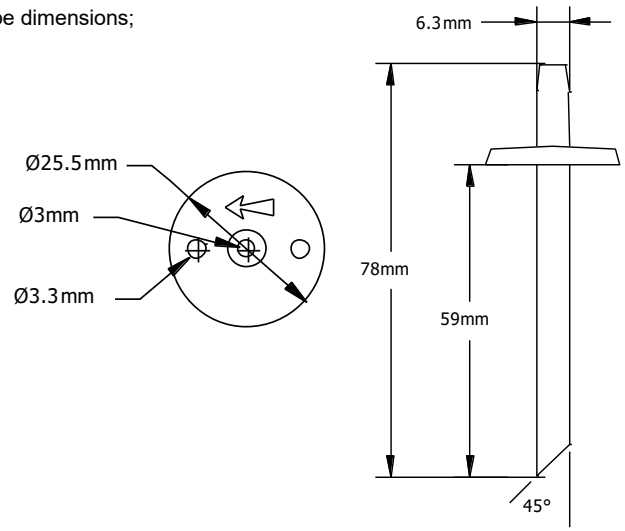
⚠ CAUTION
The PA-DPT will be damaged if subjected to excessive pressure. Do NOT test the unit by blowing into the inlet ports.

Duct Fixing Kit

A 'duct fixing kit' is supplied with the PA-DPT, consisting of 2m of 5mm i/d plastic tubing, 2 x pitot tubes and 4 x fixing screws.



Pitot tube dimensions;



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