

## PA-500

# Multi-Range Air Differential Pressure Transmitter



### Features:

- User selectable measurement range
- IP65 Housing
- Duct fixing kit included

### Benefits:

- Pre-wired for quick & easy installation
- 4 Field selectable ranges to cover many applications

## Technical Overview

The PA-500 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 field-selectable output types and 4 pressure ranges, which are easily defined by user selection switches inside the rugged IP65 housing.

Along with these features the MEMS-based thermo-anemometer on a monolithic silicon chip, combined with CMOS circuitry which provides on-chip-integrated analogue-only compensation and conditioning electronics.

**Tel:** +44 (0) 1732 861200. - **E-mail:** sales@sontay.com. - **Web:** www.sontay.com.

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## Specification:

Power supply:	
Current output	24Vdc $\pm$ 10% (3-wire)
Voltage output	24Vac/dc $\pm$ 10%
Power consumption	1VA
Measurement ranges:	
0-50Pa (0-0.2" w/c)	
0-100Pa (0-0.4" w/c)	
0-300Pa (0-1.2" w/c)	
0-500Pa (0-2" w/c)	
DP Resolution:	
0-500Pa (2" w/c)	0.2% fs
Others	0.1% fs
Pressure non-linearity:	
0-500Pa (2" w/c)	0-20% fs = $\pm$ 2%
	20-100% = $\pm$ 5%
Others	$<\pm$ 1.5% fs
Overall accuracy	$\pm$ 3% fs, 5-55°C (32-131°F)
Long term stability:	
0-500Pa (2" w/c)	Max $\pm$ 5% fs
Others	Max $\pm$ 1.5% fs
Burst pressure	$>$ 5bar (72.5psi)
Sensitivity shift over temp:	
0-500Pa (2" w/c)	$\pm$ 15% fs, 5-50°C (41-131°F)
Others	Typ $\pm$ 1%
	max $\pm$ 1.5%, 5-55°C (32-131°F)
	Typ $\pm$ 1.5%
	max $\pm$ 2.25%, 0-70°C (32-158°F)
Pressure connections	6mm (0.24") ID tubing
Electrical connections	1m (3.2ft) flying lead
Housing:	
Material	Flame retardant ABS
Dimensions	55mm (2.17") x 90mm (3.54") dia.
Ambient:	
Temp	0-40°C (32-104°F)
RH	0-85% non-condensing
Protection	IP65
Country of origin	UK



The products referred to in this data sheet meet the requirements of EU Directive 2004/108/EC

## Part Codes:

### PA-500

Air DP transmitter with multi selectable ranges and user selectable 4-20mA (3-wire) or 0-10Vdc outputs;

- 0 to 50Pa (0 to 0.2" w/c)
- 0 to 100Pa (0 to 0.4" w/c)
- 0 to 300Pa (0 to 1.2" w/c)
- 0 to 500Pa (0 to 2" w/c)

A 'duct fixing kit' is supplied with the PA-500, consisting of 2m (6.56ft) of 6mm (0.24") ID plastic tubing, 2 x pitot tubes and 4 x fixing screws (see page 4).



#### Please Note:

Current versions are NOT loop powered and will require a common 0V connection.

## 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. Drill two holes at 85mm (3.35") centres, fix the IP65 housing with appropriate screws. The housing is designed to make it easy for an electric screwdriver to be used if desired.
3. Remove the lid by twisting and separate from the main body, select output type and range via the dip-switches (see page 4).
4. Replace the lid after the selections have been made.
5. Terminate the cores of the flying lead as required (see below).
6. Push the pressure tubing onto the pressure ports on the unit. Ensure that the Hi and Lo ports have been correctly identified. The ports can be identified by removing the lid of the transmitter and they are marked on the pcb.
7. Power the unit with either 24Vac/dc depending output signal type and after a stabilising period of 2-3 minutes functionality checks can be made.
8. 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-500 will be damaged if subjected to excessive pressure. Do NOT test the unit by blowing into the inlet ports.

## LED Status:

The led on the pcb is an indicator that the sensor is powered correctly, and will flash once every 10 seconds.

## Connections:

4-20mA output:

Red 24Vdc  $\pm$ 10%  
Black 0V (Common)  
White 4-20mA / 0-20mA output signal

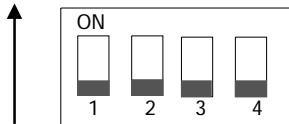
0-10Vdc output:

Red 24Vac/dc  $\pm$ 10%  
Black 0V (common)  
White 0-10Vdc/2-10Vdc output signal

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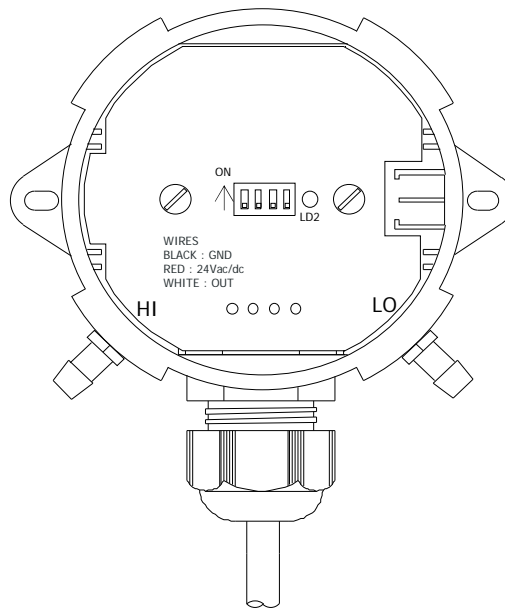
## Dipswitch Setting and PCB Layout:



**Note**, the shaded part is the raised section of the dip-switch

Signal type:	Dip-Switch	
	1	2
0-10Vdc	OFF	ON
2-10Vdc	ON	ON
0-20mA	OFF	OFF
4-20mA	ON	OFF

Range:	Dip-Switch	
	3	4
0-50Pa	ON	ON
0-100Pa	ON	OFF
0-300Pa	OFF	ON
0-500Pa	OFF	OFF

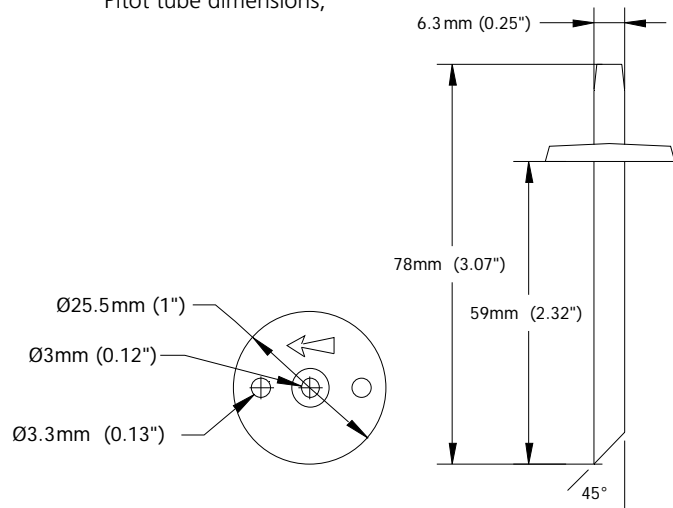


## Duct Fixing Kit:

A 'duct fixing kit' is supplied with the PA-500, consisting of 2m (6.56ft) of 6mm (0.24") ID plastic tubing, 2 x pitot tubes and 4 x fixing screws.



Pitot tube dimensions;



Whilst every effort has been made to ensure the accuracy of this specification, Sontay cannot accept responsibility for damage, injury, loss or expense from errors or omissions. In the interest of technical improvement, this specification may be altered without notice.

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