



FAT 142

Technical Data

Output Ranges	0-4 m/s 0-8 m/s 0-16 m/s 0-32m/s
Accuracy	± 3% of range 0-4 m/s +/-0,12m/s 0-8 m/s +/-0,24m/s 0-16 m/s +/-0,48m/s 0-32m/s +/-0,96m/s
Housing	
Material	Flame retardant ABS
Dimensions	55 x 90 mm diameter
Probe	
Material	Delrin
Dimensions	240 x 19mm diameter
Protection	IP65
Output	0-10Vdc into 4,7kohm min. 4-20mA, 100ohm loop resistance min
Supply Voltage	17Vdc to 34Vdc 14Vac to 26Vac supply into 4,7kohm min
Supply Current	20Vdc to 35Vdc for 500ohm loop resist. 12Vdc to 30Vac for 100ohm loop resist.
Max. current	50 mA
Ambient temp.	-10C/+50C
EMC	EN-50081-1 Emmission EN-50082-1 Immunity

Features

- Accuracy ±3%
- Power supply 24Vac/dc
- User selectable 0-10Vdc or 4-20mA output signal
- Built-in self-test feature
- Durability and resistance to chemical reagents
- Built-in manual override facility for 0%, 50% or 100% of output range

Application

The FAT 142 is a multi-range air velocity transmitter which operates on calometric principle, measuring the temperature of heated thermistor element and deducing the heat loss, thereby calculating the air velocity.

The unit provides a 0-10Vdc or 4-20mA output which is directly proportional to the air velocity and 4 user selectable measurement ranges.

Air velocity measurement can be important factor in control of ventilation to ensure that recommended flow rates for public buildings and industrial plant are achieved

The unit has a self test feature and the user can manually override the output to 0%, 50% or 100% of output range to aid commissioning

It also useful to measure the carrying velocities for dust extraction, where the recommended flow rate will depend on material being exhausted in the extract system.

Mounting

The FAT should be installed not less than 2 metres downstream from any heating or cooling devices, source of moisture such as humidifier, fan or behind the ductwork, and should be orientated with 10 degrees of the air flow.

Guidelines to recommended air velocities for ventilation systems

	Public Buildings	Industrial Plants
Air intake from outside	2,5 - 4,5m/s	5 - 6m/s
Main supply ducts	5 - 8m/s	6 - 12m/s
Branch supply ducts	2,5 - 3m/s	4,5 - 9m/s
Mainextract ducts	4,5 - 8m/s	6-12m/s
Branch extract ducts	2,5 - 3m/s	4,5 - 9m/s

Ordering Code

FAT 142 Air Velocity Transmitter



Installations

Transmitters should only be fitted to a system after airflow calibration has been carried out and preferably following full fan running of at least several days, in order that the main contaminants have been removed from the stagnant system.

1. Select a location in the duct where dust & contaminants are at a minimum.
Should be installed not less than 2metres downstream from any heating or cooling devices, source of moisture such as humidifier, fan or bend in the ductwork.
2. To ensure accurate readings the FAT should be installed so that the element is 0,24xthe duct radius into the duct
3. Reading errors of up to 30% may be experienced if the elements are positioned in the centre of the duct.
4. The FAT should be mounted with the holes in the end of the probe orientated directly into the airflow, to allow full air flow over the sensing element
5. Ensure that the supply voltage is within the specified tolerances.
The FAT requires approx.50mA.
Ensure the supply to the sensor is capable of providing this current.
6. It is recommended that screened cable be used and that the screen should be earthed at the controller.
Care should be taken not to lay control signal wiring in close proximity to power or other cables which may produce significant electromagnetic noise.
7. Allow 3 minutes before checking functionality.
8. Allow 30 minutes before carrying out precommissioning checks.

Self-test & manual override mode

The output of the **FAT** can be manually overridden to one of 3 values by pressing the PCB mounted button.

When this button is pressed once, the output will change to 0% of the output's range, when pressed again the output will change to 50% of the output's range and when pressed a third time will change the outputs to 100% of the outputs range.

Pressing again will return the outputs to automatic control.

Example:

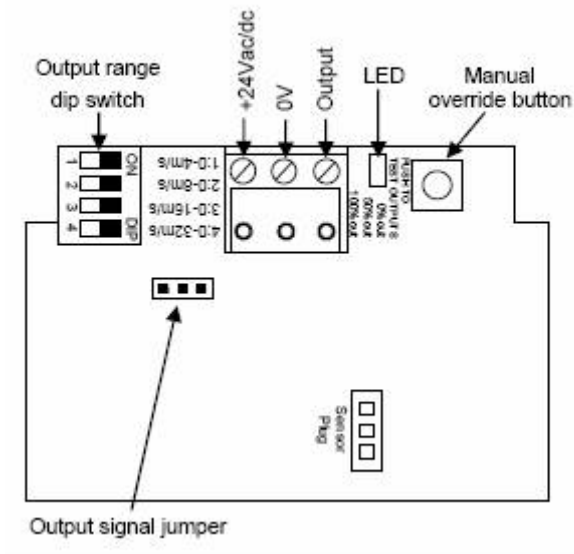
- First Press – Velocity output falls to 0%, LED flashes slowly
- Second Press – Velocity output rises to 50%, LED flashes slowly
- Third Press – Velocity output rises to 100%, LED flashes slowly
- Fourth Press – Velocity output reverts to automatic levels.
The LED should be permanently on.

Failure Mode

If the sensor element assembly is damaged, the output will change to the following fixed default value and the LED will flash rapidly;

Velocity = 0%

Connections



Current Output

If using a current output mode, the sensor must only be used with a 24Vdc supply.

The sensor may be damaged if supplied with ac

Note: When using current output mode they are NOT loop powered and will require a common 0V connection

Jumper settings

Output signal



Output range selection

Output range	Dip switch			
	1	2	3	4
0 to 4m/s	ON	OFF	OFF	OFF
0 to 8m/s	OFF	ON	OFF	OFF
0 to 16m/s	OFF	OFF	ON	OFF
0 to 32m/s	OFF	OFF	OFF	ON



Example:
Output range selected 0 to 4m/s.