

Air Velocity Transmitters

AV-***

Description:

A range of devices for measuring air velocity within a duct and giving 0-10V linear outputs. A typical application would be in a VAV air conditioning system.

The transmitters operate by measuring the heat loss from one of two sensing elements in the airstream and hence calculating the air velocity.

Features:

- 0-10V output
- 0-4m/s, 0-8m/s or 0-16m/s versions
- AC or DC powered
- Linear response
- 8% accuracy (10-30°C)
- 10 sec (approximate) damped response
- No separate control unit

Technical Specification:

Operating Characteristics...

Air Velocity Ranges:	0-4 m/s (AV-4) 0-8 m/s (AV-8) 0-16 m/s (AV-16)
Accuracy:	+/-8% full scale 10-30°C
Operating Conditions:	0-40°C 0-90% RH (non-condensing)
Output:	0-10V DC
90% Response Time (typical):	10 sec
Settling Time on Power-up (typical):	20 sec

Electrical Specifications...

Supply Voltage:	24V DC or AC +10% -15%
Max. Operating Current:	60mA + output current
10V Output Current Limit:	>10mA

Mechanical Details...

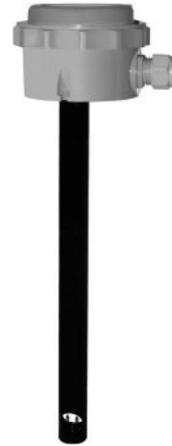
Case Materials:	ABS, aluminium
Probe Dimensions:	240mm x 19mm dia (special lengths available)
Weight:	250g
Fixing Hole Spacing:	65mm

Protection...

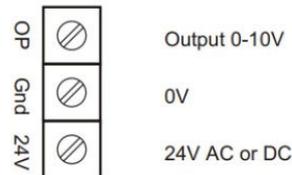
Environmental Protection:	IP65 (except sensing point)
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Order Codes:

SV-4	Air Velocity Transmitter 0...4 m/s
AV-8	Air Velocity Transmitter 0...8 m/s
AV-16	Air Velocity Transmitter 0...16 m/s



Connection Diagram:



Electromagnetic Compatibility:

AV air velocity transmitters have some built in immunity to electrical interference. However, to achieve full immunity meeting the standards described below, a screened cable must be used correctly. The cable screen must be earthed at the enclosure of the controller/power supply and connected to the screen inside the AV casing using the procedure described below. The inside of transmitter and the sensing elements near the end of the probe must be protected from electrostatic discharge at all times.

EMC standards: Immunity: BS EN 50082-1: 1992
Emissions: BS EN 50081-1: 1992

Duct Details:

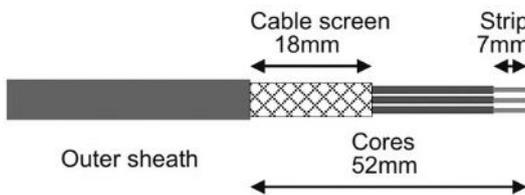
Air Velocity transmitter will achieve its stated accuracy when mounted in a long straight circular duct with the sensing holes 0.242 radius in from the duct wall and the view through the sensing holes parallel to the flow direction (the flow at a point 0.242 radius in from the wall is close to the average flow through the whole duct section for a wide range of flows). In less critical applications, it is recommended that it be mounted at least 2 metres downstream of any heating or cooling devices and at least 6 duct-diameters downstream of any bends or other flow disturbances. Deviation from ideal mounting is likely to reduce stability and accuracy but should not affect repeatability. In many HVAC applications, simply screwing directly to the duct and sealing with the gasket supplied will suffice.

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Attaching the cable and cable screen:

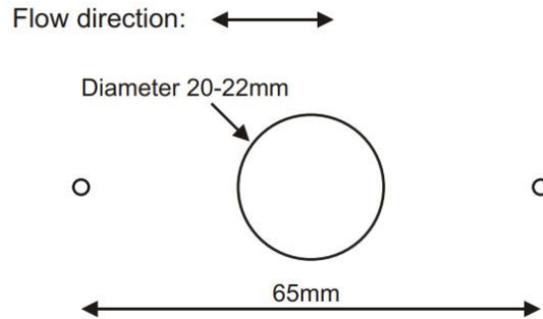
The cable gland contains a rubber insert and a plastic insert. Remove these inserts. Strip back the cable as shown below. Pass the cable through the gland outer and rubber and plastic inserts. Fold the screen back over the plastic insert evenly taking care to remove any pieces of the screen that detach. Feed the cores through into the AV and push the inserts back into the gland noting the orientation of the 3 pips. Tighten the gland outer in place. Finally connect the cores to the removable 3-way connector.



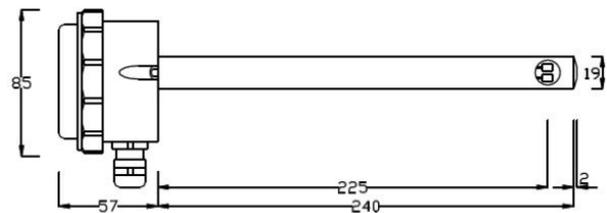
Cleaning:

The transmitter may read low if the sensing elements are very dirty. To clean the sensing elements, disconnect the transmitter from power and dip the end of the probe in water and swirl round. If necessary, use detergent but do not apply force to the elements. Rinse and allow to dry thoroughly before reconnecting power. The body is dustproof and should not need cleaning. If cosmetic cleaning is required, use a damp cloth with water or isopropyl alcohol.

Mounting Hole Details:



Dimensions:



Note: each unit is supplied with a foam gasket 4mm thick before compression.