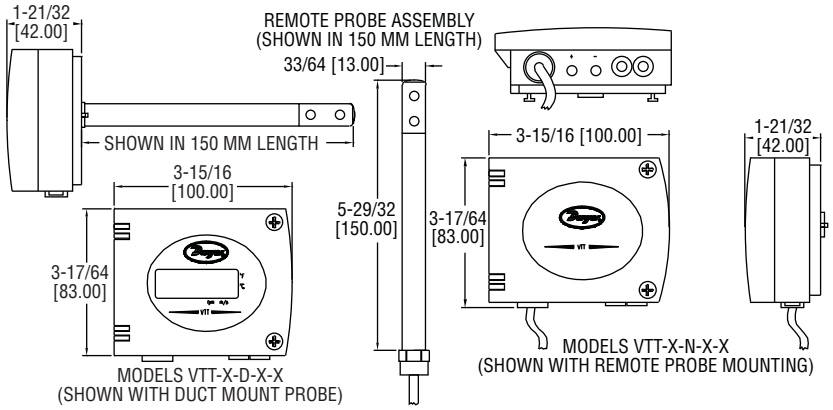
Series VTT Hot-Wire Air Velocity/Temperature Transmitter

Specifications - Installation and Operating Instructions



The Series VTT Hot-Wire Air Velocity and Temperature Transmitter provides a versatile unit for air velocity and temperature needs. The VTT offers field-selectable ranges and two outputs (0-10V and 4-20mA), as well as operating in metric (m/s, °C) or English (fpm, °F) units. The VTT can measure up to 30 m/s (6000 fpm) and 100°C (212°F). The units are available with or without an LCD display which alternates between velocity and temperature. Series VTT can be ordered in duct mount or remote mount configurations. The VTT is a useful transmitter for many common HVAC applications.

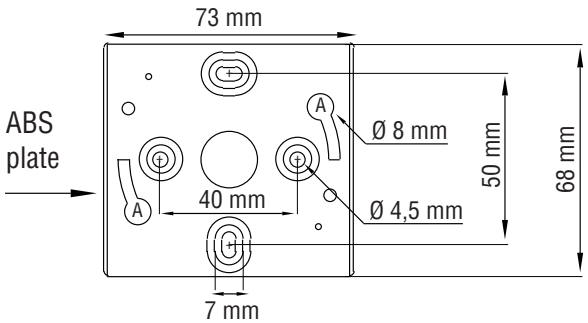
INSTALLATION

Position: The Series VTT Hot-wire probe should be oriented perpendicular to the airflow for best reading. Ensure that the red dot on the airflow probe is facing against the airflow by removing the screw on the tip of the probe and rotating the probe tip 1/4, 1/2, or 3/4 of a turn.

Mounting: The Series VTT can be mounted in any orientation, provided that the airflow probe is oriented correctly to the flow.

Wall Mount Installation:

Mount the ABS plate on the wall (this plate is supplied with the transmitter). Drilling: Ø 6 mm (with the screws and pins supplied with the transmitter). Insert the transmitter on the plate (see A on the drawing below) and rotate its housing in clockwise direction until you hear a "click" which confirms that the transmitter is correctly installed). For the model with duct mount, an additional drilling of Ø 14 mm must be done before mounting the plate.



SPECIFICATIONS

Service: Clean air and compatible, non-combustible gases.
Accuracy: Air Velocity: ±3% of reading ±60 fpm (±0.3 m/s);
Temperature: ±0.5% of reading ±0.6°F (±0.4°C).
Temperature Limits: Ambient: 32 to 122°F (0 to 50°C); Storage: 14 to 158°F (-10 to 70°C).
Power Supply: 24 VAC/VDC (±10%) 3-4 wires.
Current Consumption: 4-20mA Output: 80mA maximum; 0-10V Output: 40mA.
Response Time: Air Velocity: 2 seconds to 1/e (63%) of final value; Temperature: 5 seconds to 1/e (63%) of final value.
Maximum Loop Resistance: 4-20mA Output: 500 Ω; 0-10V Output: 1 kΩ.
Display: 5 digit; Resolution 1 fpm (0.1 m/s) 1.0°F (0.1°C). Alternates between velocity and temperature.
Electrical Connection: Screw terminal block.
Cable Length (Remote Probe): 6.56 ft (2 m).
Enclosure Rating: ABS rated NEMA 4X (IP65).
Mounting: Can be mounted in any orientation. Probe must be aligned with airflow.
Weight: With Display: 0.32 lb (145 g); Without Display: 0.24 lb (110 g).
Agency Approvals: CE.

Airflow: The Series VTT is intended for use with clean, dry air. Particulates in the air may cause damage to the sensitive airflow probe. Dust accumulation may impair the velocity measurement and may require cleaning.

Position of the measuring element in the air flow

The probe must be placed perpendicular to the air flow. For duct mount probes, you can place the probe's head front to the air flow, and keep the housing straight:

- Locate the red point marked on the probe's head.
- Remove the screw located on the tip of the probe's body.
- Rotate the probe's head by 1/4 turn, 1/2 turn, or 3/4 turn, in order to place the red spot front to the air flow.
- Replace the screw on the probe's body.

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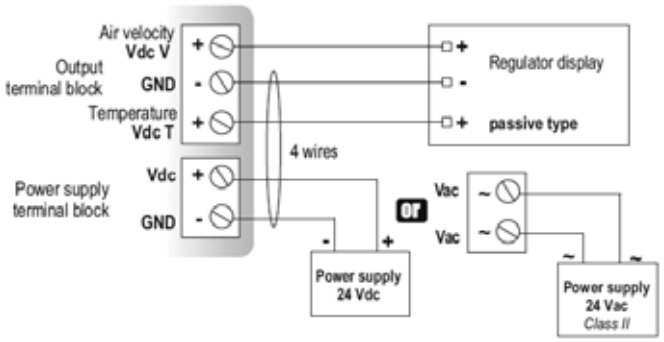
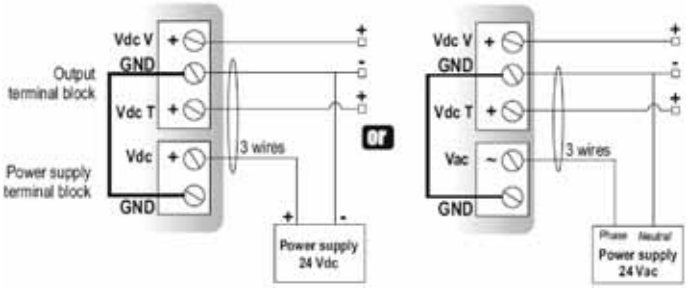
ELECTRICAL CONNECTIONS

0-10V MODEL (4-Wire)

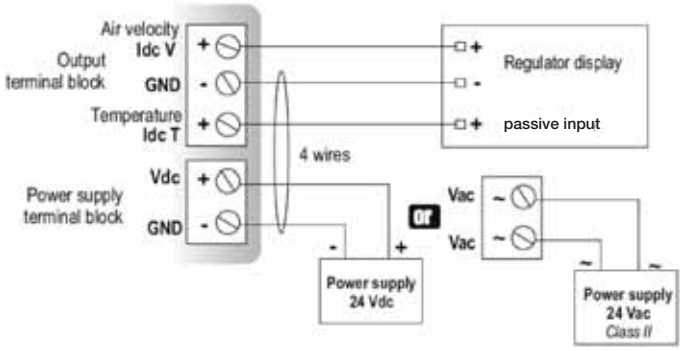


0-10V MODEL (3-Wire)

⚠ To make a 3-wire connection, **before powering up the transmitter,** please connect the output ground to the input ground. See drawing below.

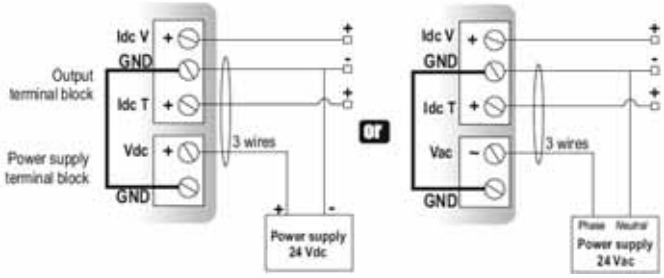


4-20mA MODEL (4-Wire)



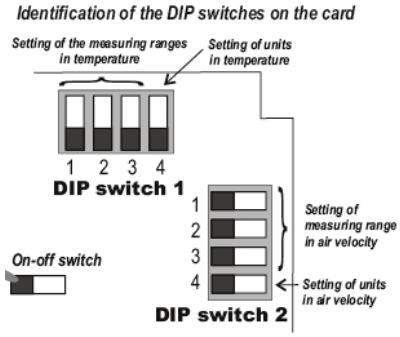
4-20mA MODEL (3-Wire)

⚠ To make a 3-wire connection, **before powering up the transmitter,** please connect the output ground to the input ground. See drawing below.



TRANSMITTER SETUP

To configure the Series VTT, unscrew the two screws on the housing of the transmitter, and remove the cover to reveal the DIP switches.



These DIP switches are used to control the units and ranges of the temperature and air velocity of the transmitter as shown below.

Please Note: Before attempting to alter the DIP switch settings, ensure that the transmitter is not powered.

Field Selectable Temperature Ranges

Configurations	32 to 122°F	-4 to 176°F	-58 to 122°F	32 to 212°F
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Configurations	0 to 50°C	-20 to 80°C	-50 to 50°C	0 to 100°C
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

Field Selectable Velocity Ranges

Configurations	0 to 1000 fpm	0 to 2000 fpm	0 to 3000 fpm	0 to 4000 fpm	0 to 6000 fpm
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Configurations	0 to 5 m/s	0 to 10 m/s	0 to 15 m/s	0 to 20 m/s	0 to 30 m/s
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

MAINTENANCE

In general the Series VTT should require very little maintenance. In some installations dust may accumulate on the sensor over time. This can be removed by carefully brushing the probe with a small camel hairbrush. If too much force is applied during cleaning, the sensor of the Series VTT may be damaged. Therefore, a trained technician should perform the cleaning operation. A jet of air may also dislodge the accumulated buildup however, again, the sensor is delicate and this operation should be done carefully with clean regulated air. Using a shop air supply may exert enough force to damage the sensor. Most air supplies of this sort will also contain water or oil that could damage the sensor. Technical grade denatured or isopropyl alcohol may be used where the dust accumulation does not respond to brushing. Do not use water. Always disconnect the power when performing a cleaning operation. With the above exceptions, these items are not field repairable and should be returned to Dwyer Instruments, Inc. for repair. Please contact a customer service representative for a return goods authorization.

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