

Analog Output Insertion Mount Thermal Dispersion Airflow/Temperature Measurement Device (ATMD) for Round Ducts



- Built-in transmitter provides linear analog airflow and temperature output signals
- Can be configured to provide the equivalent velocity pressure output in lieu of airflow
- Thermal dispersion technology
- Calibrated from 0 to 3,000 FPM
- Stable bead-in-glass thermistor sensors
- NIST traceable airflow and temperature measurement
- Calibrated to volumetric airflow standards
- Accurate and repeatable
- Field calibration is not required
- Fits standard 4 to 16 inch round ducts
- Easy to install insertion probe design
- Available in aluminum or stainless steel

Typical Installations:

- Hospital, laboratory and clean room ducts
- Terminal boxes
- Outdoor air intakes to fan coils
- Makeup air ducts to air handlers

The GF-A1001-DI airflow/temperature measurement device is a low cost, high performance, solution for airflow and temperature measurement in smaller round ducts. The GF-A1001-DI is provided with an integral transmitter. Simply provide 24 VAC/DC power and connect the output cable wires to a BAS or other analog input device to determine the airflow rate and temperature.

The GF-A1001-DI airflow/temperature measurement device is designed for duct insertion applications. Probes are available with one or two sensor nodes. Installed airflow accuracy is $\pm 4\%$ of reading to NIST traceable standards when installed in accordance to published placement guidelines.

The GF-A1001-DI measurement device uses the principal of

thermal dispersion to determine the airflow rate. Thermal dispersion is ideal for HVAC applications that typically require measurement of low air velocities. Each sensing node uses two thermistors to determine airflow. One thermistor is self-heated above ambient while a second thermistor determines the ambient air temperature. The power dissipated into the airstream is directly related to the airflow rate.

Each thermistor body is a hermetically sealed bead-in-glass probe. Bead-in-glass thermistors have demonstrated extreme stability and superior performance over chip type thermistors used by other manufacturers. The bead-in-glass sensor used has been time tested for over 35 years by GreenTrol's sister company, EBTRON. Thermistors are potted in a waterproof sensor assembly and are designed for years of trouble-free operation.

Each sensing node is individually calibrated at 7 points in high-performance wind tunnels. The transmitter processes each individual sensor node independently. The result is the true average airflow rate and temperature when more than one sensing node is applied.

GF-A1001-DI Technical Specifications

Functionality

Airflow Measurement: Provides the average airflow rate in FPM [m/s] to analog output AO1.

Temperature Measurement: Provides the velocity weighted temperature in °F [°C] to analog output AO2

User Interface

Output Scaling: Set by DIP switch

Airflow/Temperature Measurement Probe

Type: -DI Duct Insertion Thermal Dispersion Airflow and Temperature Measurement Probe

Available Configurations

4 inch [102 mm]: 1 probe x 1 sensor node

5 to 16 inch [127 to 406 mm]: 1 probe x 2 sensor nodes

Sensing Node Sensors

Self-heated sensor: Precision, hermetically sealed, bead-in-glass thermistor probe

Temperature sensor: Precision, hermetically sealed, bead-in-glass thermistor probe

Probe Tube

Material: Mill finish 6063 aluminum (optional: 316 SS)

Probe Mounting Brackets

Material: 304 stainless steel

Probe Mounting: Insertion

Sensing Node Housing

Material: Glass-filled Polypropylene

Sensor Potting Materials: Waterproof marine epoxy

Sensing Node Internal Wiring

Material: Kynar® coated copper

Airflow Measurement

Averaging Method: Independent, arithmetic average

Installed Accuracy: Better than ±4% of reading to NIST traceable airflow standards

Calibrated Range: 0 to 3,000 fpm [0 to 15.24 m/s]

Calibration Points: 7

Temperature Measurement

Averaging Method: Independent, velocity weighted

Accuracy: ±0.15°F [0.08 °C]

Analog Outputs

A01

Assignment: Linear airflow output signal or equivalent velocity pressure

Configurable Ranges: 0-5V/1-5V or 0-10V/2-10V- specify at time of order

A02

Assignment: Temperature output signal

Configurable Ranges: 0-5V/1-5V or 0-10V/2-10V- must be same as A01

Note: The VDC output circuit can drive the input circuit of devices designed to measure 4-wire, 4-20mA, current loops with a resistive load ≥250 ohms

Environmental Limits & Power Requirements

Environmental Limits

Temperature: -20 to 120 °F [-28.9 to 48.9 °C]

Humidity: 5 to 95%

Important: Not recommended for outdoor use

Power Requirement: 24 VAC (22.8 to 26.4 under load) @5V-A