

## RS-485 BACnet/Modbus Insertion Mount Thermal Dispersion Airflow/ Temperature Measurement Device (ATMD) for Round Ducts



- Built-in transmitter provides one RS-485 BACnet MS/TP or Modbus RTU network connection for airflow, equivalent velocity pressure and temperature
- Thermal dispersion technology
- Calibrated between 0 and 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-N1000-DI airflow/temperature measurement device is a low cost, high performance, solution for airflow and temperature measurement in smaller round ducts. The GF-N1000-DI is provided with an integral transmitter. Simply provide 24 VAC/DC power and connect the network connection to a BAS or other RS-485 device to determine the airflow rate and temperature.

The GF-N1000-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-N1000-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-N1000-DI Technical Specifications

## Functionality

**Airflow Measurement:** Provides the average airflow rate in FPM [m/s] or CFM [LPS] via the network connection

**Temperature Measurement:** Provides the velocity weighted temperature in °F [°C] via the network connection

## User Interface

**Baud Rate, Protocol and Addressing:** DIP switch

**End of Line Termination:** Jumper

*Important: Modification of the factory default settings requires that power is cycled to the device. It is recommended that each device is bench configured prior to installation OR settings are provided at the time of order so that the device can be factory configured prior to shipment.*

## 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]

## Network Connection

### N1

**Type:** Non-isolated, field selectable MS/TP BACnet master or Modbus RTU connection (provide separate transformer to each GF-N1000-DI or an RS-485 network isolator if isolation is required)

**B.A.S. Object/Register Read/Write Access:** Yes

**Device Load:** 1/8 load

**Supported Baud Rates:** 9.6, 19.2, 38.4 and 76.8 kbaud

## 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