

AIRFLOW MEASUREMENT WITH TEMPERATURE CAPABILITY



PRODUCT HIGHLIGHTS

- EBTRON exclusive bead-in-glass thermistor sensors
- NIST traceable calibration
- 0 to 3,000 FPM calibrated range with percent-of-reading accuracy
- Cost effective single probe
- Velocity pressure output option
- Temperature output models available
- Analog and RS-485 output models
- Duct insertion mounting
- Integral transmitter
- Velocity-weighted temperature measurement between -20° F to 120° F
- Smart *Sensor Detection System (SDS)* continuously monitors for sensor and transmitter faults
- Three-year warranty
- Toll-free customer support for the lifetime of the product

TYPICAL APPLICATIONS

- High performance CV/VAV terminal box measurement
- Small duct outdoor air delivery monitoring
- Small duct airflow tracking
- Hospital pressurization
- Laboratory pressurization

EBTRON ADVANCED THERMAL DISPERSION TECHNOLOGY

EBTRON pioneered bead-in-glass thermistor based thermal dispersion over 40 years ago. EBTRON's thermal dispersion technology relates the power dissipated by a self-heated thermistor to the airflow rate at one or more sensor nodes in an airstream. All EBTRON airflow monitoring systems use this time-tested thermal dispersion technology.

MODEL DESCRIPTION

The EF-x1000-T (ELF) is EBTRON's economical measurement solution for round ducts between 4 and 16 inches in diameter. Ideal for most small duct airflow measurement and airflow tracking applications. Low flow performance, temperature capability and connectivity options make this a better choice than traditional differential pressure averaging arrays, rings and crosses.

EF-x1000-T TECHNICAL SPECIFICATIONS

General

Probe and Sensor Node Configurations

- 1 probe x 1 sensor node/probe (4 inch [101.6 mm] probe)
- 1 probe x 2 sensor nodes/probe (5 to 16 inch [127.0 to 406.4 mm] probes)

Installed Airflow Accuracy¹

±3% of reading

Sensor Node Averaging Method

Airflow: Independent arithmetic average

Temperature: Independent, velocity weighted average

Listings and Compliance

UL: 60730-1; CAN/CSA-E60730-1 (EF-A1000-T/ELF-F0x Only)

FCC: This device complies with Part 15 of the FCC rules

RoHS: This device is RoHS2 compliant

Environmental Limits

Temperature:

Probes 0 to 2,000 fpm [0 to 10.16 m/s]:

-20 to 120 °F [-28.9 to 48.9 °C]

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

0 to 120 °F [-17.8 to 48.9 °C]

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

Humidity: (non-condensing)

Probes: 0 to 100%

Transmitter: 5 to 95%

Individual Sensing 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

Sensing Node Housing

Material: Glass-filled Polypropylene (Kynar® with /SS option)

Sensor Potting Materials: Waterproof marine epoxy

Sensing Node Internal Wiring

Type: Kynar® coated copper

Airflow Measurement

Accuracy: ±3% of reading to NIST-traceable volumetric airflow standards (includes transmitter uncertainty)

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

Calibration Points: 7

Temperature Measurement

Type: Velocity-weighted average

Accuracy: ±0.15°F [0.08 °C] to NIST-traceable temperature standards (includes transmitter uncertainty)

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

Calibration Points: 3

Sensor Probe Assembly

Tube

Material: Mill finish 6063 aluminum (316 stainless steel with /SS option)

Mounting Brackets

Material: 304 stainless steel

Mounting Options & Size Limits

Insertion: 4, 5, 6, 7, 8, 9, 10, 12, 14, & 16 inch round [101.6, 127.0, 152.4, 177.8, 203.2, 228.6, 254.0, 304.8, 355.6 & 406.4 mm]

Integral Transmitter

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

User Interface: DIP switch

B.A.S. Connectivity Options

EF-A1000 Transmitter: One field selectable (0-10/2-10 VDC* or 0-5/1-5 VDC* - specify at time of order), scalable and protected analog output signal (AO1=airflow)

EF-A1001 Transmitter: Two field selectable (0-10/2-10 VDC* or 0-5/1-5 VDC* - specify at time of order), scalable and protected analog output signals (AO1=airflow, AO2 = temperature)

* The VDC output circuit of the EF-A1000 and EF-A1001 transmitters can drive the input circuit of devices designed to measure 4-wire current loops with a resistive load ≥250 ohms.

EF-N1000 Transmitter: One field selectable (BACnet MS/TP or Modbus RTU) and non-isolated RS-485 network connection - Individual sensor node airflow rates and temperatures are available via the network (provide individual 24 VAC transformers at each EF-N1000 transmitter for applications requiring isolated RS-485)

System Status Alarm

Type: Sensor diagnostic system trouble indication

Visual Indication: Yes, LED on circuit board

Network Indication: Yes (EF-N1000 only)

¹ Installed airflow accuracy is the actual system accuracy expected and includes sampling uncertainty of the sensor probes when installation meets or exceeds placement guidelines.