

## BLEED AIRFLOW MEASUREMENT WITH TEMPERATURE AND ALARM CAPABILITY



### PRODUCT HIGHLIGHTS

- “Plug and Play” operation
- EBTRON exclusive bead-in-glass thermistor sensors
- NIST traceable calibration
- Detect  $\Delta P$  as low as 0.0002” H<sub>2</sub>O
- Uni- or bi-directional measurement
- Airflow (or  $\Delta P$ ) and status alarm
- Temperature output capability
- Analog and RS-485 output models
- Dry contact relay
- Three mounting kits available
- 1/2” NPT female pipe connections
- Remote transmitter with LCD display
- Standard FEP plenum rated cable between sensor probes and transmitter
- Three-year warranty
- Toll-free customer support for the lifetime of the product

### TYPICAL APPLICATIONS

- Ultra-low pressure detection
- Parking garage pressurization
- Construction zone contaminant containment
- Stairwell pressurization
- Relief and exhaust damper control
- Airflow across a louver or other fixed opening

### 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-x2000-B is a unique measurement device that can detect very small pressure differentials (as low as 0.0002” H<sub>2</sub>O) between two adjacent spaces by sensing the airflow rate induced by the pressure gradient. The EF-x2000-B can be used to determine the airflow rate across fixed openings when a reference airflow rate is provided.

## EF-x2000-B TECHNICAL SPECIFICATIONS

### General

#### Probe and Sensor Node Configuration

1 bi-directional, dual 1/2" NPT female bleed sensor housing

#### Installed Accuracy

**Airflow through an opening or across an obstruction:** Requires field measurement of a reference airflow of the specific installation. The Field Adjust Wizard (FAW) facilitates setup.

**Equivalent pressure between two adjacent spaces:** Requires field measurement of a reference pressure to correct the default flow coefficient of the specific installation. The Field Adjust Wizard (FAW) facilitates setup.

#### Listings and Compliance

**UL:** 60730-1, 60730-2-9; CAN E60730-1, E60730-2-9 (EF-A2000-B Only)

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

**RoHS:** This device is RoHS2 compliant

#### Environmental Limits

##### Temperature:

**Sensor -2,000 to 2,000 fpm** [-10.16 to 10.16 m/s];  
-20 to 160 °F [-28.9 to 71.1 °C]

**Sensor -3,000 to 3,000 fpm** [-15.24 to 15.24 m/s];  
0 to 160 °F [-17.8 to 71.1 °C]

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

##### Humidity: (non-condensing)

**Probes:** 0 to 100%

**Transmitter:** 5 to 95%

### Bleed Sensor Assembly

#### Sensing Node Sensors

**Self-heated sensor:** Two precision, hermetically sealed, bead-in-glass thermistor probes

**Temperature sensor:** One precision, hermetically sealed, bead-in-glass thermistor probe

#### Sensing Node Housing

**Material:** Glass-filled Polypropylene

**Sensor Potting Materials:** Waterproof marine epoxy

#### Airflow Measurement

**Accuracy:** ±2% of reading to NIST-traceable airflow standards (includes transmitter uncertainty)

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

**Calibration Points:** 9

#### Temperature Measurement

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

**Calibrated Range:** -20 to 160 °F [-28.9 to 71.1 °C]

**Calibration Points:** 3

#### Probe to Transmitter Cables

**Type:** FEP jacket, plenum rated CMP/FT6/CL2P, UL/cUL listed, -67 to 302 °F [-55 to 150 °C], UV tolerant

**Standard Lengths:** 10, 25 and 50 ft. [3.1, 7.6 and 15.2 m]

**Connecting Plug:** 0.60" [15.24 mm] nominal diameter

### Transmitter

**Power Requirement:** 24 VAC (22.8 to 26.4 under load) @8V-A

**User Interface:** 16-character LCD display and 4 button interface

#### B.A.S. Connectivity Options

**EF-A2000 Transmitter:** Two field selectable (0-5/1-5/0-10/2-10 VDC\*), scalable and protected analog output signals (AO1=airflow or equivalent ΔP, AO2=temperature or alarm)

\* The VDC output circuit of the EF-A2000 transmitter can drive the input circuit of devices designed to measure 4-wire current loops with a resistive load ≥250 ohms.

**EF-N2000 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 for each EF-N2000 transmitter for applications requiring isolated RS-485)

#### Relay

**Type:** Dry Contact w/ onboard jumper to drive a remote LED (R1=alarm)

**Status:** N.O. or N.C. via user setup configuration

**Rating:** 30 VDC or 24 VAC @ 3 amp. max.

#### Airflow (or Pressure) Alarm

**Type:** Low and/or high user defined setpoint alarm

**Tolerance:** User defined % of setpoint

**Delay:** User defined

**Reset Method:** Manual or automatic

**Visual Indication:** Yes, LCD display

**Network Indication:** Yes (EF-N2000 only)

**Analog Signal Indication:** Yes, on AO2 assignment (EF-A2000 only)

**Contact Closure Relay:** Yes, on R1 assignment

#### System Status Alarm

**Type:** Sensor diagnostic system trouble indication

**Visual Indication:** Yes, LCD display

**Network Indication:** Yes (EF-N2000 only)

**Analog Signal Indication:** Yes, on AO2 assignment (EF-A2000 only)

**Contact Closure Relay:** Yes, on R1 assignment