

Bleed Airflow Measurement with Temperature and Alarm Capability

**OVERVIEW**



- Thermal Dispersion Technology
- Bi-directional Airflow Measurement
- Detect  $\Delta P$  as low as 0.0002" H<sub>2</sub>O
- Airflow (or  $\Delta P$ ) and Status Alarm
- Temperature Output Capability
- Analog and RS-485 Output Models
- Dry Contact Relay
- 1/2" NPT Female Pipe Connections
- Remote Transmitter with LCD Display
- 3-year Warranty

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 does not measure pressure directly but can be used to determine the approximate pressure differential when the proper flow coefficient for the installation is determined.

**Typical Applications**

- ◆ Ultra-low Differential Pressure Detection
- ◆ Parking Garage Pressurization
- ◆ Construction Zone Contaminant Containment
- ◆ Stairwell Pressurization
- ◆ Relief and Exhaust Damper Control

**Benefits**

- ◆ Maintain Pressure Relationships between Adjacent Spaces
- ◆ Satisfy LEED Prerequisites and Credits
- ◆ Provide Acceptable IAQ
- ◆ Save Energy
- ◆ Reduce Liability
- ◆ Improve Performance

**Product Highlights**

- ◆ Uni- or Bi-directional Measurement
- ◆ Extremely Sensitive
- ◆ Airflow or Equivalent Pressure Output
- ◆ Long-term Stability
- ◆ Small Footprint
- ◆ Simple NPT Pipe Connections
- ◆ Optional Mounting Kits Available

EF-x2000-B\_Overview\_r3a

## General

### Probe and Sensor Node Configuration

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

### Listings

UL: 60730-1; UL 60730-2-9 (HVAC Controls)

### 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/CL2P, UL/cUL listed, -67 to 392 °F [-55 to 200 °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 setpoint value

**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