

Bleed Airflow Measurement with Temperature and Alarm Capability

OVERVIEW



- Thermal Dispersion Technology
- Bi-directional Airflow Measurement
- Detect ΔP as low as 0.0002" H₂O
- Airflow (or ΔP) 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" H₂O) 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.

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

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

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 and 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/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 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