



ELF /N OVERVIEW

EBTRON's electronic low flow (ELF) RS-485 BACnet/Modbus thermal dispersion airflow measurement station provides precise airflow or temperature data in challenging variable air volume (VAV) and small duct applications. Flow velocities of less than 500 FPM are typical in VAV applications, while velocities of up to 3,000 FPM are typical in small duct applications. The ELF is factory calibrated from 0 to 3,000 FPM (0 to 15.24 m/s) in highly accurate wind tunnels to NIST volumetric airflow standards. Equivalent volumetric flow measurement is available by simply specifying the duct free area in a network variable. The ELF provides accuracy of up to 3% of reading and reliable measurement over the entire flow range in VAV boxes and in duct applications up to 16 inches. The ELF features a calibrated probe and an integral enclosure and mounting bracket for simple field installation. A flow integration filter can be engaged to reduce the effects of transient wind flows if required. A convenient side accessible DIP-switch user interface allows for simple field set up and selection of RS-485 BACnet and Modbus options for interface with virtually any modern BAS.

APPLICATIONS

- High accuracy airflow measurement in VAV terminal boxes and small ducts for improved temperature control and energy efficiency.
- Ideal for true demand controlled ventilation compliance with ASHRAE 62.1 and for acquisition of **LEED[®] Energy and Atmosphere** and **Indoor Environmental Quality** Credits.
- Specify in small duct systems for volumetric flow tracking and pressure control.
- Low cost, high performance airflow measurement solution for modern BAS interfaces.

SYSTEM FEATURES

- **EBTRON** Advanced Thermal Dispersion (TD) technology ensures accurate, repeatable airflow measurement from zero flow (still air).
- Factory calibrated from 0-3,000 fpm to **NIST-traceable volumetric standards** to ensure accuracy in small duct and VAV boxes.
- Superior performance compared to conventional differential pressure based pitot arrays and flow rings.
- Unique all in one sensor design with integral mounting bracket for installation in duct/plenum and VAV box applications.

ELF /N SPECIFICATIONS

System

Range: 0 to 3,000 FPM [15.24m/s]
 Typical Accuracy: ± 3% of reading; 0 to 3,000 FPM⁴
 Operating Temperature:
 Transmitter: -20 °F to 120 °F [-28.9 °C to 48.9 °C]
 Probe: 30 °F to 160 °F [-1.1 °C to 71.1 °C]
 Operating Humidity Range: .0 to 99% non-condensing;
 Transmitter must be protected from exposure to precipitation
 Power Requirements: 24 VAC (22.8-26.4 VAC) at 8VA max.
 Standard Size Ranges: 4 to 16 in (101.6 - 406.4 mm)
 4 to 10 in [101.6 - 254 mm,
 in 1-inch (25.4 mm) increments;]
 12 to 16 in [304.8 - 406.4 mm,
 in 2-inch (50.8 mm) increments]

Construction/Dimensions

Enclosure Material: Durable electronic housing with removable cover
 Enclosure Rating: UL94-5VA
 Enclosure Dimensions: 3.355 in square x 1.357 in [85.22 mm] square x 34.47 mm
 Mounting Dimensions: Four 0.188 in [4.76 mm] dia holes on integral mounting bracket
 Mounting Bracket Material: Type 5052 aluminum alloy standard Type 316 stainless steel optional

Probe Material: Type 6063 aluminum alloy standard Type 316 stainless steel optional
 Probe Dimensions: 0.75 in [19.05 mm] diameter; 4 to 16 in [101.6 - 406.4 mm] length
 Probes / Sensing Nodes: 1 probe/2 sensing nodes maximum
 Sensing Point Accuracy: Airflow: ±2% of reading
 Probe/Transmitter Cable: 3 ft. [0.91 m] plenum rated FEP cable standard
 Flow Integration Filter: Integrates averages of multiple flow readings

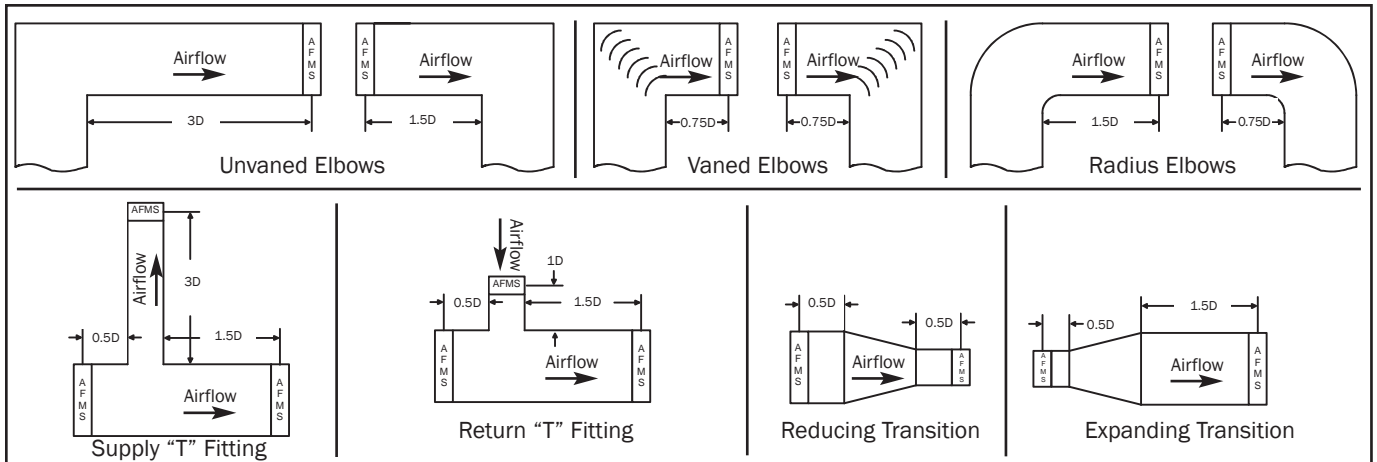
Output to Host Controls

RS-485 BACnet[®] MS/TP or Modbus[®] RTU
 Baud rate: 76,800, 38,400, 19,200, 9,600
 Default BACnet[®] MS/TP: 76,800
 Default Modbus[®] RTU: 19,200

Notes:

- ⁴ Accuracy for duct sizes up to 16 inches (406.4 mm). Consult factory for other sizes.

ELF PROBE DIMENSIONS



Minimum placement is indicated in multiples of duct diameter 'D':
See separate diagrams for VAV box applications. Consult **EBTRON** for applications not indicated in the diagrams..

