

**Airflow Measurement with Temperature and Alarm Capability**

**OVERVIEW**



- Thermal Dispersion Technology
- Supports up to 4 Sensor Nodes
- NIST-traceable Calibration
- %-of-reading Accuracy
- Airflow and Status Alarm
- Temperature Output Capability
- Analog and RS-485 Output Models
- Three Mounting Styles
- Remote Transmitter with LCD Display
- 3-year Warranty

The HTx104-**PE** is EBTRON’s most economical solution for larger systems when “out-of-the-box” installed accuracy is not required and field adjustment is acceptable. Perfect for LEED outdoor air delivery monitoring or other low sensor density airflow measurement applications.

**Typical Applications**

- ◆ LEED Outdoor Air Delivery Monitoring
- ◆ Small Duct Airflow Tracking
- ◆ Hospital Pressurization
- ◆ Laboratory Pressurization
- ◆ Air Change Verification & Monitoring
- ◆ System Performance Monitoring

**Benefits**

- ◆ Comply with ASHRAE Standards
- ◆ Demonstrate Code Compliance
- ◆ Satisfy LEED Prerequisites and Credits
- ◆ Provide Acceptable IAQ
- ◆ Save Energy
- ◆ Reduce Liability
- ◆ Improve Performance

**Product Highlights**

- ◆ Accurate and Repeatable
- ◆ Low Airflow Capability
- ◆ Volumetric or Mass Airflow Measurement
- ◆ Long-term Stability
- ◆ “Plug and Play” Operation
- ◆ Intuitive User Interface
- ◆ Waterproof Sensor Assembly
- ◆ FEP Plenum Rated Cables

## General

### Probe and Sensor Node Configurations (max.)

- 1 probes x 4 sensor nodes/probe
- 2 probes x 2 sensor nodes/probe

### Installed Airflow Accuracy<sup>1</sup>

- Ducts/Plenum  $\leq 2$  sq.ft. [0.18 sq.m]:  $\pm 3\%$  of reading
- All other applications and sizes: Unspecified

### PE Sensor Density Rules (typical)

Area (sq.ft.) [sq.m]	Sensor Nodes
$\leq 0.5$ [0.046]	1
$> 0.5$ & $\leq 1$ [0.092]	2
$> 1$ [0.092]	4

### Sensor Node Averaging Method

- Airflow: Independent, arithmetic average
- Temperature: Independent, velocity weighted or arithmetic average

### Listings

- UL: UL 873 Listed
- CE: European shipments only
- BACnet International: BTL Listed (HTN104 transmitter)

### Environmental Limits

- Temperature:
  - Probes:  $-20$  to  $160$  °F [ $-28.9$  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%

## 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<sup>®</sup> with /SS option)
- Sensor Potting Materials: Waterproof marine epoxy

### Sensing Node Internal Wiring

- Type: Kynar<sup>®</sup> coated copper

### Airflow Measurement

- Accuracy:  $\pm 2\%$  of reading to NIST-traceable airflow standards (includes transmitter uncertainty)
- Calibrated Range: 0 to 5,000 fpm [0 to 25.4 m/s]
- Calibration Points: 16

### Temperature Measurement

- Accuracy:  $\pm 0.15$  °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

## Sensor Probe Assembly

### Tube

- Material: Gold anodized 6063 aluminum (316 stainless steel with /SS option)

### Mounting Brackets

- Material: 304 stainless steel

### Mounting Options & Standard Size Limits<sup>2</sup>

- Insertion, and Stand-off: 6 to 120 in. [152.4 to 3048 mm]
- Internal: 8 to 120 in. [203.2 to 3048 mm]

### 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, 15, 20, 25, 30, 40 and 50 ft. [3.1, 4.6, 6.1, 7.6, 9.1, 12.2 and 15.2 m]
- Connecting Plug: 0.60" [15.24 mm] circular DIN

## Transmitter

### Power Requirement: 24 VAC (22.8 to 26.4 under load) @11V-A

### PCB Connections: Gold-plated PCB interconnects and test points

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

### B.A.S. Connectivity Options

- HTA104 Transmitter:** Two field selectable (0-5/0-10 VDC or 4-20mA), scalable and isolated analog output signals (AO1=airflow, AO2=temperature or alarm)

- HTN104 Transmitter:** One field selectable (BACnet MS/TP or Modbus RTU) and isolated RS-485 network connection- Individual sensor node airflow rates and temperatures are available via the network

### Airflow Alarm

- Type: Low and/or high user defined setpoint alarm
- Tolerance: User defined % of setpoint
- Delay: User defined
- Zero Disable: Alarm can be disabled when the airflow rate falls below the low limit cutoff value (unoccupied periods)
- Reset Method: Manual or automatic
- Visual Indication: Yes, LCD display
- Network Indication: Yes (HTN104 only)
- Analog Signal Indication: Yes, on AO2 assignment (HTA104 only)

### System Status Alarm

- Type: Sensor diagnostic system trouble indication
- Visual Indication: Yes, LCD display
- Network Indication: Yes (HTN104 only)
- Analog Signal Indication: Yes, on AO2 assignment (HTA104 only)

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

<sup>2</sup> Custom probes are available up to 192 inches. Contact factory for more information.