

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 Accuracy¹

- ≤ 2 sq.ft. [0.185 sq.m.]: ±3% of reading
- > 2 sq.ft. [0.185 sq.m.]: ±(3% to 10%), typical (increases with increasing duct size). May be improved by field adjustment using the Field Adjust Wizard (FAW) to a reliable reference.

PE Sensor Density: Refer to the PE sensor density table.

Sensor Node Averaging Method

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

Listings and Compliance

- UL:** UL-873 and CSA C22.2 No. 24
- CE:** Non-UK European shipments only
- UKCA:** UK shipments only
- BACnet International:** BTL Listed (HTN104 transmitter)
- FCC:** This device complies with Part 15 of the FCC rules
- RoHS:** This device is RoHS2 compliant

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® with /SS option)
- Sensor Potting Materials:** Waterproof marine epoxy

Sensing Node Internal Wiring

- Type:** Kynar® coated copper

Airflow Measurement

- Accuracy:** ±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:** ±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 Limits¹

- Insertion:** 6 to 191 in. [152.4 to 4851 mm]
- Stand-off:** 6 to 190 in. [152.4 to 4826 mm]
- Internal:** 8 to 194 in. [203.2 to 4928 mm]

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, 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)

¹ Installed airflow accuracy allows for additional uncertainty that results from averaging a finite number of sensors in a contorted velocity profile created from up and downstream disturbances. The specified installed accuracy is based on the PE sensor density rules for installations that meet or exceed EBTRON minimum placement requirements. PE sensor density rules may not be available for all duct sizes due to sensor placement limitations.