

Hybrid Series Thermal Dispersion Airflow/Temperature Measurement Device (ATMD)



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APPLICATIONS

- Combine with occupancy sensing and direct OA measurement for continuous reset of intake flow rates and true demand controlled ventilation compliance with **ASHRAE 62.1, 189.1, International Mechanical Code Chapter 4** and acquisition of **LEED® Energy and Atmosphere** and **Indoor Environmental Quality Credits**.
- High accuracy airflow measurement in terminal boxes and small ducts for improved temperature control and energy efficiency.
- Ideal for OA measurement/control on dedicated multi-zone/floor OA systems and in small duct systems for volumetric flow tracking and pressure control.

HTN104-T OVERVIEW

The Hybrid series model HTN104-T advanced thermal dispersion airflow measurement device combines features of **EBTRON's** top of the line Gold Series and economical Silver Series products with innovative new features. The HTN104-T is designed to replace less accurate pneumatic devices for precise measurement and control of airflow/temperature in challenging small duct and terminal box VAV applications requiring accuracy without field adjustment. A Field Calibration Wizard feature permits simple one or two point field adjustment to factory calibration if required. The ATMD includes the HTN104 industrial grade integrated transmitter and RS-485 network option with field selectable BACnet® MS/TP Master, Modbus RTU or JCI N2-Bus® communication with virtually all modern building automation systems (BAS).

SYSTEM FEATURES

- **EBTRON** Advanced Thermal Dispersion (TD) technology ensures accurate, repeatable airflow measurement from zero flow (still air).
- Proprietary sensor design factory calibrated to **NIST-traceable standards** to ensure accuracy in small duct and VAV boxes.
- An innovative Field Calibration Wizard allows for simple one or two point field adjustment to factory calibration if required.
- Versatile mounting bracket for installation in duct/plenum and VAV Box applications.

HTN104-T SPECIFICATIONS

System

Calibrated Range:0 to 3,000 fpm [15.24 m/s]
 Operating Temperature:Probe: -20 to 160 °F
 [-28.9 °C to 71.1 °C]
 Transmitter: -20 to 120 °F
 [-28.9 °C to 48.9 °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 8 VA (maximum)

Transmitter and Enclosure

Transmitter Construction:Heavy duty with industrial grade IC's and rugged aluminum chassis with sliding cover
 Transmitter Dimensions:6.475 x 5.750 x 2.000 in (HxWxD)
 [164.47 x 146.05 x 50.8 mm]
 Transmitter Mounting:Four 0.188 in (4.76 mm) dia mounting holes at 0.375 in from top/bottom and left/right edges on integral mounting plate

Sensor Probes

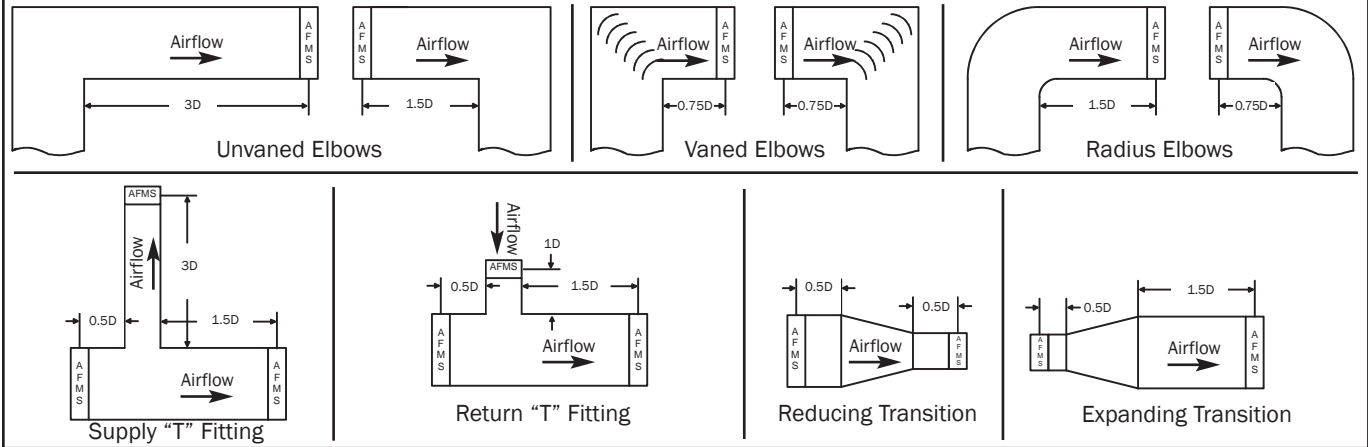
Probe Construction:Type 6063 aluminum alloy or Type 316 stainless steel (SS) optional
 Mounting Brackets:Type 5052 aluminum
 Probe Dimensions:0.75 in [19.05 mm] diameter
 Standard Size Ranges:4 to 16 in (101.6 to 3048 mm)
 Sensing Points per probe:1 per probe on 4 inch probes;
 2 per probe from 5 to 16 inches
 Max. Probes per Transmitter:
 4 inch Probes:4 Probes per Type C Transmitter
 1 Probe per Type A Transmitter
 5 to 16 inch Probes2 Probes per Type B Transmitter
 1 Probe per Type A Transmitter

Probe/Transmitter Cable:10 ft. [3.05 m] plenum rated FEP coated cable with circular DIN plug (Optional length to 50 feet [15.24m])

Output Interface

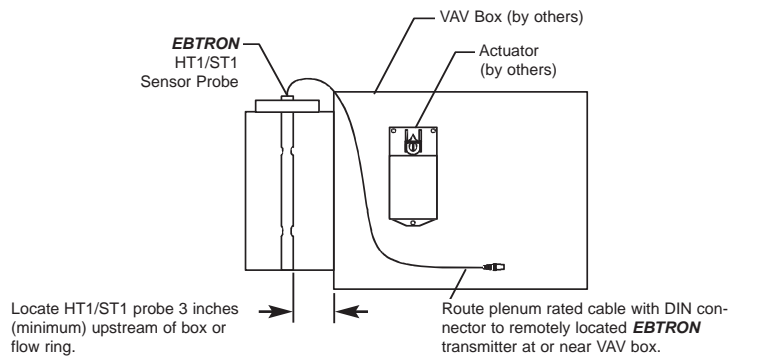
RS-485 Output:Field selectable BACnet® MS/TP Master, Modbus RTU or JCI N2-Bus®
 Baud Rate:9.6k, 19.2k, 38.4k, and 76.8k baud
 Repeatability:0.25% of reading
 Field Calibration Wizard:1 or 2 point adj. to factory calibration
 Airflow Output Signal Filter: .0 to 99% (via push-button interface)
 Airflow Low Limit Cutoff:Forces output to zero below a user-specified value

HYBRID T-PROBE DUCT PLACEMENT GUIDELINES

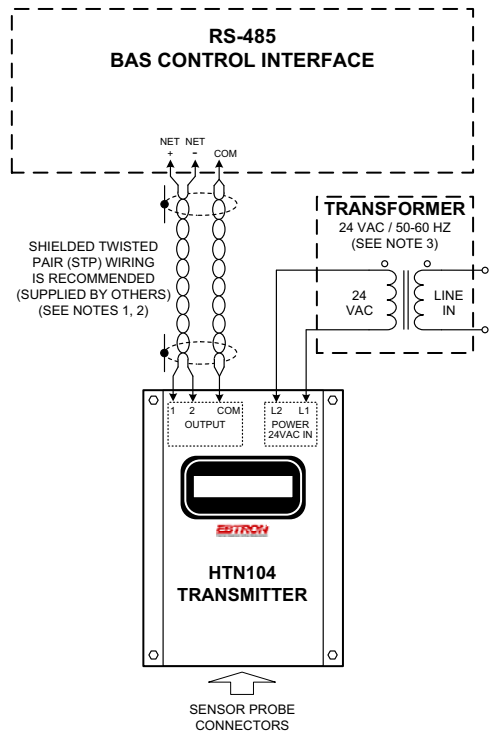


Minimum placement is shown in multiples of Simple Equivalent Duct Diameter D , where $D = (\text{duct width} + \text{height})/2$. Consult **EBTRON** for applications not indicated in the diagrams above. See diagram below for mounting in VAV box collars.

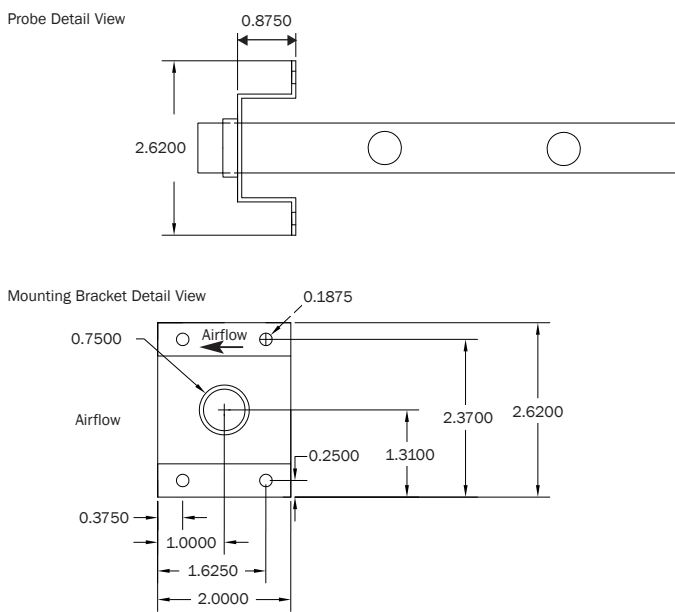
HYBRID T-PROBE VAV BOX INSTALLATION



TYPICAL WIRING DIAGRAM



'T' PROBE DIMENSIONS



- NOTES:
- CONNECT OUTPUT SIGNAL CABLE DRAINS TO EARTH GROUND AT ONE END OF EACH CABLE ONLY.
 - COM CONNECTION MAY BE WIRED USING A SINGLE CONDUCTOR.
 - ON MULTIPLE HTN104 TRANSMITTER INSTALLATIONS WITH A COMMON 24VAC SOURCE, WIRE 24 VAC POWER IN-PHASE TO THE SAME TERMINALS ON ALL TRANSMITTERS (e.g.: L1 to L1, L2 to L2).