HIGH SENSOR DENSITY MULTI-POINT AIRFLOW AND TEMPERATURE MONITORING DEVICE WITH ALARM

PRODUCT HIGHLIGHTS

- *"Plug and Play"* operation
- EBTRON exclusive bead-in-glass thermistor sensors
- Sensor nodes are individually calibrated at 16 airflow rates to NIST traceable standards
- 0 to 5,000 FPM calibrated range with percent-of-reading accuracy
- Actual (CFM) or mass (SCFM) airflow measurement
- Velocity-weighted temperature measurement between -20 °F to 160 °F
- Smart *Sensor Detection System* (*SDS*) continuously monitors for sensor and transmitter faults
- Independent test data demonstrates resistance to saltwater and chemical exposure
- Standard FEP plenum rated cable between sensor probes and transmitter
- No compromise construction uses gold plated interconnects
- Unsurpassed connectivity options
- *EB-Link* BLE interface to phone or tablet provides real-time monitoring and diagnostics
- Three-year warranty
- Toll-free customer support for the lifetime of the product

TYPICAL APPLICATIONS

- Outdoor airflow monitoring and control
- Advanced CO2-DCV airflow reset and limit control
- Population-based DCV control
- Air change verification and control
- Differential airflow tracking and pressure control
- System performance monitoring

EBTRON ADVANCED THERMAL DISPERSION TECHNOLOGY

EBTRON pioneered bead-in-glass thermistor based thermal dispersion over 40 years ago. EBTRON's thermal dispersion technology relates the power dissipated by a self-heated thermistor to the airflow rate at one or more sensor nodes in an airstream. All EBTRON airflow monitoring systems use this time-tested thermal dispersion technology.

MODEL DESCRIPTION

The HTx116-P is an airflow monitoring system that also provides velocity-weighted temperature, thus providing a turn-key solution for today's high-performance buildings. Multiple sensor nodes provide accurate measurements of critical airstream parameters. Unsurpassed connectivity options and a "no-compromise" design makes this your best choice for today's high-performance buildings.

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HTx116-P TECHNICAL SPECIFICATIONS

General

Probe and Sensor Node Configuration (max.)
Transmitter: 4 probes x 4 sensor nodes/probe
Installed Airflow Accuracy
Ducts/Plenums: ±3% of reading
Non-ducted OA Intakes: better than or equal to ±5% of reading
Sensor Node Averaging Method
Airflow: Independent, arithmetic average
Temperature: Independent, velocity weighted average
Listings & Compliance
UL: 60730-1; CAN/CSA-E60730-1
BACnet International: BTL Listed (HTB116, HTC116, HTM116, and HTS116)
FCC: This device complies with Part 15 of the FCC rules
RoHS: This device is RoHS2 compliant
Environmental Limits
Temperature:
Probes: -20 to 160 ^{0}F [-28.9 to 71.1 ^{0}C]
Transmitter: -20 to 120 ^{0}F [-28.9 to 48.9 ^{0}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 [25.4 m/s]
Calibration Points: 16
Temperature Measurement
Type: Velocity-weighted average
Accuracy: ±0.15 ^{0}F [0.08 ^{0}C] to NIST-traceable temperature standards (includes transmitter uncertainty)
Calibrated Range: -20 to 160 ^{0}F [-28.9 to 71.1 ^{0}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 & Size Limits
Insertion: 6 to 191in. [152.4 to 4851 mm]
Stand-off: 6 to 190 in. [152.4 to 4826 mm]
Internal: 10 to 194 in. [254.0 to 4928 mm]
Probe to Transmitter Cables
Type: FEP jacket, plenum rated CMP/FT6/CL2P, UL/cUL listed, -67 to 302 ^{0}F [-55 to 150 ^{0}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) @20V-A max.
PCB Connections: Gold-plated PCB interconnects, and test points
User Interface: 2 line x16-character backlit LCD display and 4 button interface
B.A.S. Connectivity Options
All Transmitters: Two field selectable (0-5/0-10 VDC or 4-20mA), scalable and isolated analog output signals (AO1=airflow, AO2=temperature or alarm).
HTA116 Transmitter: No additional connectivity to B.A.S.
HTC116 Transmitter[1]**:** One additional field selectable (BACnet MS/TP or Modbus RTU) and isolated RS-485 network
HTB116 Transmitter[1]**:** One additional isolated RS-485 and one additional isolated Ethernet network connections field configurable as follows:

- Single RS-485 connection to B.A.S. with field selectable BACnet MS/TP or Modbus RTU, and
- Single Ethernet connection to B.A.S. with simultaneously supported BACnet IP or BACnet Ethernet, Modbus TCP, and TCP/IP, or
- Single Ethernet connection to *EB-Bus* device(s)

HTM116 Transmitter[1]**:** One additional isolated Ethernet network connection field configurable as follows:

- Single connection to B.A.S. with simultaneously supported BACnet IP or BACnet Ethernet, Modbus TCP, and TCP/IP, or
- Single connection to *EB-Bus* device(s)

HTS116 Transmitter[1]**:** Two additional isolated Ethernet network connections field configurable as follows:

- Single connection to B.A.S. and single connection to *EB-Bus* device(s), or
- Daisy-chain connection to B.A.S., or
- Daisy-chain connection to *EB-Bus* device(s)

Note: B.A.S. network connections can simultaneously support BACnet IP or BACnet Ethernet, Modbus TCP, and TCP/IP.
HTU116 Transmitter: One additional USB connection for thumb drive data-logging of sensor node airflow rates and temperatures
Alarms
Airflow: Low and/or high user defined setpoint alarm
System Status: Sensor diagnostic system trouble indication
***EB-Link* Bluetooth® low energy Interface for Android® and iPhone®:** Display real-time airflow, velocity-weighted temperature, individual sensor node airflow/temperature data, settings and diagnostics[2].

[1] Individual sensor node airflow rates and temperatures are available via the network.

[2] Order with the /NR option when RF devices are not permitted.