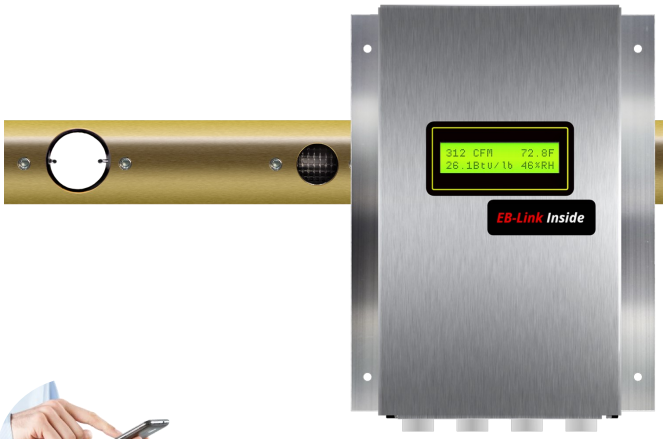
HIGH SENSOR DENSITY MULTI-POINT AIRFLOW AND TEMPERATURE MONITORING DEVICE WITH ALARM AND OPTIONAL INTEGRAL HUMIDITY SENSOR



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
- Optional velocity-weighted humidity/enthalpy and dewpoint measurement
- 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 and connector pins
- 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
- Economizer switchover and fault detection

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 GTx116e-P is EBTRON's top-of-the-line airflow monitoring system that also provides velocity-weighted temperature and optional velocity-weighted psychrometric measurements, 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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GTx116e-P TECHNICAL SPECIFICATIONS

General

Probe and Sensor Node Configurations (max.)
- **Type A Transmitter:** 2 probes x 8 sensor nodes/probe
- **Type B 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

Patents
- **US Patent Nos.:** 12,066,199; 12,066,205
- **CA Patent Nos.:** 3,069,531; 3,169,641

Listings & Compliance
- **UL:** 60730-1; CAN/CSA-E60730-1
- **CE:** Yes
- **UKCA:** Yes
- **BACnet International:** BTL Listed (GTC116e and GTM116e transmitters)
- **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]

Optional Relative Humidity Sensor (/H Option)

Type: Ruggedized capacitive polymer RH sensor

Accuracy @ 77 ^{0}F [25 ^{0}C]
- **20 to 80 %RH:** ±2% RH
- **0 to 20 and 80 to 100 %RH:** ±3.5% RH

Temperature Coefficient: 0.07%/^{0}F [0.13%/^{0}C]

Long Term Drift: 0.5% RH/year

Calculated Measurements: Velocity weighted relative humidity, velocity-weighted enthalpy and dew point using measured RH, velocity-weighted temperature and on-board barometric pressure sensor.

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]

Note: The /H option is only available on probes >18 in.[457.2 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:** 13/16" [20.63 mm] nominal diameter with gold-plated connector pins

Transmitter

Power Requirement: 24 VAC (22.8 to 26.4 under load) @20V-A max.

Connector Receptacle Pins and PCB Connections: Gold-plated receptacle pins, PCB interconnects, PCB edge fingers, and test points

User Interface: 2 line x16-character backlit LCD display and 4 button interface

B.A.S. Connectivity Options
- **All Transmitters:** Three field selectable (0-5/0-10 VDC or 4-20mA), scalable and isolated analog output signals (AO1=airflow, AO2=temperature or alarm, AO3=%RH, enthalpy or dew point when /H option is provided).
- **GTA116e Transmitter:** No additional connectivity to B.A.S.
- **GTC116e Transmitter:** One additional 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
- **GTM116e Transmitter:** One additional isolated Ethernet (simultaneously supported BACnet Ethernet or BACnet IP, Modbus TCP and TCP/IP) network connection - Individual sensor node airflow rates and temperatures are available via the network
- **GTF116e Transmitter:** One additional isolated Lonworks Free Topology network connection
- **GTU116e Transmitter:** One additional USB connection for thumb drive data-logging of sensor node airflow rates and temperatures

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
- **Analog Signal Indication:** Yes, on AO2 assignment

System Status Alarm
- **Type:** Sensor diagnostic system trouble indication
- **Visual Indication:** Yes, LCD display
- **Analog Signal Indication:** Yes, on AO2 assignment

***EB-Link* Bluetooth® low energy Interface for Android® and iPhone®:** Display real-time airflow, velocity-weighted temperature, humidity, enthalpy, dew point, individual sensor node airflow/temperature data, settings and diagnostics.