

Airflow and Temperature Measurement Device with
Integral Relative Humidity Sensor (with /H option)

OVERVIEW



- Thermal Dispersion Airflow Technology
- Supports up to 16 Sensor Nodes
- NIST-traceable Calibration
- %-of-reading Airflow Accuracy
- Airflow and Status Alarms
- Velocity-weighted Temperature
- Output %RH, Enthalpy or Dew Point¹
- Three Mounting Styles
- Remote Transmitter with LCD Display
- 3-year Warranty

¹ Requires /H option

The GTx116e-PC is EBTRON’s top-of-the-line solution for accurate and repeatable measurement in ducts and plenums. Ruggedized RH sensor option (/H), onboard barometric pressure sensor and velocity-weighted temperature results in accurate relative humidity, enthalpy and dew point calculations. Ideal for supply, return and outdoor air intake applications on systems with an airside economizer. Bluetooth® low energy technology interface.

Typical Applications

- ◆ Outdoor Air Delivery Monitoring and Control
- ◆ Differential Airflow Tracking for Building Pressurization Control
- ◆ Airside Economizer Enthalpy Switchover Detection
- ◆ Supply Air Humidity Monitoring and Control
- ◆ DOAS Dew Point Monitoring

Benefits

- ◆ Comply with ASHRAE Standards and Building Codes
- ◆ Satisfy LEED Prerequisites and Credits
- ◆ Provide Acceptable IAQ
- ◆ Save Energy
- ◆ Reduce Liability
- ◆ Improve Economizer Performance

Product Highlights

- ◆ Best Installed Accuracy
- ◆ 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.)

- 2 probes x 8 sensor nodes/probe
- 4 probes x 4 sensor nodes/probe

Installed Airflow Accuracy

- Ducts/Plenums: $\pm 3\%$ of reading
- Non-ducted OA Intakes: better than or equal to $\pm 5\%$ of reading

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

Sensor Node Averaging Method

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

Listings & Compliance

- UL: UL 60730-1; CAN/CSA-E60730-1-15
- CE: 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 °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: $\pm 2\%$ 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: $\pm 0.15^\circ\text{F}$ [0.08 °C] to NIST-traceable temperature standards (includes transmitter uncertainty)
- Calibrated Range: -20 to 160 °F [-28.9 to 71.1 °C]

Optional Relative Humidity Sensor (/H Option)

- Type: Ruggedized capacitive polymer RH sensor
- Accuracy @ 77 °F [25 °C]
 - 20 to 80 %RH: $\pm 2\%$ RH
 - 0 to 20 and 80 to 100 %RH: $\pm 3.5\%$ RH
- Temperature Coefficient: 0.07%/°F [0.13%/°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 191 in. [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/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: 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.