

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



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GTC116-F OVERVIEW

The GTC116-F is **EBTRON's** top-of-the-line Gold Series thermal dispersion airflow and temperature measurement device (ATMD) designed for throat, face or forward mounting in centrifugal, vane axial and plenum fan inlets. The GTC116-F is ideal for fan tracking applications where duct configurations preclude the use of duct and plenum probes and where repeatability and accuracy is paramount from 0-10,000 feet per minute. A programmable Alarm feature permits setting Hi or Low limit, Setpoint with hysteresis for airflow or transmitter/probe fault alarms. The ATMD includes the GTC116 industrial grade integrated transmitter and combination analog and RS-485 network output option with field selectable BACnet[®] MS/TP Master, Modbus RTU or JCI N2-Bus[®] interface for communication with virtually all modern building automation systems (BAS).

GTC116-F SPECIFICATIONS

System

Calibrated Range: 0 to 10,000 fpm [50.8 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 12-13.1VA
 (based on sensor quantity)

Transmitter and Enclosure

Transmitter Construction: . . . Heavy duty with industrial grade IC's and rugged aluminum chassis with sliding cover
 Transmitter Dimensions: . . . 9.251 x 6.688 x 2.5 in (HxWxD)
 [234.98 x 169.87 x 63.5 mm]
 Transmitter Mounting: Four 0.188 in (4.76 mm) diameter mounting holes located 0.75 in from top/bottom, and 0.375 in from left/right edges on integral mounting plate

Sensor Probes

Sensor Construction: Two bead-in-glass thermistors in a GFP sensor housing sealed with waterproof marine grade epoxy.
 Mounting Brackets: Type 304 stainless steel
 Standard Size Ranges: From 11 to 64 in (27.9 to 162.56 cm) diameter for single or dual fan inlet applications.

APPLICATIONS

- Volumetric airflow rate tracking for single and dual-inlet fan applications.
- Building pressurization control.
- Monitoring air changes.
- Temperature and humidity control.

SYSTEM FEATURES

- **EBTRON** Advanced Thermal Dispersion (TD) airflow measurement technology ensures accurate, repeatable measurement from zero flow (still air).
- Each sensor is factory calibrated at 16 points to **NIST-traceable standards**.
- Versatile design permit installation directly in the throat of centrifugal or vane axial fans, or on the face of more sensitive plenum fans.
- True average, multi-point, independent sensors.
- Highest quality, reliable and stable hermetically sealed "**bead-in-glass**" thermistors.
- Simple push-button user interface for field configuration and diagnostics.

GOLD SERIES DATA SHEET

Maximum Probes/Sensors: .Single Inlet: 2 probes/2 sensors
 Dual Inlet: 4 probes/2 sensors
 Factory Calibrated Sensor
 Accuracy: Airflow: ±2% of reading
 Temperature: ± 0.15 °F [± 0.08 °C]
 Probe/Transmitter Cable: . . 10 ft. [3.05 m] plenum rated FEP cable, positive locking connector with gold plated pins (Optional cable length to 50 feet [15.24m])

Output Interfaces

Analog Output: Isolated analog 0-5/0-10 VDC or 4-20 mA, linear airflow/temperature
 Analog Output Resolution: . . 0-10V/2-10V: 0.010% of full scale
 0-5V/1-5V: 0.020% of full scale
 RS-485 Output: Field selectable BACnet[®] MS/TP Master, Modbus RTU or JCI N2-Bus[®]
 RS-485 Baud Rate: 9.6k, 19.2k, 38.4k, and 76.8k baud
 Repeatability: 0.25% of reading
 Field Calibration Wizard: . . . Automated 1 or 2 point adjustment to factory calibration
 Airflow Output Signal Filter: . Field Adjustable 0 to 99% (via push-button interface)
 Airflow Low Limit Cutoff: . . . Forces output to zero below a user-specified value
 Programmable Alarm: Alarm can be engaged for user defined Hi or Low Limit, Setpoint with hysteresis for airflow or transmitter/probe fault conditions.

GOLD SERIES TECHNOLOGY OVERVIEW

The GTx116 transmitter can process up to 4 individual sensing nodes (two per inlet) for fan inlet applications and requires 24 VAC to provide airflow and temperature measurement outputs. Models are available with concurrent analog and RS-485 output (GTC116), RS-485 only (GTN116 with BACnet ARCNET), ethernet (GTE116) and LonWorks (GTL116) output for BAS networks. The transmitter is independent of the sensor probes thus eliminating field matching. The transmitter includes a 16 character LCD display that indicates airflow, temperature and system status, and is also useful during configuration and diagnostic modes. Field configuration and diagnostics are accomplished through a simple push-button interface on the main circuit board for selection of units of measure, display units, output scaling, dampening filter, diagnostics and instrument status. Individual sensor airflow and temperature measurements can be displayed and are beneficial as an HVAC system diagnostic tool.

ment to factory calibration if required in less than optimum placement applications. The airflow output signal can be filtered and a process low limit can be set to force the transmitter output to zero when airflow falls below a user defined value. Both features are important for outside air intake applications that can be affected by transient wind gusts at low airflow rates. In addition, an airflow offset and a gain adjustment feature can be engaged for installations where field calibration or adjustment is necessary.

EBTRON's GF1 sensor probes are available for single or dual fan inlet designs in six standard sizes spanning inlet diameters from 11 to 64 in (27.9 to 162.56 cm). A Throat Mount installation option is available for conventional vane-axial type fans, while Face Mount and Forward mount installation options permit installation on more sensitive plenum fan applications to minimize both noise and fan performance effects.

A built in Field Calibration Wizard permits 1 or 2 point adjust-

FAN INLET PROBE TYPICAL APPLICATIONS

FAN INLET PROBE STANDARD SIZE TABLES

THROAT MOUNT STANDARD SIZES

Standard Size Code	Inlet Throat Diameter				Rod 4 Pack Part Number
	is greater than or equal to		and is less than		
	inches	mm	inches	mm	
1	11	279.40	14	355.60	700-3055
2	14	355.60	17	431.80	700-3056
3	17	431.80	29	736.60	700-3057
4	29	736.60	43	1092.20	700-3058
5	43	1092.20	57	1447.80	700-3059
6	57	1447.80	64	1625.60	700-3060

"D" Inlet Throat Diameter is measured across the smaller inside diameter of the fan bell.

FACE MOUNT STANDARD SIZES

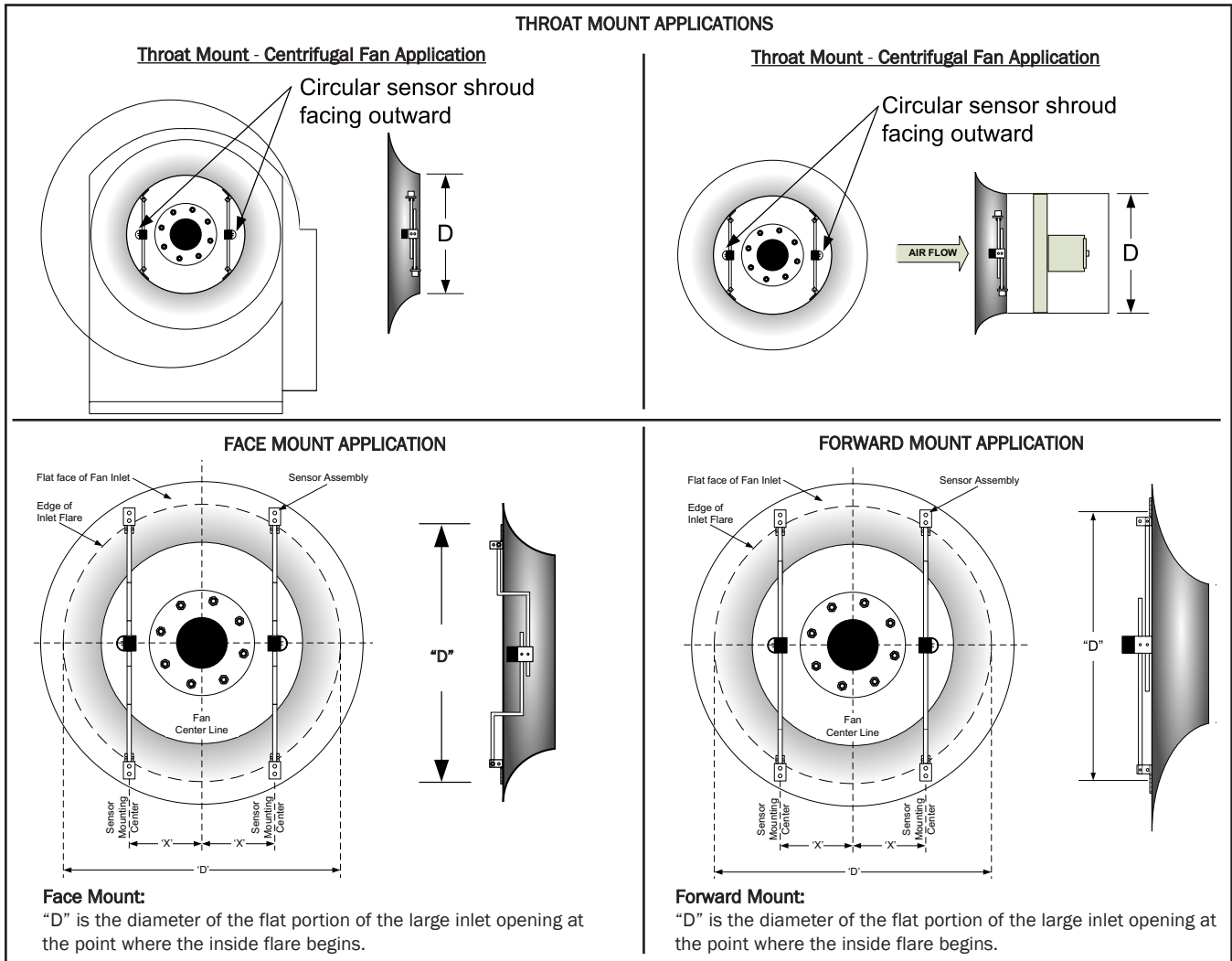
Standard Size Code	Inlet Face Diameter				Rod 4 Pack Part Number
	is greater than or equal to		and is less than		
	inches	mm	inches	mm	
1	11	279.40	13	330.20	700-4055
2	13	330.20	18	457.20	700-4056
3	18	457.20	23	584.20	700-4057
4	23	584.20	32	812.80	700-4058
5	32	812.80	46	1168.40	700-4059
6	46	1168.40	64	1625.60	700-4060

"D" Inlet Face Diameter is measured across the Flat Face at the Flare Edge at the diameter where the flare just begins.

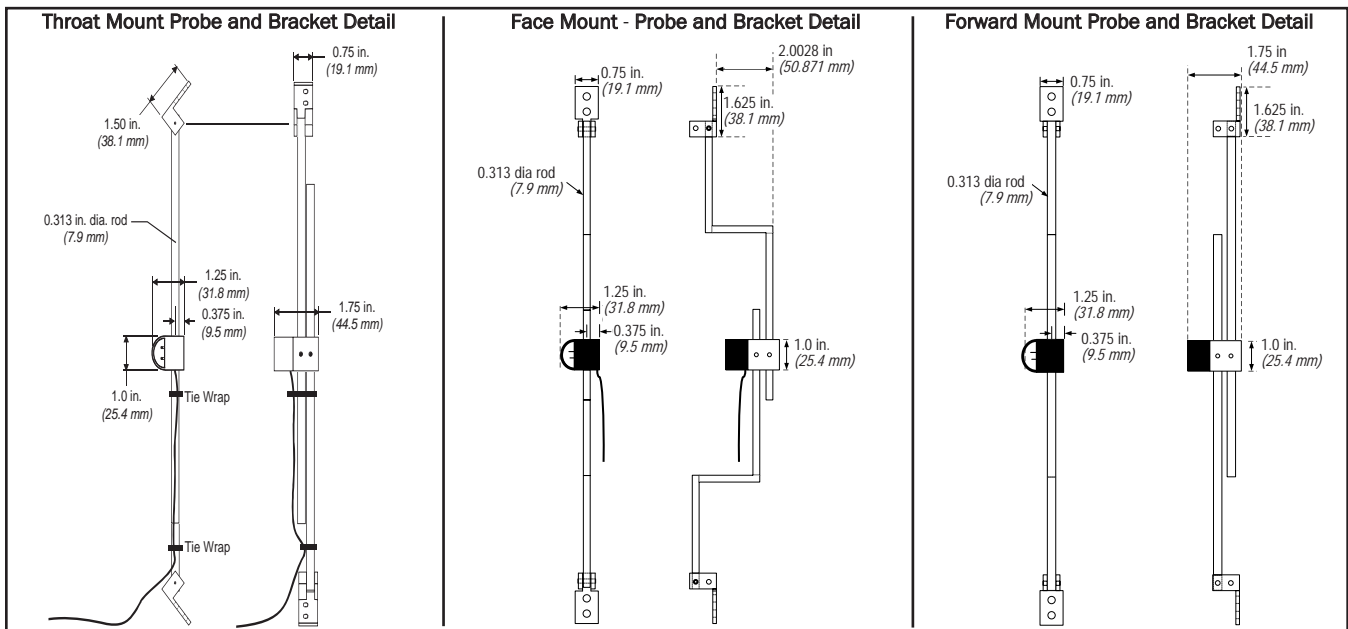
FORWARD MOUNT STANDARD SIZES

Standard Size Code	Inlet Face Diameter				Rod 4 Pack Part Number
	is greater than or equal to		and is less than		
	inches	mm	inches	mm	
1	11	279.40	13	330.20	700-5055
2	13	330.20	18	457.20	700-5056
3	18	457.20	23	584.20	700-5057
4	23	584.20	32	812.80	700-5058
5	32	812.80	46	1168.40	700-5059
6	46	1168.40	64	1625.60	700-5060

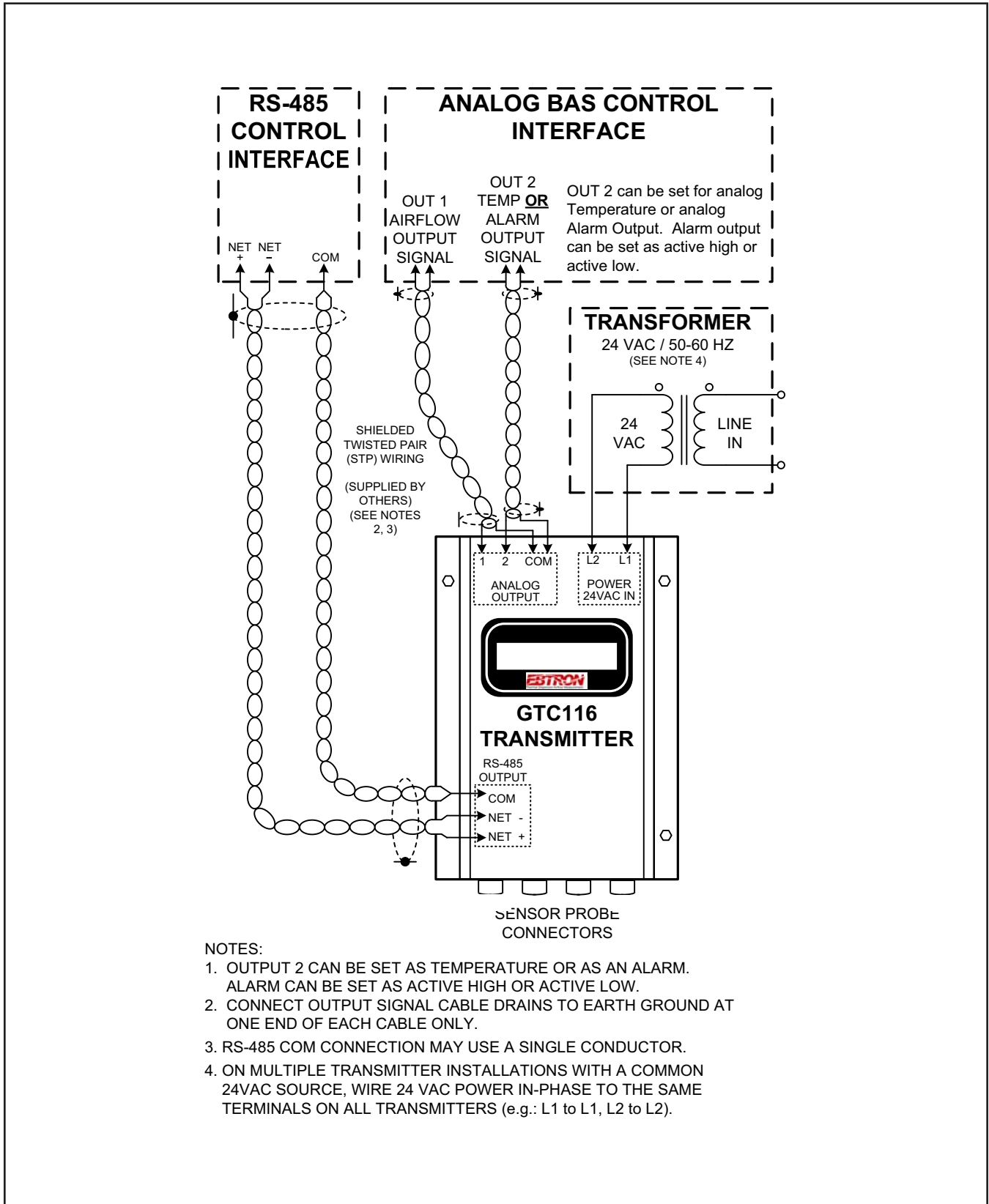
"D" Inlet Face Diameter - Measure Across Flat Face at Flare Edge



FAN INLET PROBE MOUNTING STYLES AND DETAILS



TYPICAL WIRING DIAGRAM



TS_GTC116F_R2B