

TEMPERATURE MEASUREMENT FOR DUCTED SYSTEMS (X)T00P Models

IAQ ENFORCER™ Product Data Sheet

Model-T00P temperature probe is designed for simple installation inside a duct or plenum. This highly accurate averaging thermistor temperature sensing probe is factory calibrated and provides the user with a linear output signal for temperature. When combined with intelligent DDC systems, the T00P affords the engineer and building manager a cost effective tool for the accurate and reliable control necessary to meet the requirements of today's air distribution systems. The microprocessor based electronics uses high quality **industrial grade** components. Its probe design and "daisy chained" cable hookups results in quick and easy installation in both new and retrofit applications.



Effective and Economical Measurement For:

- Accurate discharge air temperature control
- Mixed air temperature control
- Process temperature control

Features:

- Microprocessor based electronics with "watchdog" timer circuitry to assure continuous operation after power resets and brownouts
- Highly reliable and stable instrument grade thermistor probes
- Each sensing point is independent
- True average temperature output
- Simple 3 conductor "daisy chain" with other **EBTRON** sensors when used with IAQ Enforcer SPC panel systems

General Construction & Features

PERFORMANCE			
Sensor Accuracy - Temperature	typ.	0.18° F	
	max.	0.36° F	
OUTPUT SCALING			
Temperature	std.	Custom when ordered	
ELECTRICAL CONNECTIONS			
Between T00P Series Satellites	cable	See 'Wire Selection' Tables	
	termination	Terminal Block	
SPC Panel or Remote X-Head to T00P Series Satellites	cable	See 'Wire Selection' Tables	
	termination	Terminal Block	
OPERATING RANGES			
Operating Temperature Range	-20° to 160° F (sensor probe)		
	-20° to 160° F (remote electronics)		
Operating Humidity Range	0 to 99% RH		
PRESSURE DROP			
Pressure Drop @ 2000 ft/min	max.	0.005 in w.g.	
CONSTRUCTION			
Sensors per Probe T1X5	1 to 8		
Probes per location	1 to 8		
Probe Enclosure	Aluminum 5052		
Probe Body	Aluminum 6063 T52		
Sensor Housing	Glass Filled Polypropylene		
Temperature Sensor	Instrument Grade Thermistor		

Mechanical Construction

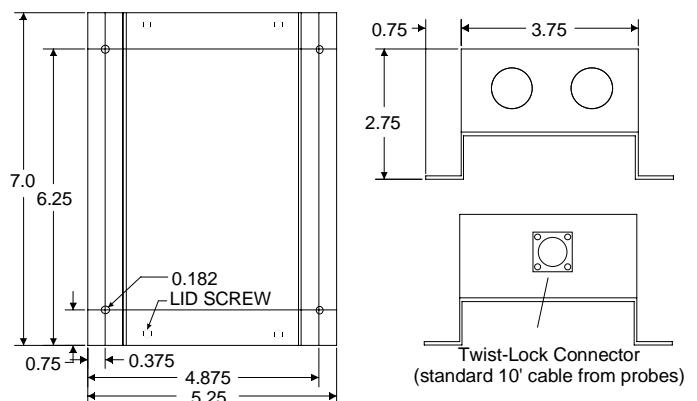
- **Enclosure and cover [1]:** Stamped, 0.04", 5052 alloy, aluminum, non rated enclosure, access for two (2) 1/2" conduit connections
- **Support Bracket [2]:** Stamped, 0.04", 6063 alloy, aluminum Stamped,
- **Support Bracket Hardware (to support strut) [3]:** 10-24-1.5", zinc plated steel bolt w/nylon insert stop nut and washers
- **Support Struts [4]:** Tubular, 6061 alloy, aluminum; 1.1" O.D.

Sensor Construction

- **Temperature Sensor:** glass encapsulated, hermetically sealed, industrial grade thermistor probe
- **Sensor Housing:** Glass Filled Polypropylene
- **Sensor Assembly Compounds:** epoxy
- **Internal Wiring:** Kynar® coated copper

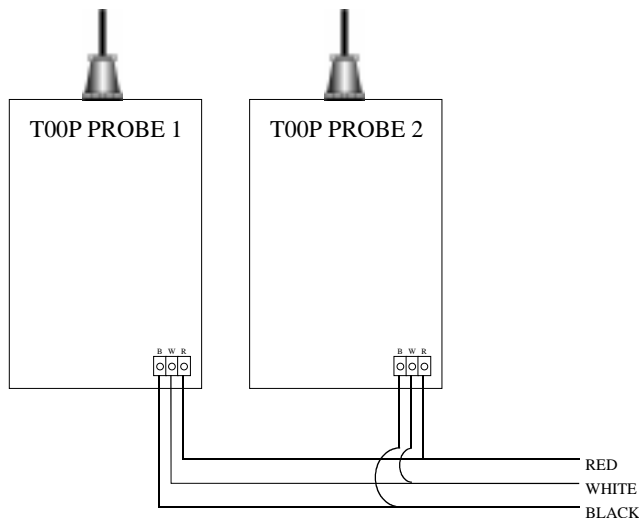
Cable Assembly

- **Cable [5]:** Plenum Rated PVC UL Standard 13, Type CL2P CSA PCC FT6, NEC Article 725 Passes Steiner Tunnel Test UL Listed, CSA Certified
- **Terminal Connectors at Electronics Enclosure [6]:** CPC Circular Connectors
Models T11P to T13P - nominal diameter 0.92", 1 connector
Models T21P and T22P - nominal diameter 0.92", 2 connectors



Wiring

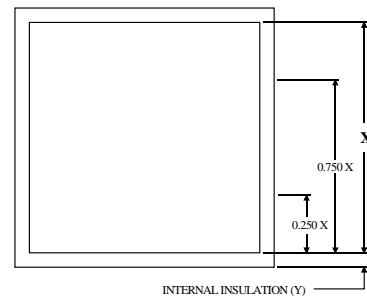
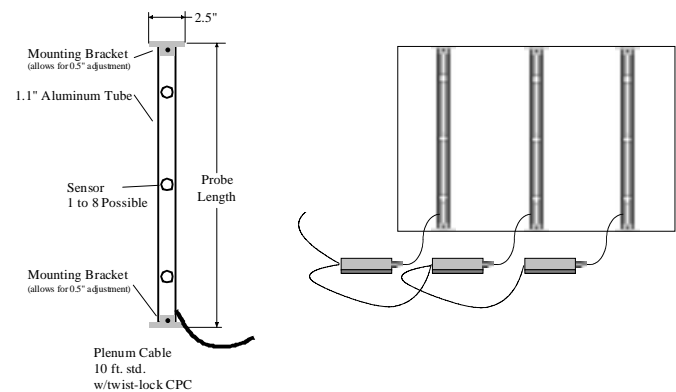
TWIST LOCK CONNECTIONS FROM SENSOR PROBES



NOTES:

- CONNECT LIKE COLORS FROM EACH SATELLITE TERMINAL TO THE EQUIVALENT COLOR CODED TERMINAL ON EITHER THE IAQ ENFORCER SPC PANEL OR "X" HEAD ELECTRONICS (SINGLE SATELLITE SYSTEMS WITH INTEGRAL X-HEAD ELECTRONICS ARE PREWIRED AT THE FACTORY).
- USE 3 CONDUCTOR CABLE, SHIELDING IS NOT REQUIRED BETWEEN SATELLITES.
- CHECK THE SPC OR "X" HEAD *INSTALLATION GUIDES* FOR WIRE GAUGE SELECTION AND TO DETERMINE MAXIMUM WIRE LENGTHS FOR EACH SINGLE RUN OR "DAISY CHAIN".

Installation



Number of Probes	Distance From Edge of Duct*			
	Probe 1	Probe 2	Probe 3	Probe 4
1	0.500 X			
2	0.250 X	0.750 X		
3	0.167 X	0.500 X	0.833 X	
4	0.125 X	0.375 X	0.625 X	0.875 X

X=Inside Duct Dimension of Insertion Side

* Add internal insulation to distance calculated

Suggested Engineers Guide Specification

A. & B. Insert appropriate specification from product data sheet for either the IAQ Enforcer SPC Panel or "X"-Head electronics.

C. Manufacturer

1. Base Bid: **EBTRON** Inc., Model T00P

B. Temperature Measurement: Averaging temperature sensor using instrument grade thermistor temperature sensors. Measurement drift shall not exceed Manufacturers repeatability statement for the life of the equipment. Manufacturer shall provide test data for accuracy performance prior to bid date.

1. **EBTRON** Model T00P Duct Mounted Sensor

a) Flow Station Construction

(1) Type: Duct Mounted

(2) Sensors : One glass encapsulated thermistor temperature sensor for each sensing point.

(3) Sensor Housing: Glass Filled Polypropylene

(4) Sensors per probe: 1 to 8

(5) Support Struts: Tubular Aluminum 6063-T6 extrusion

(6) Supporting Bracket: Aluminum 6063-T52 extrusion

b) Electronics

(1) Type: Microprocessor Based, totally solid state.

(2) Electrical Connections Electronics to IAQ Enforcer SPC Panel or X-Head: 3 conductor, provided by others.

(3) Enclosure: Aluminum, indoor use only. [option, insert: NEMA 4, outdoor use]

c) Performance

(1) Electronics temperature range: -20 to 160 F

(2) Temperature sensor temperature range: -20 to 160 F

(3) Pressure drop: less than 0.005 inwc @ 2000 ft./min

(4) Humidity range: 0 to 99% RH (non-condensing)

(6) Digital Output Signals to Sensor Signal Processor:

(a) Sensor temperature accuracy: typ. 0.18 F, max. 0.36 F

(b) Type: linear

(c) Type: linear

(d) Warranty

(1) 36 months from shipment, parts and factory labor as described in the Company's Standard Terms & Conditions of Sale

Ordering Information

T a b P - c d - e - f - g h

a- Probes per location: 1 to 8

b- Sensors per Probe: 1 to 8

c- Probe Length (inches)

d- Internal Insulation (inches, each side of duct)

e- Shape and Material: 1=alum. rect., 2=alum. rnd., 3=alum. oval, 4=SS rect., 5=SS rnd., 6=SS oval

f- Cable Length (feet, 10 ft. std., up to 25 ft.)

g- Output Signal: 1=0-5 VDC temp., 2=0-10VDC temp, 3*=4-20 mA temp.

h- Temperature Signal Range: 1=30°-80°F, 2=Custom °F, 3=Custom °C

* Optional configuration, may require additional charges

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