***AIR FLOW MEASUREMENT FOR DUCTED SYSTEMS*** ***(X)P000 Models***

# *IAQ ENFORCER*™ Product Data Sheet

Model-P airflow/temperature sensing satellites are comprised of one or more bracketed probe assemblies per satellite (duct) location. These units are designed for internal mounting in ducts and plenums for applications where the Model-D probe insertion design is not well suited. Each Model-P satellite station is weighted for the sensor area which it occupies so that multiple satellites from multiple ducts can be combined for a single output. Like all ***EBTRON*** flow sensors, the Model-P sensor uses thermal, temperature compensated, thermistor sensing technology and digital electronics. The microprocessor based electronics uses high quality **industrial grade** components. Its probe design and "daisy chained" cable hookups between transmitter electronics results in quick and easy installation in both new and retrofit applications.


***Effective and Economical Measurement For:***

- Fan Tracking
- Laboratory & Clean Room Pressurization Control
- Direct Measurement of Outdoor Air intake flow rates

***Features:***

- Microprocessor based electronics
- Low flow sensitivity, measures from 0 ft/min
- Each sensing point is independent
- True average velocity & temperature output
- Temperature compensated velocity output
- Maintenance free design
- Easy to handle and install

## General Construction & Features

| | | | |
|---|---|---|---|
| **PERFORMANCE** | | | |
| | Sensor Accuracy - Velocity | | +-2% of Reading |
| | Sensor Accuracy - Temperature | typ. | 0.18° F |
| | | max. | 0.36° F |
| **OUTPUT SCALING** | | | |
| | Velocity | std. | 0-500 ft/min |
| | | | 0-1000 ft/min |
| | | | 0-2500 ft/min |
| | | | 0-5000 ft/min |
| | | opt. | Custom when ordered |
| | Temperature | std. | 30º- 80º F |
| | | opt. | Custom when ordered |
| **OPERATING RANGES - SENSOR** | | | |
| | Operating Temperature Range | | -20° to 160° F |
| | Operating Humidity Range | | 0 to 99% RH |
| **OPERATING RANGES - ELECTRONICS** | | | |
| | Operating Temperature Range | | -20° to 160° F |
| | Operating Humidity Range | | 0 to 99% RH |
| **PRESSURE DROP** | | | |
| | Pressure Drop @ 2000 ft/min | max. | 0.005 in w.g. |
| **ELECTRICAL CONNECTIONS** | | | |
| | Between P Series Satellites | cable | See 'Wire Selection' Tables |
| | | termination | Terminal Block |
| | SPC Panel or Remote X-Head | cable | See 'Wire Selection' Tables |
| | to P Series Satellites | termination | Terminal Block |
| **CONSTRUCTION** | | | |
| | Sensors per Transmitter | | 1 to 8 |
| | Probe body | | Aluminum 6063-T52 |
| | Sensor Housing | | Glass Filled Polypropylene |
| | Flow Sensor | | Instrument Grade Thermistor |
| | Temperature Sensor | | Instrument Grade Thermistor |
| | Enclosure | | Aluminum 5052 & 6063-T52 |

## Mechanical Construction

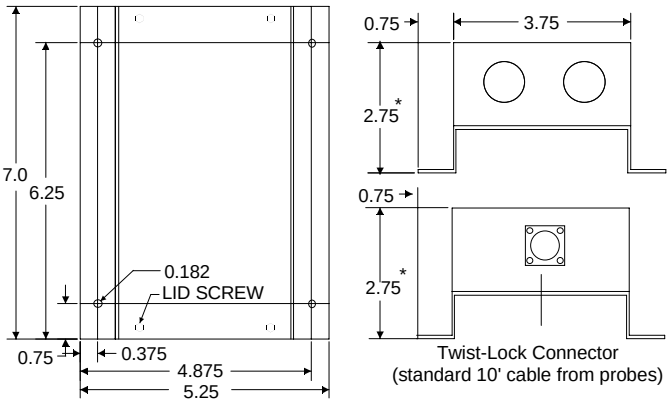
- **Enclosure and cover [1]:** Stamped, 0.04", 5052 alloy, aluminum sheet,non rated enclosure, access for two (2) 1/2" conduit connections
- **Support Bracket [2]:** Stamped, 0.04", 6063-T52 alloy, aluminum extrusion
- **Support Bracket Hardware (to support strut) [3]:**10-24-1.5", zinc plated steel bolt w/nylon insert stop nut and washers
- **Support Struts [4]:** Tubular, 6063-T6 extrusionalloy, aluminum; 1.1" O.D.

## Sensor Construction

- **Heated Velocity Sensor:** glass encapsulated, hermetically sealed, industrial grade thermistor probe
- **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

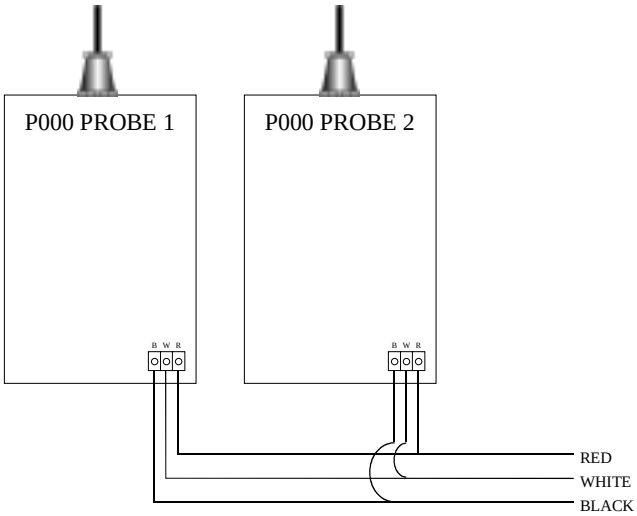
- **Cable [5]:** Plenum Rated PVC UL Standard 13, Type CL2P CSA PCC FT6, NEC Article 725 Passes Steiner Tunnel Test UL Listed, CSA Certified
- **Terminal Connectors at Electronics Enclosure [6]:** CPC Circular Connectors
  Models PX10 to PX30 - nominal diameter 0.92"
  Model PX40 to PX80 - nominal diameter 1.34"




* 3.50 inches with integral "X" head electronics installed

## Wiring

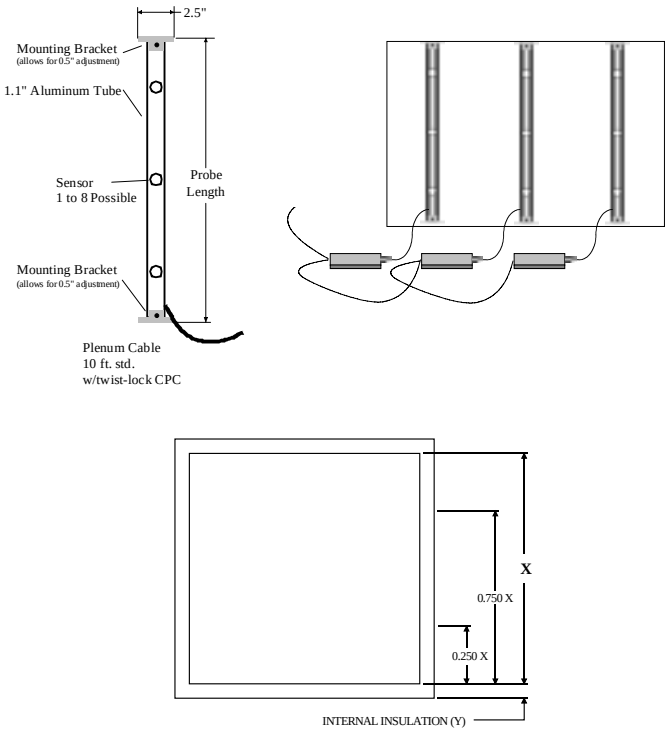
TWIST LOCK CONNECTIONS FROM SENSOR PROBES




NOTES:

1. 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).
2. USE 3 CONDUCTOR CABLE, SHIELDING IS NOT REQUIRED BETWEEN SATELLITES.
3. 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. Air Flow and Temperature Measurement:
1. ***EBTRON*** Model-P Duct Mounted Satellite Sensor
a) Flow Station Construction
(1) Type: Duct Mounted
(2) Sensors : One glass encapsulated self heated thermistor and one glass encapsulated thermistor temperature sensor for each sensing point.
(3) Sensor Housing: Noryl [option for corrosive environments, insert: Kynar]
(4) Sensors per satellite probe: 1 to 8
(5) Support Struts: Tubular Aluminum 6063-T6 extrusion [option for corrosive environments, insert: 316 Stainless Steel]
(6) Supporting Bracket: Aluminum 6063-T52 extrusion [option for corrosive environments, insert 304 Stainless Steel]
(7) Connecting Cable: Plenum Rated PVC. UL Standard 13, Type CL2P with twist-lock connector to remote electronics panel
b) Electronics
(1) Type: Microprocessor Based, totally solid state, industrial grade integrated circuits.
(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 4X, outdoor use][option for corrosive environments, insert: 304 Stainless Steel]
c) Performance
(1) Electronics temperature range: -20 to 160 F
(2) Flow station temperature range: -20 to 160 F
(3) Flow station velocity range: 0 to 5,000 ft./min.
(4) Flow station pressure drop: less than 0.005 inwc @ 2000 ft./min
(5) Flow station humidity range: 0 to 99% RH (non-condensing)
(6) Digital Output Signals to Sensor Signal Processor:
(a) Sensor velocity accuracy: +/-2% reading
(b) Sensor temperature accuracy: typ. 0.18 F, max. 0.36 F

## Ordering Information

P a b 0 - c x d e - f - g - h i j

**a-** Probes per location: 1 to 8
**b-** Sensors per Probe: 1 to 8
**c-** Probe Length (inches)
**d-** Insertion Side Width of Duct (inches)
**e-** Internal Insulation (inches, each side of duct)
**f-** Shape and Material: 1=alum. rect.,
**g- Cable Length: 10ft., 11 to 25 ft.***
**h-** Output Signal(s): 1=0-5 VDC 2=0-10 VDC., 3*=4-20 mA
**i-** Airflow Signal Range, 0 to: 0=none, 1=500 FPM, 2=1000 FPM, 3=2500 FPM, 4=5000 FPM, 6=Custom FPM, 7=Custom CFM
**j-** Temperature Signal Range: 0=none,1*=30º-80ºF, 2*=Custom ºF, 3*=Custom ºC

** Optional configuration, may require additional charges*

NOTE:
Models P210 and P220 have only one (1) electronics pack

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