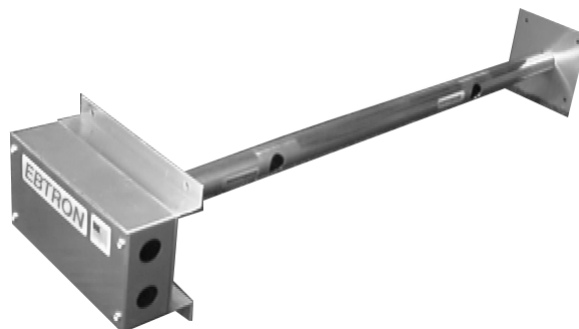


# IAQ ENFORCER™ Product Data Sheet

Model-D airflow/temperature sensing satellites are comprised of one or more insertion probe assemblies per satellite (duct) location. Like all **EBTRON** flow sensors, the Model-D sensor uses thermal, temperature compensated, thermistor sensing technology and digital electronics. The microprocessor based electronics uses high quality **industrial grade** components. Its insertion probe design and "daisy chained" cable hookups results in quick and easy installation in both new and retrofit applications. Lightweight construction assures years of maintenance free operation.



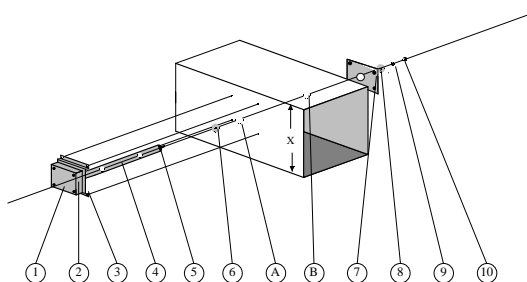
**Effective and Economical Measurement For:**

- 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

**SIMPLY CONFIGURE WITH AN IAQ ENFORCER SPC PANEL OR "X" HEAD FOR OPERATION** (Consult the IAQ Enforcer SPC panel or "X" Head data sheets for more information)



**General Construction & Features**

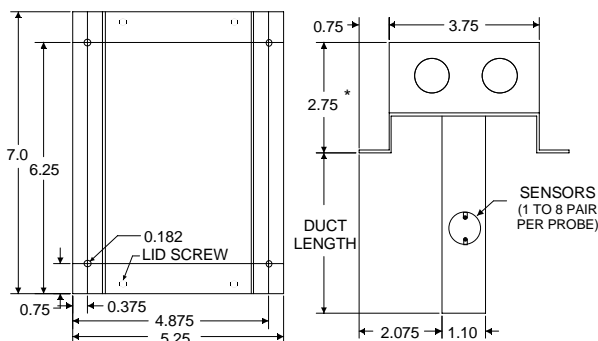
PERFORMANCE		
Sensor Accuracy - Velocity		+/-2% of Reading
Sensor Accuracy - Temperature	typ.	0.18° F
	max.	0.36° F
OUTPUT SCALING		
Velocity	std.	0-500 ft/min
		0-1000 ft/min
		0-2500 ft/min
		0-5000 ft/min
	opt.	Custom when ordered
Temperature	std.	30°- 80° F
	opt.	Custom when ordered
OPERATING RANGES - 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 D Series Satellites	cable	See 'Wire Selection' Tables
	termination	Terminal Block
SPC Panel or Remote X-Head to D Series Satellites	cable	See 'Wire Selection' Tables
	termination	Terminal Block
CONSTRUCTION		
Sensors per Transmitter		1 to 8
Probe body	std.	Aluminum 6063-T6
	opt.	316 Stainless Steel
Sensor Housing	std.	Glass Filled Polypropylene
	opt.	Kynar
Flow Sensor		Instrument Grade Thermistor
Temperature Sensor		Instrument Grade Thermistor
Enclosure	std.	Aluminum 5052 & 6063-T52 Extrusion
	opt.	304 Stainless Steel
	opt.	NEMA 4

**Mechanical Construction**

- **Enclosure and cover [1 and 2]:** Stamped, 0.04", 5052 alloy sheet, aluminum sheet, non rated enclosure, access for two (2) 1/2" conduit connections
- **External Support Bracket [3]:** Extruded, 6063-T52 extrusion alloy, aluminum
- **Support Struts [4]:** Tubular, 6063-T6 alloy, aluminum; 1.1" O.D.
- **Terminal Mounting Stud (probes ≥ 18") [5]:** 3/8"x 16, zinc plate, steel
- **Insertion Side Gasket [6]:** Neoprene Rubber
- **External Support Bracket [7]** Stamped, 0.04", 5052 alloy, aluminum sheet
- **Terminal Side Gasket (probes ≥ 18") [8]:** Neoprene Rubber
- **Fender Washer (probes ≥ 18") [9]:** Zinc plate, steel
- **Lock Nut (probes ≥ 18") [10]:** Nickel plate, steel

**Sensor Construction**

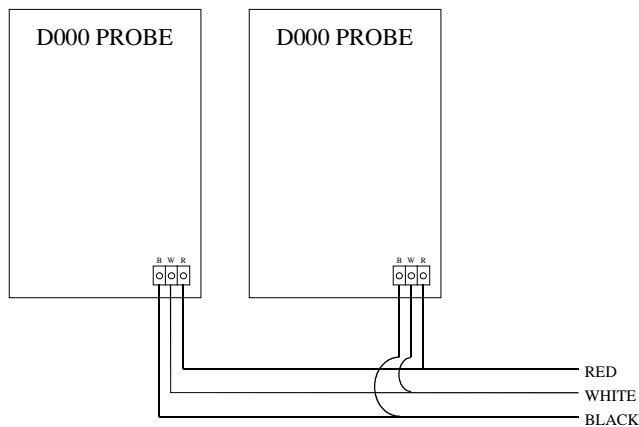
- **Heated Velocity Sensor:** glass encapsulated, hermetically sealed, industrial thermistor probe.
- **Temperature Sensor:** glass encapsulated, hermetically sealed, industrial thermistor probe.
- **Sensor Housing:** Glass Filled Polypropylene
- **Sensor Assembly Compounds:** epoxy
- **Internal Wiring:**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



NOTE: 3/8" X 1.5" THREADED ROD EXTENDS FROM END WHEN UNIT IS 18" OR LONGER

\* 3.50 inches with integral "X" head electronics installed

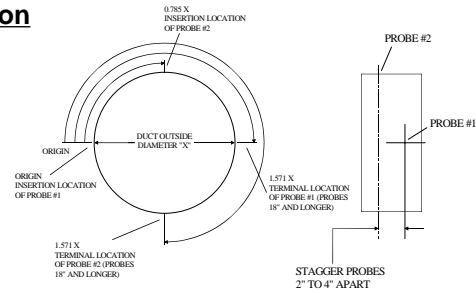
## Wiring



### NOTES:

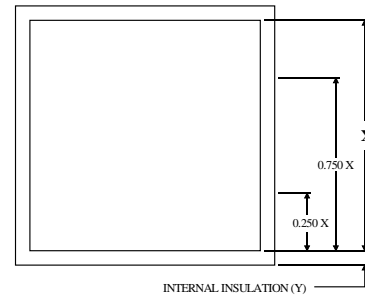
- CONNECT LIKE COLORS FROM EACH SATELLITE TERMINAL TO THE EQUIVALENT COLOR CODED TERMINAL ON EITHER THE IAQ ENFORCER SPC PANEL OR "X" HEAD ELECTRONICS (SINGLE SATELLITE SYSTEMS WITH INTEGRAL X-HEAD ELECTRONICS ARE PREWIRED AT THE FACTORY).
- USE 3 CONDUCTOR CABLE, SHIELDING IS NOT REQUIRED BETWEEN SATELLITES.
- 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 Along Duct Circumference				
	Side	Probe 1	Probe 2	Probe 3	Probe 4
1	Insertion	Origin			
	Terminal	1.571 X			
2	Insertion	Origin	0.785 X		
	Terminal	1.571 X	2.356 X		
3	Insertion	Origin	0.524 X	1.047 X	
	Terminal	1.571 X	2.094 X	2.618 X	
4	Insertion	Origin	0.392 X	0.785 X	1.178 X
	Terminal	1.571 X	1.963 X	2.356 X	2.749 X

X=Outside Diameter of Duct



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-D Duct Mounted Satellite Sensor

#### a) Flow Station Construction

- Type: Duct Mounted
- Sensors : One glass encapsulated self heated thermistor and one glass encapsulated thermistor temperature sensor for each sensing point.
- Sensor Housing: Noryl [option for corrosive environments, insert: Kynar]
- Sensors per satellite probe: 1 to 8
- Support Struts: Tubular Aluminum 6063-T6 extrusion [option for corrosive environments, insert: 316 Stainless Steel]
- Supporting Bracket: Aluminum 6063-T52 extrusion [option for corrosive environments, insert 304 Stainless Steel]

#### b) Electronics

- Type: Microprocessor Based, totally solid state, industrial grade integrated circuits.
- Electrical Connections Electronics to IAQ Enforcer SPC Panel or X-Head: 3 conductor, provided by others.
- Enclosure: Aluminum, indoor use only. [option, insert: NEMA 4, outdoor use][option for corrosive environments, insert: 304 Stainless Steel]

#### c) Performance

- Electronics temperature range: -20 to 160 F
- Flow station temperature range: -20 to 160 F
- Flow station velocity range: 0 to 5,000 ft./min.
- Flow station pressure drop: less than 0.005 IN. W.G. @ 2000 ft./min
- Flow station humidity range: 0 to 99% RH (non-condensing)
- Digital Output Signals to Sensor Signal Processor:
  - Sensor velocity accuracy: +/-2% reading
  - Sensor temperature accuracy: typ. 0.18 F, max. 0.36 F

## Ordering Information

**D** **a** **b** **0** - **c** x **d** **e** - **f** - **g** **h** **i**

**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., 2=alum. rnd., 3=alum. oval, 4=SS rect., 5=SS rnd., 6=SS oval

**g**- Output Signal(s): 1=0-5 VDC 2=0-10 VDC., 3\*=4-20 mA

**h**- 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

**i**- Temperature Signal Range: 0=none, 1\*=30°-80°F, 2\*=Custom °F, 3\*=Custom °C

\* Optional configuration, may require additional charges

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