

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.



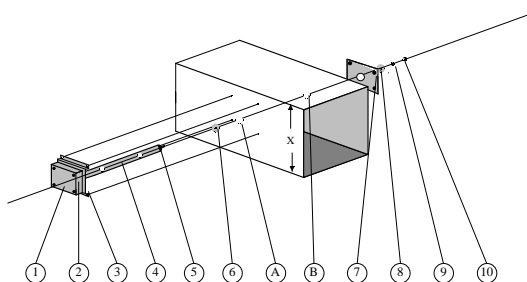
Effective and Economical Measurement For:

- 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

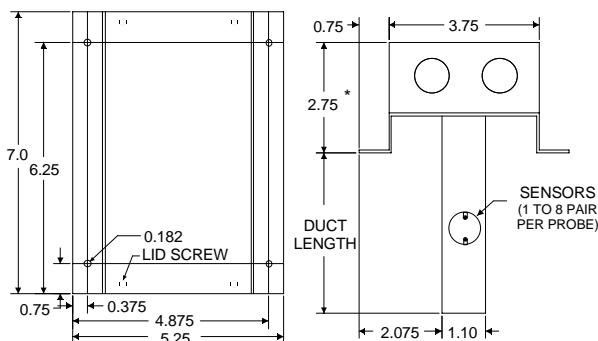
PERFORMANCE		
Sensor Accuracy - Velocity		+/-2% of Reading
Sensor Accuracy - Temperature	typ.	0.18° F
	max.	0.36° F
OUTPUT SCALING		
Velocity	std.	0-500 ft/min
		0-1000 ft/min
		0-2500 ft/min
		0-5000 ft/min
	opt.	Custom when ordered
Temperature	std.	30°- 80° F
	opt.	Custom when ordered
OPERATING RANGES - 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

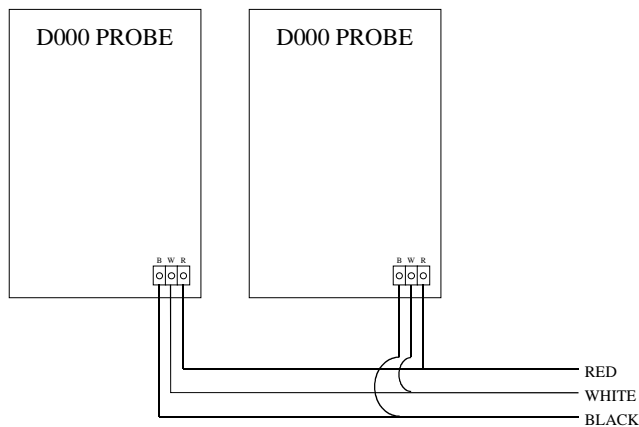
- **Heated Velocity Sensor:** glass encapsulated, hermetically sealed, industrial thermistor probe.
- **Temperature Sensor:** glass encapsulated, hermetically sealed, industrial thermistor probe.
- **Sensor Housing:** Glass Filled Polypropylene
- **Sensor Assembly Compounds:** epoxy
- **Internal Wiring:**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

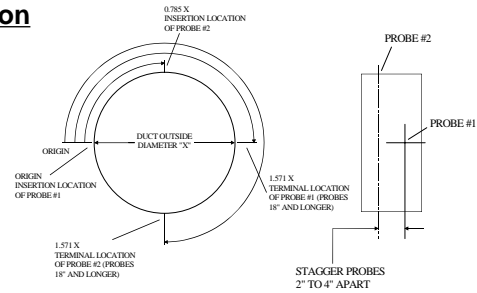
Wiring



NOTES:

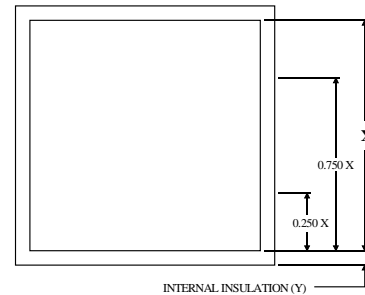
- CONNECT LIKE COLORS FROM EACH SATELLITE TERMINAL TO THE EQUIVALENT COLOR CODED TERMINAL ON EITHER THE IAQ ENFORCER SPC PANEL OR "X" HEAD ELECTRONICS (SINGLE SATELLITE SYSTEMS WITH INTEGRAL X-HEAD ELECTRONICS ARE PREWIRED AT THE FACTORY).
- USE 3 CONDUCTOR CABLE, SHIELDING IS NOT REQUIRED BETWEEN SATELLITES.
- 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

(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]

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 4, 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 IN. W.G. @ 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

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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