AIR FLOW MEASUREMENT FOR FAN INLETS

4000 Model

the Eliminator ™ Product Data Sheet

The *Eliminator 4000* by *EBTRON* is a revolutionary new sensor for measurement of airflow rates directly on fan inlets. This new technology uses thermal sensors and is factory calibrated to provide the user with a linear output signal for both air velocity and temperature. The Eliminator's unique adjustable mounting bracket requires less detailed fan inlet dimensions than competitor's models and its streamline design results in minimal losses in fan performance with small increases in sound levels. Maintenance free and easy to install.

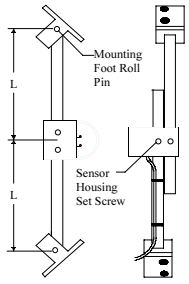
Effective and Economical Measurement for:

- Fan Tracking

Features:

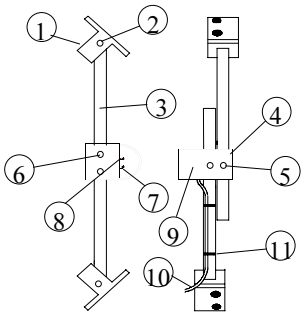
- Microprocessor based electronics with "watchdog" timer circuitry to assure continuous operation after power resets and brownouts
- Linear, Repeatable Output Signal
- Each sensing point is independent
- True average velocity & temperature output
- Temperature compensated velocity output
- Adjustable offset/span allows for "fine tuning" output signals for variability in fan inlet entry conditions
- 1:1 isolation transformer provided with each unit

Fan Bell Housing for Illustration Only



Proper orientation of sensor looking into fan inlet

Side View



Specifications

PERFORMANCE			
	Sensor Accuracy - Velocity	Linearity	+-2% of Reading
		Turndown	Infinite
	Sensor Accuracy - Temperature	typ.	0.18º F
		max.	0.36º F
	Output Resolution		0.4% of F.S.
OUTPUT SIGNAL			
	Velocity & Temperature	std.	linear 0-5 VDC
		opt.	linear 4-20mA
OUTPUT SCALING			
	Velocity	std.	0-500 ft/min
			0-1000 ft/min
			0-2500 ft/min
			0-5000 ft/min
			0-10000 ft/min
		opt.	Custom when ordered
	Temperature		0º-100º F
			Custom when ordered
POWER REQUIREMENT			
	AC Power Input		24 VAC @ < 10 VA
			+- 10%
OPERATING RANGES			
	Operating Temperature Range		30º to 160º F
	Operating Humidity Range		0 to 99% RH
CONSTRUCTION			
	Sensors per Inlet		2
	Maximum Inlets per Electronics		2
	Sensor Housing & Mounting Feet		Nylon
	Mounting Bracket		Steel
	Cable	std.	10 ft. Plenum Rated
		opt. max.	25 ft. Plenum Rated
	Enclosure		Aluminum
	Flow Sensor		Instrument Grade Thermistor
	Temperature Sensor		Instrument Grade Thermistor

Mechanical Construction

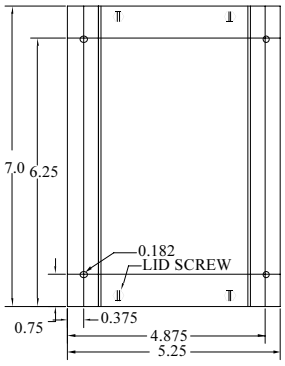
- **Enclosure and cover [not shown]:** Stamped, 0.04", 5052 alloy sheet and extrusion 6063-t52, aluminum,non rated enclosure, access for two (2) 1/2" conduit
- **Sensor Assembly Mounting Foot [1]:** Nylon 101
- **Mounting Foot Support Pin [2]:** 1/8" x 3/4" steel roll pins
- **Sensor Assembly Support Rod [3]:** solid round 5/16", nickel plate, steel
- **Sensor Housing Support Block [4]:** Machined 3/4" x 1" x 1" steel block
- **Sensor Housing Set Screws [5]:** 10-32-1/4", steel
- **Sensor Mounting Screws [6]:** 4-40-3/4", steel alloy

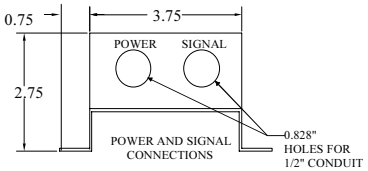
Sensor Construction

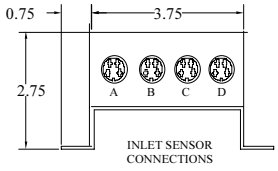
- **Heated Velocity Sensor[7]:** glass encapsulated, hermetically sealed, industrial grade thermistor probe
- **Temperature Sensor [8]:** stainless steel encapsulated thermistor chip
- **Sensor Housing [9]:** Glass Filled Polypropylene
- **Asembly Compounds:** epoxy

Cable Assembly

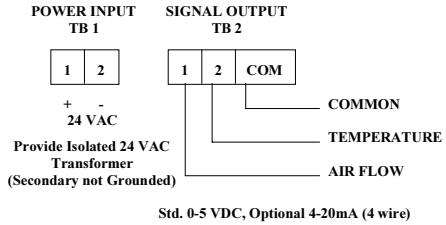
- **Cable [10]:** 4 conductor, plenum rated, NEC type CL2P
- **Cable Ties [11]:** Nylon tie wrap
- **Terminal Connectors at Electronics Enclosure:** Standard DIN Connectors



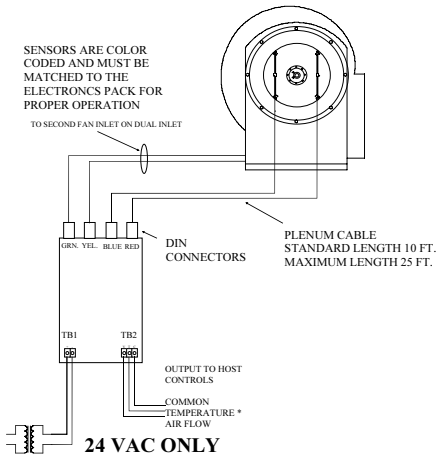




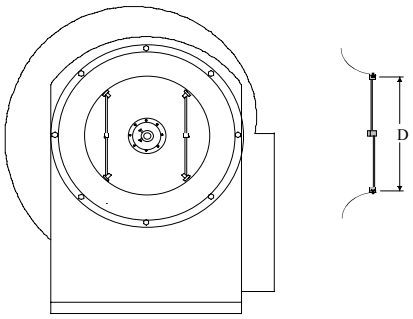
Wiring



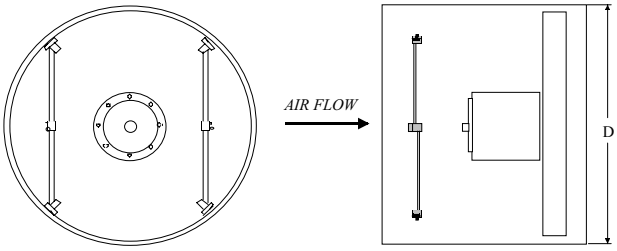
Model	VA
4120	7.3
4220	8.6



Installation



Centrifugal Fan



Axial Flow Fan

Suggested Engineers Guide Specification

Insert under the airflow measurement heading in the Temperature Control Section of the Specification [optionally, 4000 sensors can also appear in the AHU section of the specification]

A. Manufacturer
1. Base Bid: ***EBTRON*** Inc., Model 4000
B. Air Flow and Temperature Measurement: Thermal anemometer using instrument grade self heated thermistor sensors with thermistor temperature sensors. Flow 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. Vortex shedding arrays are not acceptable. Pitot tube and differential pressure sensing arrays are not acceptable.
1. ***EBTRON*** Model 4000 Fan Inlet Sensor
a) Flow Station Construction
(1) Type: Fan Inlet
(2) Sensors : One glass encapsulated self heated thermistor and one 316 stainless steel encapsulated temperature sensor for each sensing point.
(3) Sensor Housing: Nylon
(4) Sensors per inlet:
(a) 2 sensors
(5) Support Struts: Steel, Adjustable to fit fan inlet
(6) Supporting Brackets: Nylon
b) Electronics
(1) Type: Microprocessor Based, totally solid state.
(2) Power Requirement: 24 VAC. Multiple Series 4000 probes wired from a single transformer must be wired in phase.
(3) Connecting Cable Flow Sensor to Electronics: Plenum Rated, NEC Type CL2P
(4) Enclosure: Aluminum, indoor use only. [option, insert: NEMA 4, outdoor use]
c) Performance
(1) Electronics temperature range: 30 to 160 F
(2) Flow station temperature range: 30 to 160 F
(3) Flow station velocity range: 0 to 10,000 ft./min.
(4) Flow station humidity range: 0 to 99% RH (non-condensing)
(5) Analog output signals, 0-5VDC [option 4-20mA, 4-wire]
(a) Sensor velocity linearity: +-2% reading
(b) Sensor temperature accuracy: typ. 0.18 F, max. 0.36 F
(c) Type: linear
(d) Repeatability: +- 0.2% scale
(e) Resolution: 0.4% scale
d) Warranty
(1) 36 months from shipment, parts and factory labor as described in the Company's Standard Terms & Conditions of sale

Ordering Information

4	a	2	b	-	c	-	d	-	e	-	f	g	h

a- Number of fan inlets
b- use table

Inlet Diameter		
is greater than or equal to	and is less than	Order Code "b"
11	14	1
14	17	2
17	29	3
29	43	4
43	57	5
57	86	6

c- Inlet diameter (optional)
d- Cable Length (feet, 10 ft. std., up to 25 ft.)
e- Input Power: 1=24 VAC, 2=110 VAC
f- Output Signals: 1=0-5 VDC airflow & temp., 3*=4-20 mA airflow & 0-5 VDC temp.,4*=4-20mA airflow & temp.
g- Airflow Signal Range, 0 to: 1=500 FPM, 2=1000 FPM, 3=2500 FPM, 4=5000 FPM, 6=Custom FPM,
h- Temperature Signal Range: 1=30º-80ºF, 2=Custom ºF, 3=Custom ºC
* *Optional configuration, may require additional charges*

EBTRON, Inc., 1663 Hwy. 701 S., Loris, SC 29569
Phone: 1-800-2***EBTRON*** (1-800-232-8766) 1-843-756-1828 FAX: 1-843-756-1838