

• ELECTRA-flo/SD •
**THERMAL AIRFLOW & TEMPERATURE
 MEASUREMENT SYSTEM**



Multiple pairs of surface mounted precision thermistors utilize the principle of thermal dispersion to accurately measure both average flow velocity and air temperature within the duct.

DESCRIPTION

Air Monitor’s ELECTRA-flo/SD is an accurate, cost effective thermal airflow and temperature measurement system designed for applications in small ducts ranging in size from 4” to 16” in diameter. The ELECTRA-flo/SD provides a calibrated output with an accuracy of $\pm 2-3\%$ of airflow reading from 0-3000 FPM and a temperature measurement accuracy of $\pm 0.15^\circ$ F.

To maximize application flexibility, the ELECTRA-flo/SD transmitter has four different user selectable flow velocity ranges and four user selectable flow filter settings. Flow can be reported in FPM or as the equivalent velocity pressure (inches of w.c.). The ELECTRA-flo/SD may be ordered with dual analog outputs for flow and temperature or with an RS485 output for BACnet® MS/TP or Modbus® RTU.

APPLICATIONS

- Accurate, cost effective, low flow measurement for improved control and efficiency in multi-zone VAV systems.
- Allows for energy savings while complying with ASHRAE 62.1 indoor air quality standards.
- Provides analog inputs required for direct VAV control: airflow velocity, CFM or velocity pressure.
- Ideal for remotely monitoring volumetric airflow and temperature of individual spaces.
- Provides real time airflow monitoring of single space supply and exhaust airflow, including fume hoods, in critical space control applications.

FEATURES

Dual Analog Outputs – Separate analog outputs are provided for flow and temperature. Flow output is field scalable with four different operating ranges.

Multiple Filter Settings – Four different flow filter settings are available to allow for stable measurement even in difficult applications.

BACnet or Modbus Communications – When ordered with serial communications, network data points include: velocity, pressure, temperature, volume rate and volume total

Simple Installation and Setup – Simple dip-switches make the ELECTRA-flo/SD easy to set up and install.

N.I.S.T. Traceable Calibration with Certification – Each ELECTRA-flo/SD is individually calibrated for flow and temperature and is provided with a N.I.S.T. calibration certificate.

Field programmable flow range scales in ft/min or the equivalent velocity pressure in inches of W.C.	
FPM	Inches W.C.
0 - 500	0 - 0.016
0 - 1,000	0 - 0.062
0 - 2,000	0 - 0.249
0 - 3,000	0 - 0.561

GENERAL SPECIFICATIONS

ACCURACY

Velocity: ±2% of Reading
Temperature: ±0.15° F
Overall System Accuracy:
Flow: ±2-3% of Actual Airflow
Temperature: ±0.15° F of Air Temperature

VELOCITY RANGES:

User selectable via DIP switches.
0 to 500 FPM
0 to 1000 FPM
0 to 2000 FPM
0 to 3000 FPM

SENSING METHOD

Multi-point precision thermal dispersion flow sensors

DUCT SIZE RANGE:

4" to 16"

PROBE LENGTHS:

4, 5, 6, 7, 8, 9, 10, 12, 14, and 16"

SUPPLY VOLTAGE (Automatically selected)

24 ± 4V AC, 5 VA
20 - 40V DC, 5 W

PROCESS AIR TEMPERATURE RANGE

-20° F to 120° F Airflow

Humidity Limits:

0 to 99% RH, non-condensing

OUTPUT SIGNALS PROVIDED

Standard: Isolated dual analog outputs for airflow and temperature
Optional: RS485 serial communications via BACnet MS/TP or Modbus RTU

MATERIAL

Standard Probe: Type 6063 anodized aluminum
½" diameter tubing
Optional Probe: 316 stainless steel

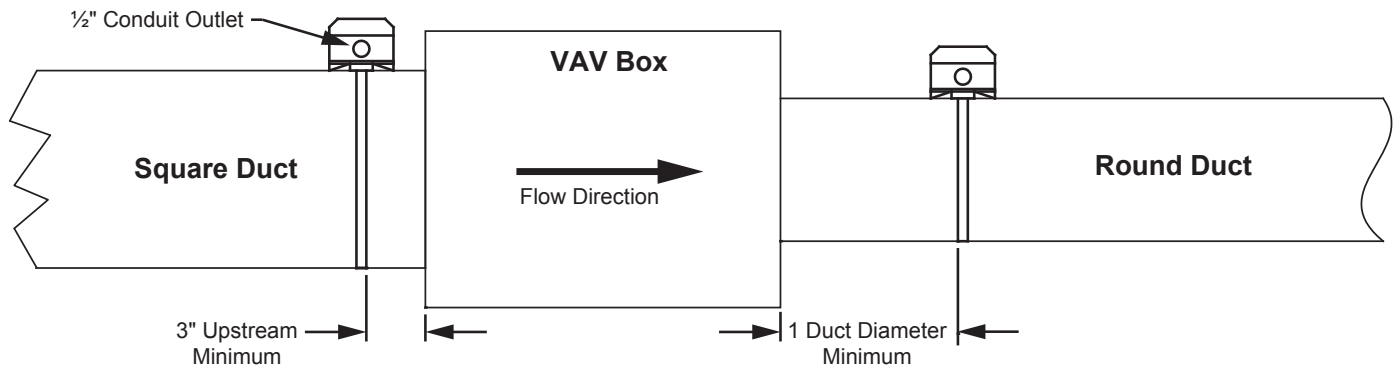
ELECTRONICS ENCLOSURE

NEMA4 rated injection molded polycarbonate enclosure is UL94 rated

ELECTRICAL CONNECTIONS

Separate power and signal terminal strips with plug-in connectors

TYPICAL ELECTRA-flo/SD Installation



VAV Installations Option 1: Locate ELECTRA-flo/SD a minimum of 3" upstream of the VAV box, or 3" upstream of the pneumatic flow ring (remove the ring).

VAV Installations Option 2: When mounted downstream of the VAV box, position the ELECTRA-flo/SD a minimum of one duct diameter downstream of the VAV box.

Equivalent Duct Diameter X

$$\text{Rectangular Duct: } X = \frac{2 (H \times W)}{H + W}$$

$$\text{Circular Duct: } X = \text{Duct Diameter}$$