

1.0 Airflow Measuring System - Thermal Dispersion

1.1 Acceptable Manufacturers

- A. NJK Precision
- B. Approved performance equal

1.2 Sensing Frame

- A. Provide where indicated, an Airflow Measuring System capable of continuously monitoring the air volumes they serve. Each Airflow Measuring System shall consist of a thermal dispersion type sensing technology.
- B. The airflow measurement station will utilize a dual chambered airfoil design with the sensor module providing the connection between the inlet and outlet chambers of the station. The inlet and outlet chambers shall consist of continuous apertures around the airflow station. The inlet chamber shall direct air through a mass thermal dispersion type airflow sensing module with microprocessor-based transmitter to produce an overall airflow rate.
- C. Airflow measuring station shall be fabricated to the required size that shall be field verified by contractor. It will be constructed of anodized extruded aluminum with aluminum (or other manufacturer's standard) for structural integrity to withstand the maximum pressures and velocities for the application.
- D. Contractor shall install the airflow station and associated components according to the manufacturer's installation requirements.
- E. The operating temperature range for the airflow measuring station, including all the components that are required for a properly operating airflow station shall be from -25° to 160°F

1.3 Sensing Module

- A. The sensing module for the airflow measuring station shall be mounted for maintenance accessibility and include a gasket to seal the measurement chamber from external airflow and moisture. Any access doors that may be required for maintenance shall be coordinated with the sheet metal installation contractor.
- B. The sensor module will be provided by the same manufacturer as the airflow station. The number of sensor modules per airflow measuring station will be based on manufacturer's recommendations.
- C. The sensor module shall be factory calibrated. Each sensor module shall be fully field serviceable without need for field calibration.

1.4 Transmitter and Operator Interface

- A. The associated transmitter and operator interface for an airflow measurement station shall include a high visibility, backlit, digital display. The display readout must indicate airflow volume in cubic feet per minute. The transmitter and operator interface shall be capable of being remotely mounted from the sensor module. The transmitter and operator interface shall be housed in a water tight casing.
- B. Input power to the transmitter and operator interface shall be either 24VAC or 24VDC.
- C. All transmitter and operator interface configuration, scaling, and diagnostic functions shall be performed by means of cover mounted, membrane keypad.
- D. In cases where more than one airflow measuring station is required, the transmitter and operator interface must be capable of receiving input and displaying air volume from up to eight airflow measuring stations subject to any wiring length limitations for the transmitter and sensor modules. Manufacturer's guidance on wiring length limitations shall be followed.
- E. Transmitter outputs to a building automation system shall be analog (1-10VDC) representing the



NJK Precision Airflow Measuring Station Guide Specification

range of airflow volume. Where multiple airflow stations are being read by a single transmitter, there shall be four analog (1-10VDC) outputs to a building automation system. The outputs can be single airflow station readings, a summation of a number of airflow station measurements (up to three (3)) or an average of a number of airflow measuring stations (up to three (3)).

F. With regard to outside air currents and other transient air movement applications, the transmitter sensor shall have the ability to time average a delivered output signal. The time averaging shall be adjustable from 15 to 120 seconds.

G. Coordinate cabling distance requirements and limitations with the installation contractor.

H. All connections will be RJ-45 waterproof connection and all wiring will be plenum rated 550 MHz 23 AWG CAT 6 cables.

1.5 Accuracy

A. The measured airflow volume shall have accuracy within $\pm 2\%$ of the full scale throughout the velocity range of 0-3000 fpm.

B. Each airflow sensor shall have an operating range of 50 FPM to 3,000 FPM, with a NIST traceable accuracy of $\pm 2\%$ of reading for direct air flow measurement.