

STREAM

Guide Specification

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PART 1: GENERAL

1.1 SCOPE OF PRODUCTS

- i. Duct and plenum airflow and temperature measurement system using a probe array and distinct transmitter.

1.2 STANDARDS

- i. UL 2043
- ii. UL/CSA 60730-1
- iii. FCC Part 15
- iv. BTL
- v. CE

PART 2: PRODUCTS

2.1 MANUFACTURERS

- i. **Approved manufacturer:** Scout Technologies by Price
 - a. Address: 600 Golspie St., Winnipeg, MB, R2K 2V1.
 - b. Contact: Support@ScoutTechnologies.com
 - c. Web: ScoutTechnologies.com
- ii. **Substitutions:** Not permitted.

2.2 REQUIREMENTS

System-Level Requirements

- i. In order to measure the airflow of the airstream of interest, each airflow measurement system shall use thermal dispersion principles. Other mechanisms of sensing the same properties, such as using differential pressure or ultrasonic sensing, are not permissible.
- ii. Each airflow measurement system shall be available for purchase with wireless connectivity that can be completely disabled for locations that do not allow wireless devices.
- iii. Input power for each airflow measurement system shall use 24VAC or 24VDC and take no more than 19 VA or 550 mA under full load.
- iv. Each airflow measurement system shall be FCC-Part 15 compliant.
- v. Each airflow measurement system shall be UL/cUL listed.
- vi. Each airflow measurement system shall be CE marked.
- vii. All components of each airflow measurement system shall be RoHS compliant.
- viii. Individual sensor accuracy of actual velocity shall be $\pm 2\%$ of reading or better for air velocities up to 5000 FPM. System accuracy of actual velocity shall be within $\pm 3\%$ of reading, provided the system is installed according to the manufacturer's installation guidelines.
- ix. Each airflow measurement system shall communicate via a Bluetooth interface and free Android®, iOS® application that allows real-time airflow and temperature monitoring on a

system and sensor level. Software shall display airflow/temperature data, transmitter settings and diagnostics information, and be intuitive to use, employing a modern user interface. *[Replace section with the following for installations that do not allow any radio devices: Each airflow measurement system shall not provide any wireless functionality. Configuration of systems must be accessible via a desktop app that is intuitive to use, employing a modern user interface.]*

- x. Each airflow measurement system's Bluetooth communications shall provide readings without requiring an active Bluetooth connection. *[Remove section for installations that do not allow any radio devices.]*
- xi. Each airflow measurement system shall automatically detect the local barometric pressure in order to correctly evaluate air density, not requiring hardcoded or manually-entered barometric pressure or altitude data.

Transmitter Requirements

- i. The transmitter shall be supplied by the same manufacturer as the probe(s).
- ii. The operating temperature of the transmitter shall be from -30°C to $+70^{\circ}\text{C}$ (-22°F to 158°F). The transmitter shall be installed in a location with adequate shelter from weather and adverse conditions.
- iii. All outputs on each transmitter must be electrically isolated from the power input to the same transmitter.
- iv. Each transmitter shall be BTL tested and listed.
- v. The transmitter outputs shall include at minimum four analog outputs (configurable 0-5VDC or 0-10VDC) for temperature, velocity, volumetric flow or alarms.
- vi. Each transmitter shall come standard with isolated outputs for both BACnet MS/TP and BACnet IP.
- xii. Each transmitter shall be available both in options with and without a backlit LCD display.
- xiii. Each transmitter shall utilize an LED bar to communicate the basic status of the airflow measurement system upon visual inspection. The LED bar may be used to communicate alarm status.
- vii. Each transmitter shall provide two universal inputs, capable of measuring resistance, 0-10 VDC signals, and binary state for both AC and DC signals.

Probe Requirements

- i. Each airflow measurement system shall not have any probes except those constructed of anodized aluminum, molded polymeric apertures designed to facilitate accurate sensing, molded structural components, and stainless steel mounting brackets.
- ii. Probes shall be wired together in a daisy-chain configuration and require a total of at most one cable to be wired to the transmitter.
- iii. Probes shall have the possibility of in-field length modification.
- iv. Each probe shall be UL 2043 certified.

Sensor Requirements

- i. Each individual sensor intended for velocity and temperature measurement shall use an ambient temperature thermistor and a heated thermistor to evaluate these conditions.
- ii. Each individual sensor on the probes shall be replaceable without requiring the replacement of the entire probe. Individual sensors shall store their calibration(s) locally and not require the transmitter or any other part of the system to be updated if one or more sensor(s) is replaced.
- iii. Individual sensors shall be able to be cleaned on-site. Sensors shall not require recalibration at a factory location.
- iv. All individual sensor elements shall be robust, withstanding cleaning via pressurized air or wiping with a dry cloth.
- v. Each sensor node shall utilize two hermetically-sealed, bead-in-glass thermistors. Alternative sensing mechanisms, including but not limited to chip thermistors of any type or packaging, platinum wire RTDs or hot-wire devices are not acceptable.

Wiring Requirements

- i. Wiring used between probes or between a probe and a transmitter shall be plenum-rated and commonly available for purchase via publicly available methods. No cabling shall be permitted that is proprietary to the manufacturer.
- ii. Probe arrays shall be connected to the transmitter using up to 200 ft. [60 m] of cable in length.
- iii. Length of cabling between a probe and the transmitter shall not affect sensor accuracy.