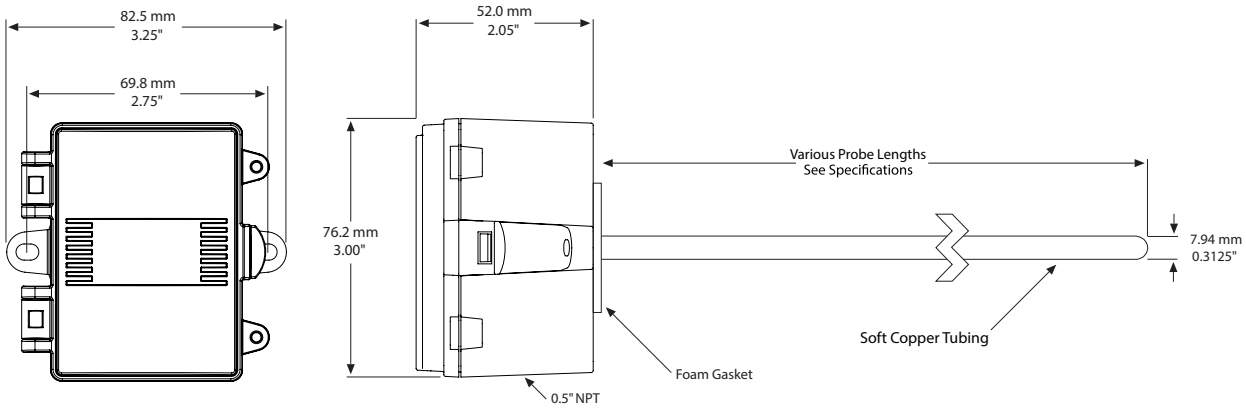
Duct Temperature Sensor, Averaging (Copper Tubing)

STE-1411/1412/1413/1414

Installation Guide

Mounting

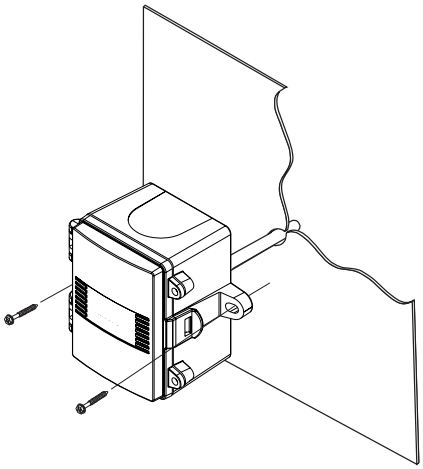


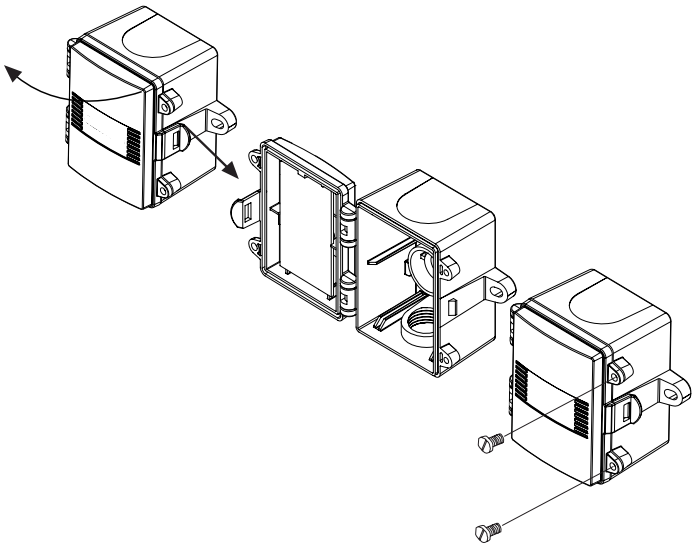
The averaging temperature sensor incorporates several discrete sensors encapsulated at equal distances across the length of the copper tubing probe. The complete assembly acts as a single sensor to monitor the average temperature in a duct. (Averaging elements are not recommended for high humidity applications.)

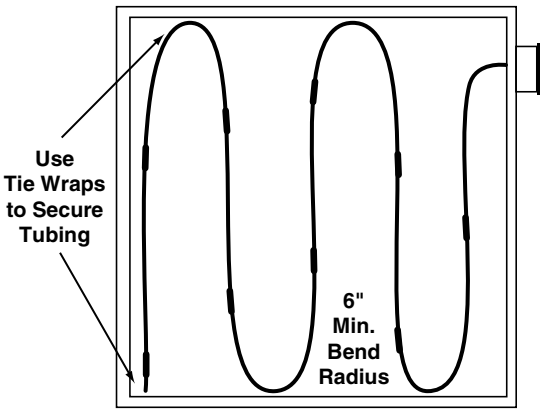
The copper tubing can be installed onto hangers in the duct using tube clamps or wire ties. It should be located in a straight section of duct away from heating, cooling, or humidifier elements.

Temperature sensors can be affected by air stratification in the duct, air leakage through the conduit or other duct holes, and nearness to exterior walls, a large thermal mass (e.g., concrete blocks), heat sources, or wires with power.

Because of air stratification, the coldest air tends to be toward the bottom of the duct. Hence, one of the







sensors inside the tubing should be near the bottom of the duct.

1. Cut a hole in the duct large enough to feed the copper probe from the back of the enclosure.
2. Insert the sensor probe into the duct, bend the probe tubing to cover the air path, and secure as needed.

NOTE: Maintain a minimum bend radius of six inches to prevent damage to the wires or sensors.

3. Fasten the enclosure to the duct by drilling holes in the duct and threading screws through the mounting holes in the case.
4. For the cable leading to the building automation system controller, attach conduit to the 1/2" NPT threaded connection hole that is provided in the bottom of the enclosure as needed.
5. Open the cover by pulling slightly on the latch on the right side of the enclosure while pulling on the cover.

Connections and Wiring

NOTE: Use 18 to 24 AWG shielded wiring for all connections. Do not locate the device wires in the same conduit with wiring used to supply inductive loads such as motors. Make all connections in accordance with national and local codes.

1. Bring the cable from the controller through the bottom hole.
2. Make connections to the two wire leads with either butt-splices or solder. Using wire nuts is **not** recommended.

NOTE: The two-wire sensor is not polarity sensitive.

NOTE: Plug the conduit with sealant to prevent air infiltration.

3. Swing the door closed until securely latched.
4. If desired for added security, install the two (provided) screws in the door's integrated screw tabs.

Specifications

Sensor	Type III thermistor, 10K ohm @ 77° F (25° C)
Probe Sensing Range	–40 to 140° F (–40 to 60° C)
Ambient Operating Range	–40 to 122° F (–40 to 50° C), 5 to 95% RH non-condensing
Enclosure	UL94-V0, IP65 (NEMA 4X), ABS
Wiring	FT-6 plenum-rated, 22 AWG wire leads
Probe Material	Soft copper
Probe Diameter	0.315" (7.94 mm) diameter
Probe Lengths	STE-1411, 6 feet (1.8 m); STE-1412, 12 feet (3.6 m); STE-1414, 20 feet (6.1 m); STE-1413, 24 feet (7.3 m)

Configuration and More Information

For **troubleshooting, controller configuration, and other information**, see the **Type III Sensors Applications Guide** on the KMC web site. For **additional information**, see the **STE-1400 Series Data Sheet** on the KMC web site.

Important Notices

KMC Controls, Inc.
19476 Industrial Drive
New Paris, IN 46553
574.831.5250
www.kmccontrols.com; info@kmccontrols.com