

Introduction

The flexible, multi-point duct averaging utilizes multiple high accuracy sensors at equal distances across the assembly. The plenum rated FT-6 sensing cable is constructed to provide excellent heat transfer, fast response and resistance to moisture penetration. A round ABS enclosure with mounting tabs and a twist off cover is provided for ease of installation.

Before Installation

Read these instructions carefully before installing and commissioning the temperature sensor. Failure to follow these instructions may result in product damage. Do not use in an explosive or hazardous environment, with combustible or flammable gases, as a safety or emergency stop device or in any other application where failure of the product could result in personal injury. **Take electrostatic discharge precautions during installation and do not exceed the device ratings.**

Mounting

The averaging sensor installs directly into any air duct with several lengths available for a wide range of duct widths/diameters. Select a suitable installation area in the middle of the duct wall. To achieve the best reading, do not place in an area where air stratification may be present. **Mount the sensor at least 1.5 m (5') in either direction from elbows, dampers, filters or other duct restrictions. Avoid areas where the sensor is exposed to vibrations or rapid temperature changes.**

Once a suitable spot is selected, drill a 9.5 - 12 mm (3/8" - 1/2") hole for the probe.

Unroll the sensing cable probe, being careful not to kink the wire and feed into the drilled hole until the enclosure is flush against the duct. The airflow direction is not important. Secure the enclosure to the duct with (2) #10 x 25 mm (1") self tapping screws (Not provided). Tighten screws until the enclosure is tight against the duct and that there is no movement of the enclosure as shown in Figure 1. A foam gasket on the back of the enclosure provides a tight seal against any air leaks.

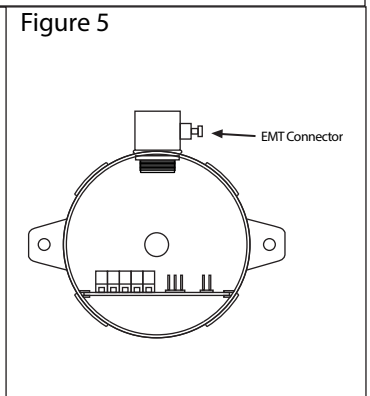
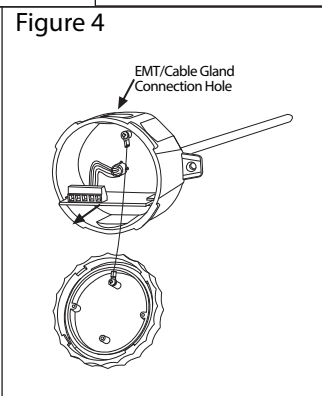
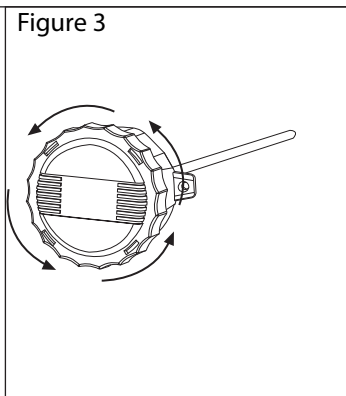
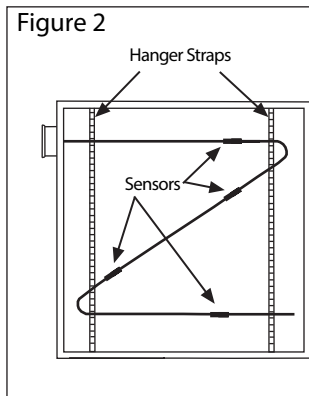
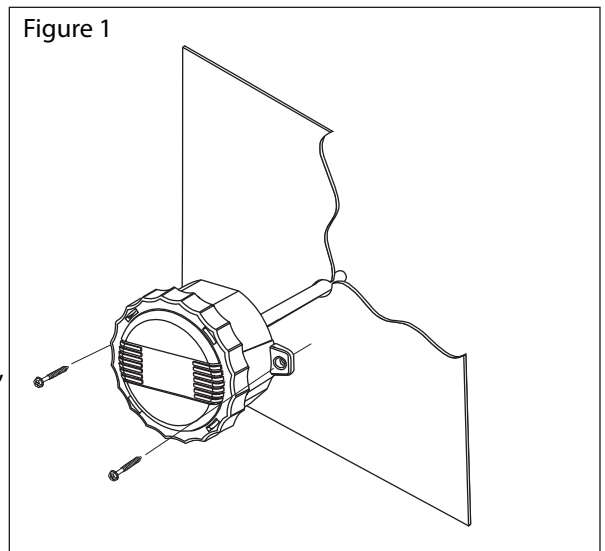
Install two lengths of hanger strap, securing to the floor and ceiling of the duct. Attach the sensor in a "Z" or "S" pattern observing a minimum bend radius of two inches to prevent damage to wires or sensors and secure to the hanger strap using tube clamps or wire ties. Secure in several spots to minimize vibration as shown in Figure 2.

Remove cover by grasping firmly with hand and twisting approximately a quarter turn counter-clockwise. A lanyard is attached between the cover and the box to allow the cover to hang during wiring and set up as shown in Figure 3.

A 21 mm (13/16") hole is provided for connection of either a 12.77mm (0.5") EMT connector or a cable gland style connector as shown in Figure 4. Insert the EMT or cable gland connector through the hole and securely fasten using a locknut. See Figure 5.

To make wire connections, the PCB must be partially removed. To do so, grasp firmly on the side of the PCB and pull outward until connector is accessible as shown in Figure 4. Make wire connections as per the "Wiring" illustrations on Page 2.

Once wiring is complete, re-install cover and tighten by twisting clockwise.



Wiring

- Deactivate the 24 Vac/dc power supply until all connections are made to the device to prevent electrical shock or equipment damage.
- Use 14-22 AWG shielded wiring for all connections and 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.
- The temperature transmitter comes with the temperature sensor pre-wired to the transmitter board. If removal is required for installation then it may be re-wired as shown in Figure 5.
- Pull at least six inches of control wire into the enclosure, then complete the wiring connection according to the wire diagram for the applicable power supply and output signal type as shown in Figure 6.
- Connect the DC positive or the AC voltage hot side to the PWR terminal. For voltage output or AC power, the supply Common is connected to the COM terminal. The device is reverse voltage protected and will not operate if connected backwards. It has a half-wave power supply so the supply Common is the same as the signal Common. See Figure 6.
- The analog output is available on the OUT terminal. Check the controller Analog Input to determine the proper connection before applying power as shown in Figure 6.
- Once all connections are made and checked, power can be applied.

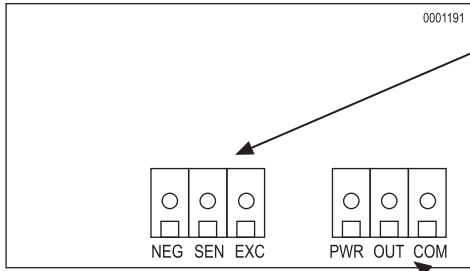
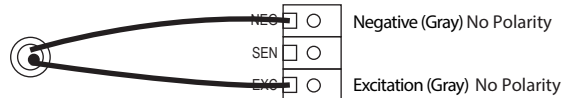
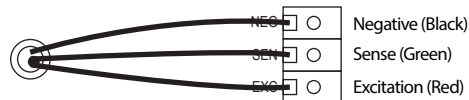


Figure 5 2 wire temperature sensor wiring to transmitter



3 wire temperature sensor wiring to transmitter

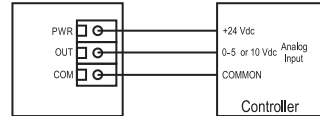


Specification:

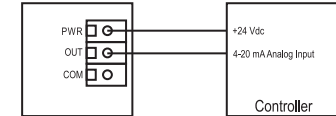
Sensor.....	1000 ohm Platinum RTD
Probe Sensing Range	-20 to 60°C (-4 to 140°F)
Wire/Probeal	FT6 Plenum rated cable
Probe Length	1800, 3600 6100, or 7300 mm (6', 12', 20' or 24')
Quantity of sensing points	4 elements - 1800, 3600 and 6300 mm (6', 12' and 20')
	9 elements - 7100 mm (24')
Output Signal	4-20mA current loop, 0-5 vdc, or 0-10 Vdc (factory configured)
Transmitter Accuracy	±0.1% of span, including linearity
4-20 mA loop power Supply ...	15-35 Vdc or 22-32 Vac
Minimum Current Loop	2 mA nominal (occurs with shorted sensor)
Maximum loop Current	22.5 mA nominal (occurs with open sensor)
Maximum Loop Load	>600 ohms
0-5 Vdc Power Supply	10-35 vdc or 10-32 Vac
0-10 Vdc Power Supply	15-35 Vdc or 15-32 Vac
Maximum Current (Voltage) ...	5 mA nominal
Maximum Output (Voltage)	Limited to <5.5 Vdc for 0-5 Vdc, <10.5 Vdc for 0-10 Vdc
Input Voltage Effect	Negligible over specified operating range
RFI rejection	Good RFI rejection of normal frequencies
Protection Circuitry	Reverse voltage protected and output limited
Ambient Operating Range	-40 - 85°C (-40 - 185°F), 0-95% RH non-condensing
Enclosure	ABS, UL94-5VB, IP64 (NEMA 4X)
Wiring Connections	Screw terminal block (14 to 22 AWG)

Figure 6 Transmitter Wiring to Controller

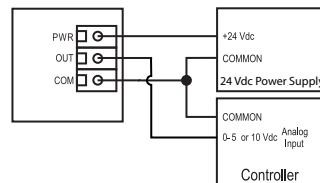
Wiring for 0-5 or 0-10 Vdc output signal and 24 Vdc power from controller



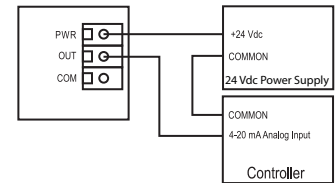
Wiring for 4-20 mA loop-powered output and external 24 Vdc power from controller



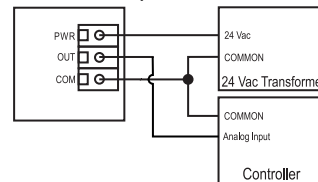
Wiring for 0-5 or 0-10 Vdc output signal and with external 24 Vdc power supply



Wiring for 4-20 mA loop-powered output and external 24 Vdc power supply



Wiring for all output signals with external 24 Vac power transformer



Dimensions:

