

Introduction

The single point flying lead temperature sensor utilizes a precision sensor that is encapsulated in 50 mm (2") long x 6.35 mm (0.25") diameter OD, 304 series stainless steel probe and is provide with 3.05 m (10') of plenum rated FT6 cable. All probes provide excellent heat transfer, fast response and resistance to moisture penetration.

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.

Mounting

The flying lead sensor can be used in a several different types of applications where single point temperature monitoring is required.

Listed below are some typical applications.

The flying lead sensor can be installed directly into any air duct. Select a suitable installation area in the middle of the duct. To achieve the best reading, do not place in an area where air stratification may be present. **Avoid areas where the sensor is exposed to vibrations or rapid temperature changes.**

in the drilled hole to hang the sensor in the airstream. Affix the cable using some form a cable clamp. **See Figure 1.**

Once a suitable spot is selected, drill a 3/8" hole in the top of the duct and slide the probe , mount a length of flexible duct hanger from top to bottom of the duct. Mount the probe to the duct hanger using a tube clamp or wire tie. **See Figure 1.**

The flying lead could also be used to measure pipe temperature. Select a suitable spot along the pipe, remove a small section of insulation if present and set aside. It is recommended that thermal compound be used to improve heat transfer. Spread a liberal amount on the pipe. Lay probe in thermal compound and secure sensor to pipe using a worm gear clamp (not included).

For added protection it is recommended to wrap probe cable around pipe 1-2 times. Re-install insulation if present, allowing sensor cable to protude. **See Figure 2.**

The enclosure may be mounted to any surface using the two integrated mounting tabs that are suitable for a #10 size screw (not supplied).

Remove the cover by grasping firmly and twisting approximately one quarter turn counter-clockwise. **See Figure 3.** A lanyard is attached between the cover and the box to allow the cover to hang during wiring and set-up.

Make wiring connections as per the wiring illustrations on Page 2.

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

Figure 1

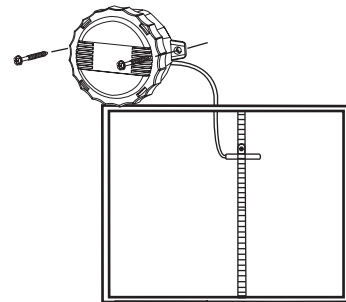


Figure 2

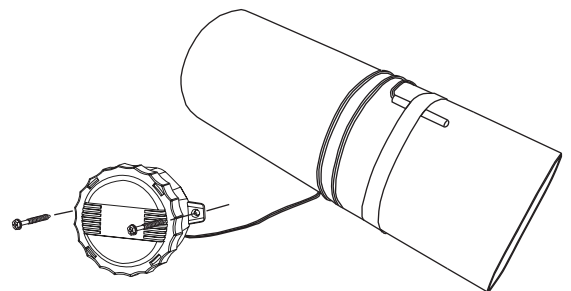
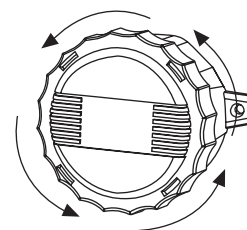
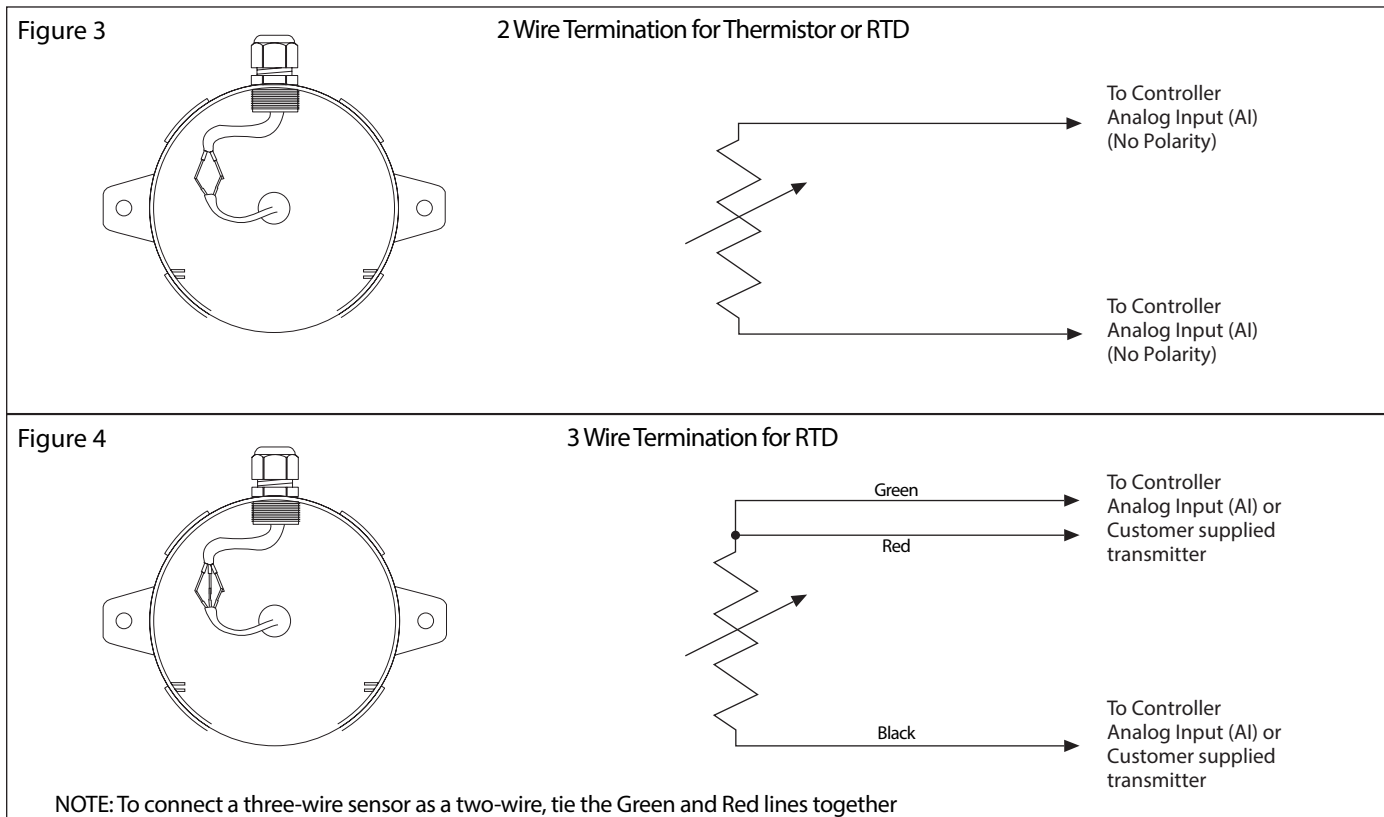


Figure 3



Wiring

- Use 18-24 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.
- Pull at least six inches of wire into the enclosure, then complete the wiring connection according to the wiring diagrams below. All connections should be made using either butt-splices or soldering. The use of wire nuts is not recommended.
- All thermistors and most RTD's are a 2 wire hook up and are not polarity sensitive. See **Figure 3**.
- The Type 2, 100 ohm Platinum is 3 wire device as shown in **Figure 4**.



Specification:

Sensor Type:.....Various thermistors or RTD
 Sensor Accuracy:.....Thermistors: $\pm 0.2^{\circ}\text{C}$ ($\pm 0.36^{\circ}\text{F}$) @ 25°C (77°F)
 Platinum RTD's: $\pm 0.3^{\circ}\text{C}$ ($\pm 0.54^{\circ}\text{F}$) @ 0°C (32°F)
 Nickel RTD's: $\pm 0.4^{\circ}\text{C}$ ($\pm 0.72^{\circ}\text{F}$) @ 0°C (32°F)
 Temperature Range:..-20 to 60°C (-4 to 140°F)
 Wire Material:.....Plenum rated FT6, 22 AWG
 Wire Length:.....3.05 m (10')
 Probe Material:.....304 Series Stainless Steel
 Probe Dimensions:.....0.25" (6.35 mm) Diameter X 50 mm (2") Long
 Enclosure:.....Round, ABS, UL094-5VB, IP65 (NEMA 4X)
 Termination:.....2 or 3 wire pigtail.

Typical Wire Resistance Values

When using low resistance sensors (i.e. 100 ohm RTD), long wire runs can add significant error to the readings. Use the following chart to determine errors due to wire resistance or consider using a 1000 ohm sensor or a transmitter for better accuracy. Locate the type of wire being used. Multiply the total length of the wire (distance from the controller to the sensor and back) by the number found in the chart below for total resistance.

GAUGE WIRE TYPE	18 AWG	22 AWG	24 AWG
STRANDED (OHMS/FOOT)	5.85 m Ω	14.75 m Ω	23.29 m Ω
SOLID (OHMS/FOOT)	6.4 m Ω	15.85 m Ω	25.72 m Ω

Dimensions:

