TE-6300F Series Flush Mount Sensors

Installation Instructions

TE-63xxF-0, TE-63xxF-1

Refer to the QuickLIT Web site for the most up-to-date version of this document.

Applications

The TE-6300F Series Flush Mount Temperature Sensor is a device that measures air temperature, via a temperature sensing element, thermally bonded to a metal electrical box cover. The sensor is designed for direct connection to a supervisory controller.

> **IMPORTANT:** The TE-6300F Series Flush Mount Temperature Sensors are intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the sensor could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against, failure or malfunction of the sensor.

Installation

> **IMPORTANT:** Do not install the TE-6300F Series Flush Mount Temperature Sensor probe in ambient temperatures beyond the specified 32 to 104°F (0 to 40°C) temperature range. Installing the temperature sensor probe in ambient temperatures beyond this range may damage the unit and void the warranty.
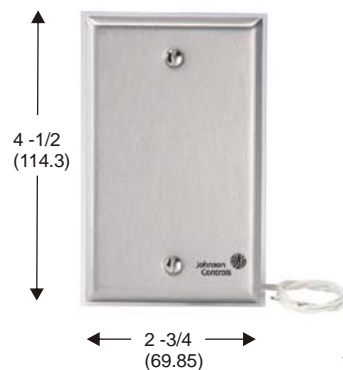
Dimensions

4 -1/2
(114.3)

2 -3/4
(69.85)

Fig: Dim

Figure 1: Flush Mount Sensor with Logo Dimensions, in. (mm)

Mounting

Location Considerations

Consider the following mounting location guidelines:

- Avoid areas subject to excessive vibration, electrical noise, direct sunlight, or the effects of radiant heat.

- Keep electrical wiring as short as possible to minimize temperature error.

### Mounting the Temperature Sensor

Mount the temperature sensor as follows:

1. Remove the appropriate knockout on the standard utility conduit box for the application.

2. Make the wiring connection to the system components.

Note: To make wiring easier, the sensor may be suspended from the conduit box using the rubber band.

Note: Level the sensor for appearance; however, the sensor functions normally when not level.

3. Mount the sensor to the wallbox or electrical box using the screws provided.
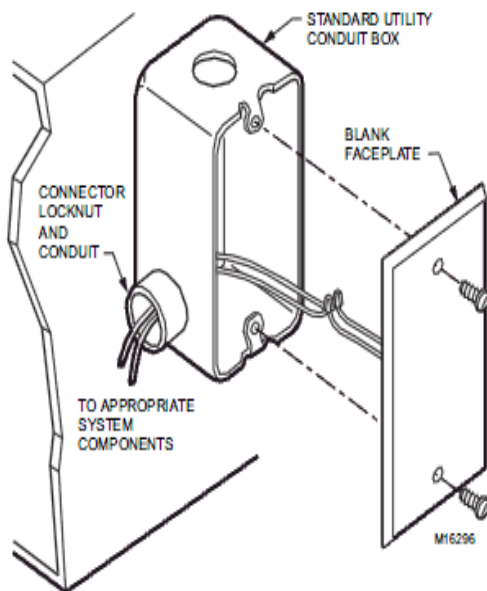
Figure 2: Installing a Sensor Plate to the Conduit Box

Wiring

For 1k ohm nickel temperature sensors, wire resistance can cause approximately 1F° (0.56C°) of error for every 250 ft (76 m) run of 18 AWG wire, or every 100 ft (31 m) run of 22 AWG wire. For 1k ohm platinum temperature sensors, wire resistance can cause approximately 1F° (0.56C°) of error for every 150 ft (46 m) run of 18 AWG wire, or every 50 ft (15 m) run of 22 AWG wire. To minimize error due to field wiring, limit the total resistance of all nickel temperature sensor wiring to 3 ohms, and all 1k ohm platinum temperature sensor wiring to 2 ohms.

The 10k ohm thermistor applications tolerate relatively long wiring before the wire resistance adds significantly to the total resistance measured at the controller. As a general rule, a 150 ft (46 m) two-wire 18 AWG run contributes 2 ohms of error, or less than 1F° (0.56C°) error over the sensor operating temperature range.

Refer to the appropriate controller documentation for recommended sensor wiring.

> ⚠ **CAUTION: Risk of Property Damage.** Do not apply power to the system before checking all wiring connections. Short circuited or improperly connected wires may result in permanent damage to the equipment.

> **IMPORTANT:** Use copper conductors only. Make all wiring connections in accordance with local, national, and regional regulations. Do not exceed the TE-6300F Series Flush Mount Temperature Sensor's electrical ratings.

Wiring Recommendations

> **IMPORTANT:** Use proper Electrostatic Discharge (ESD) precautions during installation and operation to avoid damaging the electronic circuits. Use electrical tape to wrap the ends of the wire leads a minimum of 1 in. (25 mm), as well as to cover the wire nuts.

Use the wire nuts provided for connecting the lead wires to the controller wiring.

Repair Information

If the TE-6300F Series Temperature Flush Mount Sensor fails to operate within its specifications, replace the unit. For a replacement sensor, contact the nearest Johnson Controls® representative.

Technical Specifications

TE-63xxF-x Series Flush Mount Temperature Sensors

Models	TE-6310F-0	1k ohm Nickel Flush Mount Temperature Sensor with Logo
	TE-6310F-1	1k ohm Nickel Flush Mount Temperature Sensor without Logo
	TE-6350F-0	1k ohm Platinum Flush Mount Temperature Sensor with Logo
	TE-6350F-1	1k ohm Platinum Flush Mount Temperature Sensor without Logo
	TE-6360F-0	10k ohm Thermistor Johnson Controls Type II Flush Mount Temperature Sensor with Logo
	TE-6360F-1	10k ohm Thermistor Johnson Controls Type II Flush Mount Temperature Sensor without Logo
Sensor Reference Resistance	1k ohm Nickel	1k ohms at 70°F (21°C)
	1k ohm Platinum	1k ohms at 32°F (0°C)
	10k ohm Thermistor	10.0k ohms at 77°F (25°C)
Sensor Accuracy	1k ohm Nickel	±0.34F° at 70°F (±0.19C° at 21°C)
	1k ohm Platinum	±0.35F° at 70°F (±0.19C° at 21°C), DIN Class A
	10k ohm Thermistor	±0.9F° (±0.5C°) in the Range: 32 to 158°F (0 to 70°C)
Sensor Temperature Coefficient	1k ohm Nickel	Approximately 3 ohm/F° (5.4 ohm/C°)
	1k ohm Platinum	Approximately 2 ohm/F° (3.9 ohm/C°) 3850 ppm/K
	10k ohm Thermistor	Nonlinear Negative Temperature Coefficient, Johnson Controls Type II
Electrical Connections		22 AWG (0.6 mm Diameter) x 12 ft (3 m) braided copper wires, low voltage insulation, half-stripped ends
Cover Plate Dimensions		2-3/4 x 4-1/2 in. (70 x 114 mm)
Operating Temperature Limits		0 to 40°C (32 to 104°F)
Operating Temperature Humidity		10 to 90% noncondensing