

# TE-6300V Series Flange Mount Duct Probe Temperature Sensors

## Installation Instructions

TE-63xxV

Part No. 24-4034-212, Rev. D

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Refer to the [QuickLIT Web site](#) for the most up-to-date version of this document.

### Applications

**IMPORTANT:** The TE-6300V Series Duct Probe 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-6300V Series Duct Probe Temperature Sensor probe in ambient temperatures beyond the specified  $-50$  to  $220^{\circ}\text{F}$  ( $-46$  to  $104^{\circ}\text{C}$ ) temperature range. Installing the temperature sensor in ambient temperatures beyond this range may damage the unit and void the warranty.

### Dimensions

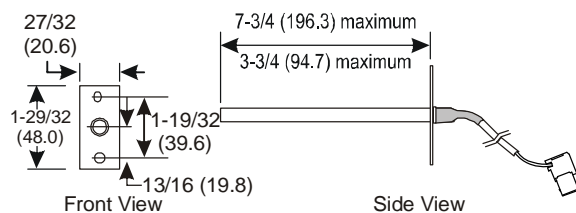


Figure 1: Sensor Dimensions, in. (mm)

### 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 Sensor

See Figure 2 and mount the temperature sensor as follows:

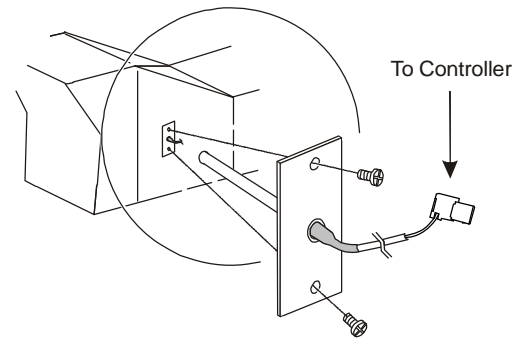


Figure 2: Installing the VAV Duct Probe Sensor

1. Drill a  $3/8$  in. (10 mm) diameter hole at the desired mounting plate location.
2. Mount the probe assembly to the duct using the two self-drilling screws provided.
3. Plug the sensor into the controller.

**Note:** For applications not compatible with the terminal block connector, remove the terminal block connector and prepare the sensor leads as appropriate for the application.


### Wiring

For 1k ohm nickel temperature sensors, wire resistance can cause approximately  $1\text{F}^{\circ}$  ( $0.56\text{C}^{\circ}$ ) 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 about  $1\text{F}^{\circ}$  ( $0.56\text{C}^{\circ}$ ) 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 total resistance of all nickel temperature sensor wiring to 3 ohms and all platinum temperature sensor wiring to 2 ohms.

Refer to the appropriate controller documentation for recommended sensor wiring.

The 2.2k and 10k ohm thermistor applications permit wiring to be relatively long before wire resistance adds significantly to 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.

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



**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.

### Repair Information

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

## Technical Specifications

### TE-6300V Series Flange Mount Duct probe Temperature Sensors

<b>Models</b>	<b>TE-631xV-2</b>	Thin-Film Nickel Temperature Sensor
	<b>TE-635xV-2</b>	Thin-Film Platinum Temperature Sensor
	<b>TE-634xV-2</b>	2.2k ohm Temperature Sensor
	<b>TE-636xV-2</b>	10k ohm Type II Thermistor Temperature Sensor
<b>Sensor Reference Resistance</b>	<b>1k ohm Nickel</b>	1k ohms at 70°F (21°C)
	<b>1k ohm Platinum</b>	1k ohms at 32°F (0°C)
	<b>2.2 ohm Thermistor</b>	2,252 ohms at 77°F (25°C)
	<b>10k Thermistor</b>	10.0k ohms at 77°F (25°C)
<b>Sensor Accuracy</b>	<b>1k ohm Nickel</b>	±0.34F° at 70°F (±0.19C° at 21°C)
	<b>1k ohm Platinum</b>	±0.35F° at 70°F (± 0.19C° at 21°C), DIN Class A
	<b>2.2 ohm Thermistor</b>	±0.36F° (±0.2 C°) in the range: 32 to 158°F (0 to 70°C)
	<b>10k Thermistor</b>	±0.9F° (±0.59 C°) in the range: 32 to 158°F (0 to 70°C)
<b>Sensor Temperature Coefficient</b>	<b>1k ohm Nickel</b>	Approximately 3 ohms/F° (5.4 ohms/C°)
	<b>1k ohm Platinum</b>	Approximately 2 ohms/F° (3.9 ohms/C°) 3,850 ppm/K
	<b>2.2k ohm Thermistor</b>	Nonlinear, Negative Temperature Coefficient (NTC)
	<b>10k Thermistor</b>	Nonlinear NTC, Johnson Controls Type II
<b>Electrical Connections</b>		22 AWG x 10 ft (3 m) Long Plenum-rated Cable, with 2-Position Plug Terminal Block for 1/4 in. (6.35 mm) Male Tab Terminals on 0.197 in. (5 mm) Centers
<b>Materials</b>	<b>Probe</b>	1/4 in. (6.4 mm) Outer Diameter x 4 in. (102 mm) or 8 in. (203 mm) Long, Stainless Steel
	<b>Mounting Flange</b>	Stainless Steel
<b>Operating Conditions</b>	<b>Wiring Side</b>	-50 to 122°F (-46 to 50°C)
	<b>Probe</b>	-50 to 220°F (-46 to 104°C)

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.



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