

TE-6300M Series Duct Averaging Temperature Sensors

Applications

IMPORTANT: The TE-6300M Series Duct Averaging Temperature Sensors are intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the TE-6300M 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 TE-6300M sensor.

Installation

IMPORTANT: Do not install the TE-6300M Series Duct Averaging Temperature Sensor probe assembly in ambient temperatures beyond the specified -50 to 220°F (-46 to 104°C) temperature range. Installing the temperature sensor in ambient temperatures beyond this range may damage the unit and void the warranty.

Dimensions

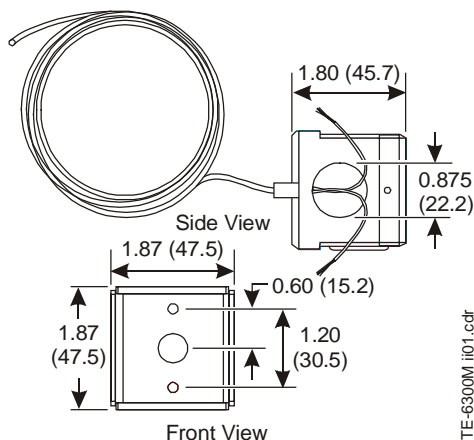


Figure 1: Sensor Dimensions, in. (mm)

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 Temperature Sensor

See Figure 2 to mount a single duct averaging sensor. See Figure 3 to mount four duct averaging sensors in series parallel for larger ducts. Mount the duct averaging sensor as follows:

1. Drill a 3/8 in. (10 mm) diameter hole at the desired mounting plate location.
2. Thread the probe through the hole and mount the probe assembly to the duct using two of the four self-drilling screws included.
3. Mount the averaging sensor probe inside the duct using a TE-6001-8 or equivalent 3-in. (76 mm) minimum radius temperature element holder.

IMPORTANT Do not bend the sensor probe tighter than a 3-in. (76 mm) radius, a 6-in. (152 mm) diameter, to avoid permanently damaging the sensor.

4. Wire the sensor to the controller.
5. Reposition the cover and tighten the retention screws.

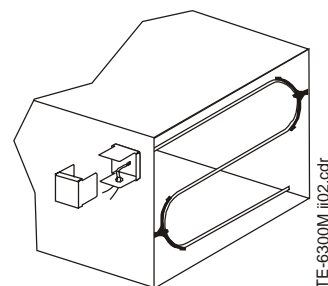


Figure 2: Installing the Duct Averaging Sensor

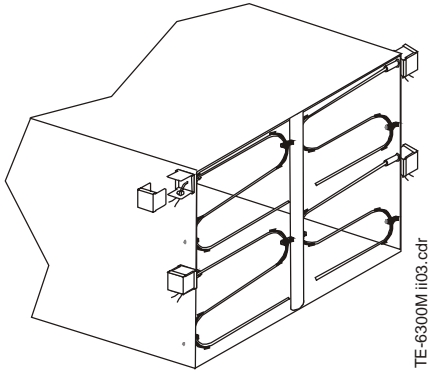


Figure 3: Series-Parallel Mounting Configuration

Wiring

For 1 k 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. To minimize error due to field wiring, limit the total resistance of all nickel temperature sensor wiring to 3 ohms.

See the appropriate controller documentation for recommended sensor wiring. See Figure 4 for wiring four sensors in series-parallel configuration.

The lead wires for the TE-6300M series duct averaging temperature sensors are 6 in. (152 mm) 22 AWG wires, color-coded white.

Technical Specifications

Product	TE-6300M Series Duct Averaging Temperature Sensors	
Models	TE-631xM-1:	Nickel Duct Averaging Temperature Sensor
Sensor Reference Resistance	1 k ohms at 70°F (21°C)	
Sensor Accuracy	±3.4F° at 70°F (±1.9C° at 21°C)	
Sensor Temperature Coefficient	Approximately 3 ohms/F° (5.4 ohms/C°)	
Materials	Sensor:	Nickel wire
	Probe:	0.094 in. (2.4 mm) O.D. x 8 ft (2.4 m) or 17 ft, (5.2 m) copper tubing
	Adaptor:	0.25 in (6.4 mm) O.D. Brass
	Conduit Access Box:	Galvanized Steel
Operating Temperature Conditions	-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.

**JOHNSON
CONTROLS**

Controls Group
507 E. Michigan Street
P.O. Box 423
Milwaukee, WI 53201



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.

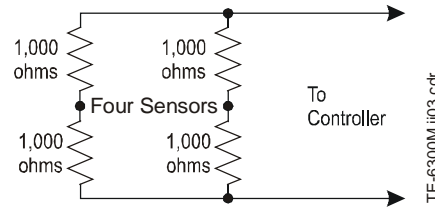


Figure 4: Series-Parallel Wiring Network

Note: Always use sensors of the same value and type throughout the network.

IMPORTANT: Make all wiring connections in accordance with local, national, and regional regulations.

Repairs and Replacement

For a replacement device, refer to the *TE-6300 Series Temperature Sensors Product Bulletin (LIT-216320)* and contact the nearest Johnson Controls representative.