

TE-6300 Series Temperature Sensors

Description

The TE-6300 Temperature Sensor line provides economical solutions for a wide variety of temperature sensing needs, including wall mount, outdoor air, duct, strap-mount, well, duct averaging, and Variable Air Volume (VAV) flange mount duct probe applications. The TE-6300 line offers both a metal and a plastic enclosure for the most popular models.

Sensors are available in the following types:

- 1k ohm thin-film nickel
- 1k ohm nickel averaging
- 1k ohm thin-film platinum
- 100 ohm platinum equivalent averaging
- 1k ohm platinum equivalent averaging
- 2.2k (2,252) ohm thermistor
- 10k ohm thermistor, Johnson Controls® Type II

Each sensor is packaged with the necessary mounting accessories to maximize ordering and installation ease and reduce both commissioning time and cost.

Refer to the *TE-6300 Temperature Sensors Product Bulletin (LIT-216320)* for important product application information.

Features

- full line of versatile sensors — supports all your temperature sensing needs from a single supplier: wall mount, outdoor air, duct probe, duct averaging, strap-mount, well insertion, and flange mount duct probe.
- single assembly ordering — simplifies ordering; provides a complete assembly in one box.
- models featuring an integral NPT Adaptor — increase sensor connection strength, eliminates the need for a special adaptor.
- models with a stainless steel sensor probe — protect the sensor while increasing corrosion resistance.
- metal enclosure (TE-63xxM Models only) — meets plenum requirements.
- models featuring a retainer for the sensor holder — lock the sensor holder into the conduit box.

All TE-6300 series sensors are two-wire, passive, resistance output devices.

TE-63xxM Models

The TE-63xxM (metal enclosure) models:

- come with a corrosion-protected steel enclosure with a 0.88 in. (22 mm) hole for a 1/2 in. conduit fitting
- include two hex-head self-drilling screws for mounting the duct and duct averaging models
- offer (well models only) either a brass threadless or 1/2-14 NPT threaded well sensor holder for mounting in WZ-1000 Series thermal wells (Order the thermal well separately.)
- provide optional well sensor holders (order separately) to mount duct models in thermal wells.
- meet UL 1995 plenum use requirements
- offer optional accessory kit (order separately) to replace plastic hole plug and wiring bushing in order to meet International Mechanical Code (IMC) requirements

TE-63xxP Models

The TE-63xxP (plastic enclosure) models:

- provide a thermoplastic conduit box with 1/2-14 NPT female thread for connecting to conduit
- provide aluminum mounting plate and 1/2-14 NPT threaded hub mounting options for the duct and duct averaging models
- use the 1/2-14 NPT female thread to mount the Outdoor Air models directly to ridged conduit
- offer (for well models only) either a thermoplastic threadless or 1/2-14 NPT threaded well sensor holder for mounting in WZ-1000 Series thermal wells. (Order the thermal well separately.)
- provide optional well sensor holders (order separately) to mount duct models in thermal wells
- offer an optional accessory metal cover kit (order separately) to replace the plastic cover to meet UL 1995 plenum use requirements
- include a replaceable sensing probe on duct probe, outdoor air, and well insertion models



TE-6300 Series Temperature Sensors

TE-63x4P Wall Mount Models

The TE-63x4P (plastic enclosure) models:

- come with a white thermoplastic ventilated cover with a brushed aluminum face plate and a steel mounting plate for surface mounting
- include faceplates for both horizontal and vertical mounting
- offer an accessory mounting kit for mounting to a standard electrical box
- offer optional covers

TE-63xS Models

The TE-63xS (Strap-Mount) models:

- provide a 1/4 in. (6.35 mm) diameter stainless steel probe without an enclosure
- include three cable ties for mounting to pipe up to 2-5/8 in. (67 mm) diameter
- come equipped with a 10 ft (3 m) plenum rated cable
- meet UL 1995 plenum use requirements
- offer an accessory mounting kit for mounting to a pipe up to 11 in. (280 mm) diameter

TE-63xxV Models

The TE-63xxV (VAV flange mount) models:

- provide a stainless steel mounting flange with two hex-head self-drilling mounting screws
- come equipped with a 10 ft (3 m) plenum rated cable with 1/4 in. (6.35 mm) female insulated quick-connect terminations on leads
- meet UL 1995 plenum use requirements

Repair Information

If the TE-6300 Series Temperature Sensor fails to operate within its specifications, refer to the *TE-6300 Series Temperature Sensors Product Bulletin (LIT-216320)* for a list of repair parts available.

TE-6300 Series Temperature Sensors (Continued)

Selection Charts

TE-6300 Series Temperature Sensors (Part 1 of 2)

| Sensor | Mounting Style | Probe Length | Product Code Number |
|-------------------|------------------------|--------------|---------------------|
| Nickel (1k ohm) | Averaging ¹ | 8 ft | TE-6315M-1 |
| | | | TE-6315P-1 |
| | | | TE-6315V-2 |
| | | 17 ft | TE-6316M-1 |
| | | | TE-6316P-1 |
| | | | TE-6316V-2 |
| | Duct | 4 in. | TE-631GM-1 |
| | | 8 in. | TE-6311M-1 |
| | | | TE-6311P-1 |
| | | 18 in. | TE-631JM-1 |
| | Flange | 4 in. | TE-631GV-2 |
| | | 8 in. | TE-6311V-2 |
| | Outdoor Air | 3 in. | TE-6313P-1 |
| | Strap-Mount | 3 in. | TE-631S-1 |
| | Wall ² | N/A | TE-6314P-1 |
| | Well | 6 in. | TE-631AM-1 |
| | | | TE-631AP-1 |
| | | 8 in. | TE-6312M-1 |
| | | | TE-6312P-1 |
| Platinum (1k ohm) | Duct | 4 in. | TE-632GM-1 |
| | | 8 in. | TE-6321M-1 |
| | | | TE-6321P-1 |
| | Flange | 4 in. | TE-632JM-1 |
| | | 8 in. | TE-632GV-2 |
| | | 8 in. | TE-6321V-2 |
| | Outdoor Air | 3 in. | TE-6323P-1 |
| | Wall ² | N/A | TE-6324P-1 |
| | Well | 6 in. | TE-632AP-1 |
| | | | TE-632AM-1 |
| | | 8 in. | TE-6322P-1 |
| | | | TE-6322M-1 |

TE-6300 Series Temperature Sensors (Part 2 of 2)

| Sensor | Mounting Style | Probe Length | Product Code Number |
|------------------------------|--------------------------------|--------------|---------------------|
| Platinum Equivalent | 1k ohm Averaging ¹ | 10 ft | TE-6327P-1 |
| | | 20 ft | TE-6328P-1 |
| | 100 ohm Averaging ¹ | 10 ft | TE-6337P-1 |
| | | 20 ft | TE-6338P-1 |
| Thermistor (2.2k ohm) | Duct | 8 in. | TE-6341P-1 |
| | Flange | 4 in. | TE-634GV-2 |
| | | 8 in. | TE-6341V-2 |
| | Outdoor Air | 3 in. | TE-6343P-1 |
| | Wall ² | N/A | TE-6344P-1 |
| | Well | 8 in. | TE-6342P-1 |
| Thermistor (10k ohm) Type II | Duct | 4 in. | TE-636GM-1 |
| | | 8 in. | TE-6361M-1 |
| | | | TE-6361P-1 |
| | | 18 in. | TE-636JM-1 |
| | | | |
| | Flange | 4 in. | TE-636GV-2 |
| | | 8 in. | TE-6361V-2 |
| | Outdoor Air | 3 in. | TE-6363P-1 |
| | Strap-Mount | 3 in. | TE-636S-1 |
| | Well | 6 in. | TE-636AM-1 |
| | | 8 in. | TE-6362M-1 |

- Two TE-6001-8 Element Holders come with the platinum equivalent averaging sensors. Order separately to use with a nickel averaging sensor.
- Order the TE-1800-9600 Mounting Hardware separately to mount the wall unit to a wallbox.

Optional Accessories

| Product Code Number | Description |
|---------------------|--|
| F-1000-182 | Thermal Conductive Grease for element wells (8 oz.) |
| T-4000-xxxx | Wall Mount Cover (see Table) |
| T-4000-119 | Allen Head Tool for Wall Mount Cover Screws (order in multiples of 30) |
| TE-1800-9600 | Mounting Hardware for mounting the wall mount unit to a wall box |
| TE-6001-8 | Element Holder for mounting an averaging sensor (order in multiples of 10) |
| TE-6001-13 | Metal Cover and Gasket Kit (5 per package) |
| TE-6300-101 | 12 in. (1k ohm) Nickel Probe (cut to an appropriate length) ¹ |
| TE-6300-102 | 12 in. (1k ohm) Platinum Probe (cut to an appropriate length) ¹ |
| TE-6300-103 | 1/2-14 NPT Plastic Sensor Holder without retainer (order in multiples of 10) |
| TE-6300-104 | 12 in. (2.2k ohm) Thermistor Probe (cut to an appropriate length) ¹ |
| TE6300-613 | IMC Kit, Metal Knockout Plug, Metal Clamp Connector (order in multiples of 10) |
| TE6300-614 | Cable Tie Mounting Kit, 0.50 to 2.625 in. (12.7 to 66.7 mm) Bundle Diameter (10 per package) |
| TE6300-615 | Cable Tie Mounting Kit, 11 in. (280 mm) Max Bundle Diameter |
| TQ-6000-1 | 4 to 20 mA Output Transmitter for use with the 100 ohm platinum sensor |
| WZ-1000-2 | 6-1/2 in. Stainless Steel Well (thermal grease included) |
| WZ-1000-4 | 6-1/2 in. Stainless Steel Well (without thermal grease) |
| WZ-1000-5 | 4-11/16 in. Brass Well (thermal grease included) |

1. Cut 12 in. probes to a minimum of 3 in. (76 mm).

TE-6300 Series Temperature Sensors (Continued)

T-4000 Covers Available for the Wall Mount TE-63x4P Series

| Product Code Number | Horizontal Johnson Controls Logo | Vertical Johnson Controls Logo | Thermometer, with °F/°C Scale | Faceplate/Cover Color |
|--------------------------|----------------------------------|--------------------------------|-------------------------------|------------------------|
| T-4000-2138 ¹ | — | — | — | Brushed Aluminum/Beige |
| T-4000-2139 | X | — | — | |
| T-4000-2140 | X | — | X | |
| T-4000-2144 | — | X | — | |
| T-4000-2639 | X | — | — | Brown and Gold/Beige |
| T-4000-2640 | X | — | X | |
| T-4000-2644 | — | X | — | |
| T-4000-3139 | X | — | — | Brushed Aluminum/White |
| T-4000-3140 | X | — | X | |
| T-4000-3144 | — | X | — | |

1. Without Johnson Controls logo

Technical Specifications

| TE-6300 Series Temperature Sensors (Part 1 of 2) | | |
|--|----------------------------|---|
| Sensor Reference Resistance | 1k ohm Nickel | 1k ohms at 70°F (21°C) |
| | 1k ohm Nickel Averaging | |
| | 1k ohm Platinum | 1k ohms at 32°F (0°C) |
| | 100 ohm Platinum Averaging | 100 ohms at 32°F (0°C) |
| | 1k ohm Platinum Averaging | 1k ohms at 32°F (0°C) |
| | 2.2k ohm Thermistor | 2,252 ohms at 77°F (25°C) |
| | 10k ohm Thermistor | 10.0k ohms at 77°F (25°C) |
| Sensor Accuracy | 1k ohm Nickel | ±0.34°F° at 70°F (±0.19°C° at 21°C) |
| | 1k ohm Nickel Averaging | ±3.4°F° at 70°F (±1.9°C° at 21°C) |
| | 1k ohm Platinum | ±0.73°F° at 70°F (±0.41°C° at 21°C), DIN Class B |
| | 100 ohm Platinum Averaging | ±1.0°F° at 70°F (±0.58°C° at 21°C) |
| | 1k ohm Platinum Averaging | |
| | 2.2k ohm Thermistor | ±0.36°F° (±0.2°C°) in the range: 32 to 158°F (0 to 70°C) |
| | 10k ohm Thermistor | ±0.9°F° (±0.5°C°) in the range: 32 to 158°F (0 to 70°C) |
| Sensor Temperature Coefficient | 1k ohm Nickel | Approximately 3 ohms/F° (5.4 ohms/C°) |
| | 1k ohm Nickel Averaging | |
| | 1k ohm Platinum | Approximately 2 ohms/F° (3.9 ohms/C°) |
| | 100 ohm Platinum Averaging | Approximately 0.2 ohms/F° (0.39 ohms/C°) |
| | 1k ohm Platinum Averaging | Approximately 2 ohms/F° (3.9 ohms/C°) |
| | 2.2k ohm Thermistor | Nonlinear, Negative Temperature Coefficient (NTC) |
| | 10k ohm Thermistor | Nonlinear NTC, Johnson Controls Type II |
| Electrical Connection | TE-63xxM | 22 AWG (0.6 mm diameter) x 6 in. (150 mm) long |
| | TE-63xxP | |
| | TE-63xxP Nickel Averaging | 18 AWG (1.0 mm diameter) x 6 in. (150 mm) long |
| | TE-63xS | 22 AWG (0.6 mm diameter) x 10 ft (3 m) long plenum-rated cable |
| | TE-63xxV | 22 AWG (0.6 mm diameter) x 10 ft (3 m) long plenum-rated cable with 0.25 in. (6.35 mm) female quick-connect terminals |

TE-6300 Series Temperature Sensors (Continued)

| TE-6300 Series Temperature Sensors (Part 2 of 2) | | |
|--|----------|---|
| Materials | Probes | Nickel Averaging: 0.094 in. (2.4 mm) Outside Diameter (O.D.) copper tubing Nickel Averaging Adaptor: 0.25 in. (6.4 mm) O.D. Brass Platinum Averaging Probe: 0.19 in. (4.8 mm) Aluminum tubing All others (except Averaging): 0.25 in. (6.4 mm) O.D. Stainless Steel |
| | TE-63xxM | Enclosure: Corrosion-Protected Steel Well Sensor Holder: 0.875 in. (22.2 mm) Hex Brass |
| | TE-63xxP | Conduit box and Shield: Rigid Thermoplastic Mounting Plate: Aluminum Sensor Holder: Rigid Thermoplastic Wall Mount Base Plate: Corrosion-Protected Steel Wall Mount Cover: Rigid Thermoplastic (White) Wall Mount Face Plate: Brushed Aluminum |
| | TE-63xxV | Mounting Flange: Stainless Steel |
| | TE-63xxM | -50 to 220°F (-46 to 104°C) |
| Operating Conditions | TE-63xxP | Enclosure: -50 to 122°F (-46 to 50°C) Sensor Probe: -50 to 220°F (-46 to 104°C) |
| | TE-63xS | Sensor Probe: -50 to 220°F (-46 to 104°C) |
| | TE-63xxV | Wire Harness: -50 to 122°F (-46 to 50°C) |
| | TE-63xxM | Duct Averaging: 0.9 lb (0.41 kg) Duct Mount: 0.4 lb (0.18 kg) Well Insertion: 0.5 lb (0.23 kg) |
| Shipping Weight | TE-63xxP | Duct Averaging: 0.5 lb (0.23 kg) Duct Mount: 0.4 lb (0.18 kg) Outdoor Air: 0.5 lb (0.23 kg) Wall Mount: 0.2 lb (0.09 kg) Well Insertion: 0.35 lb (0.16 kg) |
| | TE-63xS | Strap-Mount: 0.2 lb (0.09 kg) |
| | TE-63xxV | Duct Averaging: 0.7 lb (0.32 kg) Duct Mount: 0.2 lb (0.09 kg) |
| | TE-63xxM | Duct Averaging: 1.87 x 1.87 x 1.80 in. (47.6 x 47.6 x 45.8 mm) plus 8 or 17 ft (2.4 or 5.2 m) element Duct Mount: 1.87 x 1.87 x 1.80 in. (47.6 x 47.6 x 45.8 mm) plus 4, 8, or 18 in. (100, 200, or 450 mm) element Well Insertion: 1.87 x 1.87 x 1.80 in. (47.6 x 47.6 x 45.8 mm) plus 6 or 8 in. (150 or 200 mm) element |
| Dimensions (H x W x D) | TE-63xxP | Duct Averaging: 5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 8, 10, 17, or 20 ft (2.4, 3.0, 5.2, or 6.1 m) element Duct Mount: 5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 6 or 8 in. (150 or 200 mm) probe Outdoor Air: 5.97 x 3.47 x 4.46 in. (152 x 88 x 113 mm) Wall Mount: 2.09 x 3.12 x 1.80 in. (53 x 79 x 46 mm) Well Insertion: 5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 6 or 8 in. (150 or 200 mm) probe |
| | TE-63xS | Strap-Mount: 0.25 in. (6.4 mm) diameter x 3.00 in. (76 mm.) long |
| | TE-63xxV | Duct Averaging: 2.25 x 1.50 in. (57 x 38 mm) plus 8 or 17 ft (2.4 or 5.2 m) element Duct Mount: 2.25 x 1.50 in. (57 x 38 mm) plus 4 or 8 in. (100 or 200 m) element |
| | TE-63xxM | Duct Averaging: 1.87 x 1.87 x 1.80 in. (47.6 x 47.6 x 45.8 mm) plus 8 or 17 ft (2.4 or 5.2 m) element Duct Mount: 1.87 x 1.87 x 1.80 in. (47.6 x 47.6 x 45.8 mm) plus 4, 8, or 18 in. (100, 200, or 450 mm) element Well Insertion: 1.87 x 1.87 x 1.80 in. (47.6 x 47.6 x 45.8 mm) plus 6 or 8 in. (150 or 200 mm) element |