

# TE-6300 Series Temperature Sensors Catalog Page

LIT-1900217

2020-10-13



## 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-insertion, duct-averaging, and VAV Modular Assembly (VMA) 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

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

## Features and Benefits

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

- Full Line of Versatile Sensors—Supports all your temperature sensing needs from a single supplier: wall-mount, outdoor-air, duct, 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 National Pipe Thread (NPT) Adaptor—Increase sensor connection strength, which eliminates the need for a special adaptor.
- Models with a Stainless Steel Sensor Probe—Protect the sensor while increasing corrosion resistance.
- Metal Enclosure (TE-63xxE, TE-63xxM, and TE-63xxV Models)—Meets plenum requirements.
- Models Featuring a Retainer for the Sensor Holder—Allow you to lock the sensor holder into the conduit box.
- Brushed Stainless Steel Mounting Plate—Offers a durable, aesthetically pleasing design.
- Low Profile Flush Mount Design (TE-63xxF Models)—Provides a tamper-proof installation ideally suited for schools, sporting complexes, retailers, prisons, and more.

All TE-6300 Series Temperature Sensors are two-wire, passive, resistance-output devices.

### TE-63xxA Models

The TE-63xxA (adjustable length) models:

- provide a thermoplastic mounting flange and gland nut to adjust the length of the probe
- include two hex-head self-drilling screws for mounting
- come equipped with a 10 ft (3 m) plenum-rated cable with 1/4 in. (6.35 mm) internal thread insulated quick-connect terminations on leads

### TE-63xxE Models

The TE-63xxE (economizer mount) models:

- provide a stainless steel mounting flange
- include two hex-head self-drilling screws for mounting
- meet UL 1995 plenum use requirements

### TE-63xxF Models

The TE-63xxF (flush mount) models:

- provide a low profile when installed in an electrical box
- thermally isolate sensor from the wall with a foam pad
- offer a rugged stainless steel cover
- provide 22 AWG (0.6 mm diameter) lead wires with low voltage installation

### 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. (12.7 mm) conduit fitting
- include two hex-head self-drilling screws for mounting the duct and duct-averaging models
- offer either a direct-mount or 1/2-14 NPT threaded well sensor holder for mounting in TE-6300W Series Thermowells (well models; order the thermowell separately)
- provide optional well sensor holders (order separately) to mount duct models in thermowells
- meet UL 1995 plenum use requirements
- offer optional accessory kit (order separately) to replace plastic hole plug and wiring bushing 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 internal NPT for connecting to conduit
- provide aluminum mounting plate and 1/2-14 internal NPT hub mounting options for the duct and duct-averaging models
- use the 1/2-14 internal NPT to mount the outdoor air models directly to rigid conduit
- include sensor holders to mount duct models in thermowells (order thermowell separately)
- offer an optional accessory metal cover and gasket 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-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) in 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) in 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) internal thread 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, replace the unit. For information on replacement temperature sensors and replacement sensor probes, refer to the TE-6300 Series Temperature Sensors Product Bulletin (LIT-216320).

# Selection Chart

**Table 1: TE-6300 Temperature Sensor Models**

Sensor	Mounting Style	Probe Length in. (mm)	Product CodeNumber
Nickel (1k ohm)	Adjustable	8 (203)	TE-6311A-1
		Averaging <sup>1</sup>	8 ft (2.4 m)
	TE-6315P-1		
	TE-6315V-2		
	17 ft (5.2 m)	TE-6316M-1	
		TE-6316P-1	
		TE-6316V-2	
	Duct	4 (102)	TE-631GM-1
		8 (203)	TE-6311M-1
		TE-6311P-1	
	18 (457)	TE-631JM-1	
		Flange (VAV)	4 (102)
	8 (203)	TE-6311V-2	
		Flush	N/A
	Outdoor air	3 (76)	TE-6310F-1
			TE-6313P-1
	Strap-mount	3 (76)	TE-631S-1
	Wall <sup>2</sup>	N/A	TE-6314P-1
Well	6 (152)	TE-631AM-1 <sup>3</sup>	
		TE-631AM-2	
		TE-631AP-1	
	8 (203)	TE-6312M-1	
TE-6312P-1			
Platinum (1k ohm)	Adjustable	8 (203)	TE-6351A-1
	Duct	4 (102)	TE-635GM-1
		8 (203)	TE-6351M-1
		TE-6351P-1	
	18 (457)	TE-635JM-1	
		Flange (VAV)	4 (102)
	8 (203)	TE-6351V-2	
		Flush	N/A
	Outdoor air	3 (76)	TE-6350F-1
			TE-6353P-1
	Strap-mount	3 (76)	TE-635S-1
	Wall <sup>2</sup>	N/A	TE-6324P-1
	Well	6 (152)	TE-635AM-1 <sup>3</sup>
			TE-635AM-2
			TE-635AP-1
8 (203)		TE-6352M-1	
TE-6352P-1			
Platinum Equivalent	1k ohmAveraging <sup>1</sup>	10 ft (3 m)	TE-6327P-1
		20 ft (6.1 m)	TE-6328P-1
	100 ohmAveraging <sup>1</sup>	10 ft (3 m)	TE-6337P-1
		20 ft (6.1 m)	TE-6338P-1
Thermistor (2.2k ohm)	Adjustable	8 (203)	TE-6341A-1
	Duct	8 (203)	TE-6341P-1
	Flange (VAV)	4 (102)	TE-634GV-2
		8 (203)	TE-6341V-2
	Outdoor Air	3 (76)	TE-6343P-1
	Wall <sup>2</sup>	N/A	TE-6344P-1
	Well	6 (152)	TE-634AM-2
		8 (203)	TE-6342M-1

**Table 1: TE-6300 Temperature Sensor Models**

Sensor	Mounting Style	Probe Length in. (mm)	Product Code Number	
Thermistor (10k ohm) Type II	Adjustable	8 (203)	TE-6361A-1	
		Duct	4 (102)	TE-636GM-1
			8 (203)	TE-6361M-1
			18 (457)	TE-6361P-1
	Flange (VAV)	4 (102)	TE-636JM-1	
		8 (203)	TE-636GV-2	
	Flange (economizer)	4 (102)	TE-6361V-2	
		2 (51)	TE-6369E-2	
		6 (152)	TE-636ME-2	
		8 (203)	TE-6361E-2	
	Flush	12 (305)	TE-636NE-2	
		N/A	TE-6360F-0	
			TE-6360F-1	
	Outdoor air	3 (76)	TE-6363P-1	
	Strap-mount	3 (76)	TE-636S-1	
	Well	6 (152)	TE-636AM-1 <sup>1</sup>	
			TE-636AM-2	
8 (203)		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.
- TE-631AM-1, TE-635AM-1, and TE-636AM-1 include TE-6300-612 Threadless Brass Sensor Holder/Well Adaptor for retrofit to TE-6300W-103 or WZ-1000-5 Thermowells.

**Table 2: Optional Accessories**

Product Code Number	Description
F-1000-182	Thermal conductive grease for element wells (8 oz. [0.23 kg])
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	Averaging sensor mounting bracket (order in multiples of ten)
TE-6001-13	Metal cover and gasket kit (order in multiples of five)
TE-6300-101	12 in. (305 mm) 1k ohm nickel probe (cut to an appropriate length) <sup>1</sup>
TE-6300-103	1/2-14 NPT plastic sensor holder without retainer (order in multiples of ten)
TE-6300-105	12 in. (305 mm) 1k ohm platinum Class A probe (cut to an appropriate length) <sup>2</sup>
TE-6300-601	8 in. (203 mm) 1k ohm nickel probe
TE-6300-603	3 in. (76 mm) 1k ohm nickel probe
TE-6300-605	1/2-14 NPT threaded plastic sensor holder/well adaptor with retainer (order in multiples of ten)
TE-6300-606	8 in. (203 mm) 2.2k ohm thermistor probe
TE-6300-607	3 in. (76 mm) 2.2k ohm thermistor probe
TE-6300-611	1/2-14 NPT threaded brass sensor holder/well adaptor (order in multiples of ten)
TE-6300-612	Threadless brass sensor holder/well adaptor (order in multiples of ten)
TE-6300-613	IMC kit with metal plugs and clamp connector (order in multiples of ten)
TE-6300-614	Cable tie mounting kit, 0.50 to 2.625 in. (12.7 to 66.7 mm) bundle diameter (order in multiples of ten)
TE-6300-615	Cable tie mounting kit, 11 in. (280 mm) maximum bundle diameter
TE-6300-616	8 in. (203 mm) 1k ohm platinum Class A probe
TE-6300-617	3 in. (76 mm) 1k ohm platinum Class A probe
TQ-6000-1	4 to 20 mA output transmitter for use with the 100 ohm platinum sensor
TE-6300W-101 <sup>2</sup>	Thermowell, brass with copper bulb, 2.38 in. (60.5 mm) immersion depth, with thermal grease, direct mount, no adaptor required, for use with 6 in. (150 mm) probe model TE-63xAM-2
TE-6300W-102 <sup>2</sup>	Thermowell, stainless steel, 2.38 in. (60.5 mm) immersion depth, without thermal grease, direct mount, no adaptor required, for use with 6 in. (150 mm) probe model TE-63xAM-2
TE-6300W-103	Thermowell, brass with copper bulb, 2.38 in. (60.5 mm) immersion depth, with thermal grease, threadless adaptor required, for use with 6 in. (150 mm) probe models TE-63xAM-1 (adaptor included) and TE-63xAP-1 (adaptor included)
TE-6300W-110	Thermowell, stainless steel, 4.50 in. (114.3 mm) immersion depth, without thermal grease, 1/2-14 NPT adaptor required, for use with 8 in. (200 mm) probe models TE-63x2M-1 (adaptor included) and TE-63x2P-1 (adaptor included)

- Cut 12 in. (305 mm) probes to a minimum of 3 in. (76 mm).
- Direct-mount thermowells TE-6300W-101 and TE-6300W-102 can be used only with the TE-6300M Sensors.

**Table 3: 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 <sup>1</sup>				Brushed aluminum/beige
T-4000-2139	•			
T-4000-2140	•		•	
T-4000-2144		•		Brown and gold/beige
T-4000-2639	•			
T-4000-2640	•		•	
T-4000-2644		•		Brushed aluminum/white
T-4000-3139	•			
T-4000-3140	•		•	
T-4000-3144		•		

1 Without Johnson Controls logo

## Technical Specifications

**Table 4: TE-6300 Series Temperature Sensors technical specifications**

Specification		Description
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	±0.34F° at 70°F (±0.19C° at 21°C)
	1k ohm nickel averaging	±3.4F° at 70°F (±1.9C° at 21°C)
	1k ohm platinum Class A (TE-635xx)	EN 60751 Class A, ± [0.15 + 0.002 *   T °C  ], ±0.19C° at 21°C (±0.35F° at 70°F)
	100 ohm platinum Class A	
	1k ohm platinum Class B (TE-632xx)	EN 60751 Class B, ± [0.30 + 0.005 *   T °C  ], ±0.41C° at 21°C (±0.73F° at 70°F)
	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°) 3,850 ppm/K
	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

**Table 4: TE-6300 Series Temperature Sensors technical specifications**

Specification	Description	
Electrical Connection	TE-63xxE	22 AWG (0.6 mm diameter) x 6 in. (152 mm) long
	TE-63xxM	
	TE-63xxP	
	TE-63xxF	22 AWG (0.6 mm diameter) x 12 ft (3 m) braided-copper wires, low voltage insulation, half-stripped ends
	TE-63xxP nickel averaging	18 AWG (1.0 mm diameter) x 6 in. (152 mm) long
	TE-63xS	22 AWG (0.6 mm diameter) x 10 ft (3 m) long plenum-rated cable
	TE-63xxA	22 AWG (0.6 mm diameter) x 10 ft (3 m) long plenum-rated cable, with 2-position plug terminal block for 1/4 in. (6.35 mm) external tab terminals on 0.197 in. (5 mm) centers
	TE-63xxV	
Materials	Probes	Nickel averaging: 0.094 in. (2.4 mm) outside diameter (O.D.) copper tubing Nickel averaging adaptor: 0.25 in. (6.35 mm) O.D. brass Platinum averaging probe: 0.19 in. (4.8 mm) aluminum tubing All others: 0.25 in. (6.35 mm) O.D. stainless steel
	TE-63xxA	Mounting adaptor plate and gland: thermoplastic
	TE-63xxF	Flush mount: 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-63xxE	Mounting flange: stainless steel
	TE-63xxV	
Operating Conditions	TE-63xxA	-50 to 140°F (-46 to 60°C)
	TE-63xxF	32 to 104°F (0 to 40°C)
	TE-63xxE	-50 to 220°F (-46 to 104°C)
	TE-63xxM	
	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) Wire harness: -50 to 122°F (-46 to 50°C)
	TE-63xxV	
Shipping Weight	TE-63xxA	0.2 lb (0.09 kg)
	TE-63xxE	
	TE-63xxF	0.25 lb (113.4 kg)
	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)
	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)
Dimensions (H x W x D)	TE-63xxA	2.17 in. (55 mm) diameter plus 4 or 8 in. (102 or 203 m) element
	TE-63xxE	Duct mount: 2.5 x 1.50 in. (57 x 38 mm) plus 2, 6, 8, or 12 in. (51, 152, 203, or 305 mm) element
	TE-63xxF	Flush mount: 4-1/2 x 2-3/4 in. (114 x 70 mm)
	TE-63xxM	Duct averaging: 1.87 x 1.87 x 1.80 in. (47.5 x 47.5 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. (47.5 x 47.5 x 45.8 mm) plus 4, 8, or 18 in. (102, 203, or 457 mm) element Well insertion: 1.87 x 1.87 x 1.80 in. (47.5 x 47.5 x 45.8 mm) plus 6 or 8 in. (152 or 203 mm) element
	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. (152 or 203 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. (152 or 203 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. (102 or 203 mm) element

## Product warranty

This product is covered by a limited warranty, details of which can be found at [www.johnsoncontrols.com/buildingswarranty](http://www.johnsoncontrols.com/buildingswarranty).

## Software terms

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