

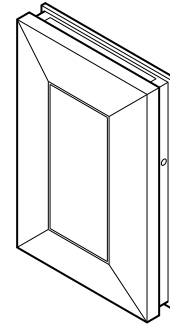


**TSMN-90xxx Series**  
**TSMN-57011-xxx-0-01**  
**TSMN-58011-000-0-01**  
**TSMN-81011-000-0-01**

**Electronic Room Temperature Sensor**  
**General Instructions**

## Application

The Electronic Room Temperature Sensor is a resistance-temperature device (RTD) available in various models. See Table-1 below for model variations and options.



## Features

- Contemporary, low-profile packaging
- Easily installed base plate and electronic assembly
- High-impact cover
- Suitable for direct-wall, 2 x 4 electrical box, 1/4 DIN electrical box, and surface box mounting
- UL 916 Listed



**Table-1 Model Chart.**

Model No.	Function	Base Plate Terminals							
		ASD+	ASD-	SETPT	SP+	COM	SPACE		PSI
		1	2	3	4	5	6	7	8
TSMN-90110-000-0-01	10K thermistor no shunt, ASD jack	X	X			X	X		X
TSMN-90220-850-0-01	10K thermistor w/11K shunt, ASD jack	X	X			X	X		X
TSMN-90221-850-0-01	10K thermistor w/11K shunt, ASD jack, F temp ind	X	X			X	X		X
TSMN-90230-850-0-01	10K thermistor w/11K shunt, ASD jack, ovrd	X	X			X	X		X
TSMN-90231-850-0-01	10K thermistor w/11K shunt, ASD jack, F temp ind, ovrd	X	X			X	X		X
TSMN-90250-850-0-01	10K thermistor w/11K shunt, ASD jack, F setpt, ovrd	X	X	X	X	X	X		X
TSMN-90250-852-0-01	10K thermistor w/11K shunt, ASD jack, C setpt, ovrd	X	X	X	X	X	X		X
TSMN-90251-850-0-01	10K thermistor w/11K shunt, ASD jack, F temp ind, F setpt, ovrd	X	X	X	X	X	X		X
TSMN-90256-852-0-01	10K thermistor w/11K shunt, ASD jack, C temp ind, C setpt, ovrd	X	X	X	X	X	X		X
TSMN-90261-850-0-01	10K thermistor w/11K shunt, ASD jack, F temp ind, F setpt	X	X	X	X	X	X		X
TSMN-57011-0-01	10K thermistor	6" Pigtail leads							
TSMN-57011-850-0-01	10K thermistor with 11K shunt	6" Pigtail leads							
TSMN-58011-000-0-01	1K Platinum element	6" Pigtail leads							
TSMN-81011-000-0-01	1K BALCO element	6" Pigtail leads							

## SPECIFICATIONS

**Sensing Element:** See Table-1 and Table-2.

**Mounting:** Direct-wall, 2 x 4 electrical box, 1/4 DIN, or surface box.

**Ambient Temperature Limits:**

**Shipping & Storage,** -40 to 160 °F (-40 to 71 °C)

**Operating,** 40 to 140 °F (4 to 60 °C)

**Humidity:** 5 to 95%, non-condensing.

**Locations:** NEMA.

**Table-2 Temperature Versus Resistance.**

Temperature °F (°C)	Nominal Resistance Value			
	TSMN-90110 Series TSMN-57011 Series Ω	TSMN-90xxx-85x Series TSMN-57011-850 Ω	TSMN-58011 Ω	TSMN-81011 Ω
40 (4)	—	7596	1017	935.9
50 (10)	18790	6938	1039	956.9
68 (20)	12260	5798	1077.9	995.6
77 (25)	10000	5238	1097.3	1015.4
86 (30)	8194	4696	1116.7	1035.4
104 (40)	5592	3707	1155.4	1076.2
122 (50)	3893	2875	1194	1118.0
140 (60)	2760	2206	1232.4	1160.9
<b>Sensor Type</b>	Thermistor, 10ΩK at 77°F (25°C)	Thermistor, 10ΩK at 77°F (25°C), *with 11ΩK shunt resistor	Platinum, 1000 Ω at 32°F (0°C)	Balco, 1000 Ω at 70°F (21.1°C)

\*TSMN-90110 and TSMN-57011 do not have a shunt resistor.

## INSTALLATION

The electronic room temperature sensor is packaged, in disassembled form, in one container. It consists of three major parts: a pre-wirable base plate; an electronic assembly containing the sensor and its associated circuitry; and a removable cover.

## Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

## Requirements

- Job wiring diagrams
- Tools (not provided):
  - Digital volt-ohm meter (DVM)
  - Appropriate drill and drill bit for mounting screws
  - Appropriate screwdrivers for mounting screws and terminal connections
- Training: Installer must be a qualified, experienced technician
- Appropriate accessories
  - Communication adapter
- For use of this product with TAC System 8000, refer to the **Environmental Controls Application Manual, F-21335**

## Precautions

### Warning

Electrical shock hazard! Disconnect power before installation to prevent electrical shock or equipment damage.

## Mounting

Locate the sensor where it will be exposed to an unrestricted circulation of air which represents the average temperature of the controlled space. Do not locate the sensor near sources of heat or cold such as lamps, motors, sunlight, or concealed ducts or pipes. The sensor is designed for service in any normally encountered human environment.

The electronic room temperature sensor may be installed directly onto a wall, or onto a 2 X 4 electrical box, a 1/4 DIN electrical box, or a surface box. Refer to Figure 1.

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Note: Although the TSMN-Series Sensors share the same base plate with the MN-Series MicroNet™ Sensors, they are not for use with MicroNet U-Link or NETWORK 8000-Link. However, no damage will result if, by mistake, MicroNet communications are attempted with a TSMN-Series Sensor.

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### General Mounting Instructions (Screw Terminal Version)

1. Pull the system's wires from the wall or box.
2. Pass the wires through the base plate feedthrough and fasten the base plate onto the wall or box. Refer to Figure 2 for direct-wall mounting dimensions.

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**Caution:** The Electronic Room Temperature Sensors are Class 2 only devices and must be connected to Class 2 wiring. Class 2 circuits must not intermix with Class 1 circuits.

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3. Connect the wires to the appropriate screw terminals on the base plate. Make all connections in accordance with the job wiring diagram and in compliance with national and local electrical codes. Refer to Table-1 and Figure-3 for base plate terminal identification.
4. Push any excess wire back through the base plate to minimize air flow restriction.
5. Set the electronic assembly onto the hooks on the base plate.
6. Secure the electronic assembly to the base plate by tightening all screws.

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Note: Start all screws one to two turns before tightening.

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7. Install the cover by engaging the bottom tabs first and snapping the top end into place. Note that the top end of the cover is identified on its back surface.

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Note: To remove the sensor cover, once installed, simultaneously press the middle of the sensor with your thumb and pull firmly on the top edge of the cover with your fingers.

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### General Mounting Instructions (Pigtail Lead Version)

1. Pull the system's wires from the wall or box.
2. Attach the system's wires from the wall to the pigtails from the TSMN unit. These leads are not polarity sensitive. Make all connections in accordance with the job wiring diagram and in compliance with national and local electrical codes.

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Note: The pigtail leads from the TSMN unit should not have excessive stress applied when connected to the system's wires.

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**Caution:** The Electronic Room Temperature Sensors are Class 2 only devices and must be connected to Class 2 wiring. Class 2 circuits must not intermix with Class 1 circuits.

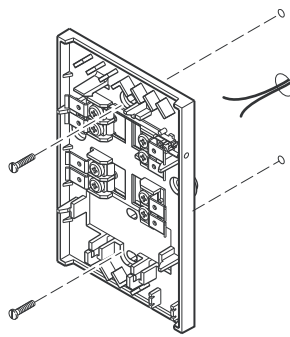
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3. Fasten the base plate onto the wall or box. Refer to Figure-2 for mounting dimensions.
4. Set the faceplate assembly onto the hooks on the base plate.
5. Secure the faceplate assembly to the base plate by tilting the assembly down, locking it under the latching tab. Pull up slightly on the assembly to ensure it is secure.
6. Install the cover by engaging the bottom tabs first and snapping the top end into place. Note that the top end of the cover is identified on its back surface.

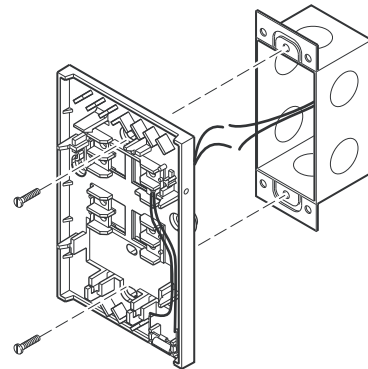
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Note: To remove the sensor cover, once installed, simultaneously press the middle of the sensor with your thumb and pull firmly on the top edge of the cover with your fingers.

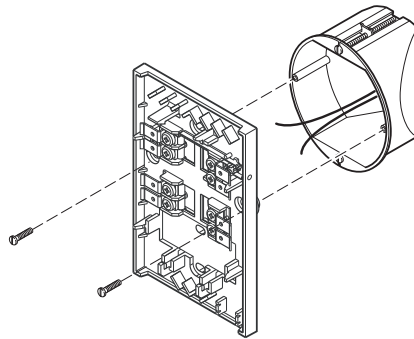
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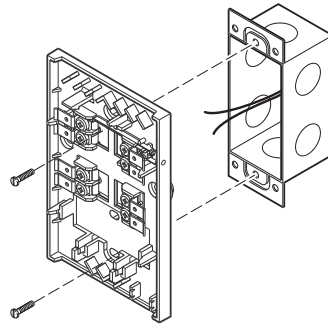
Direct-Wall Mounting.



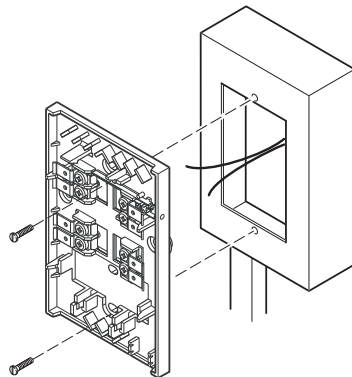
2 X 4 Electrical Box Pigtail Mounting.



1/4 DIN Electrical Box Mounting.



2 X 4 Electrical Box Mounting.



Surface Box Mounting.

Figure-1 Mounting Options for Electronic Room Temperature Sensor.

## CHECKOUT

1. Remove wires from the temperature sensor.
2. Using a DVM, measure the appropriate resistance between terminals SPACE and COM. Refer to Table-1 and Figure-3 for base plate terminal identification and Table-2 for the appropriate resistance for the unit being checked out.
3. Press the override button (if applicable) and observe meter reading. When the button is pressed, the reading should be less than  $200\Omega$ .
4. Connect the DVM between COM and SP+ (if applicable). The meter reading should be approximately 1100 ohms.
5. Connect the DVM between COM and SETPT (if applicable) and move the temperature setpoint knob. The meter reading should be no less than  $2500\Omega$  ( $11,000\Omega$  is typical), at the scale end points and no more than  $29,000\Omega$  at the mid scale point.
6. Reconnect the wires to the temperature sensor and replace cover.

## MAINTENANCE

Periodically inspect the temperature sensors for dirt or blockage of air.

## FIELD REPAIR

The sensor has no user serviceable parts and is not field repairable. Replace the sensor with a functional unit.

## DIMENSIONAL DATA

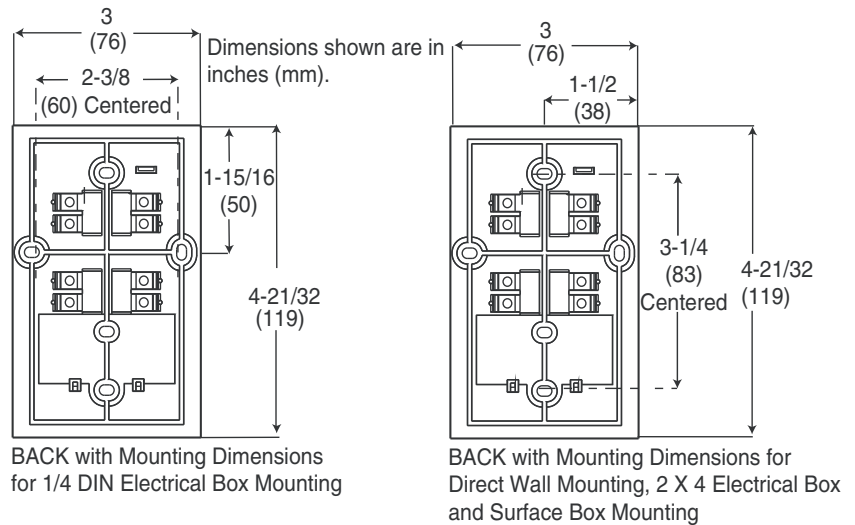


Figure-2 Mounting Dimensions.

Note: The rating label on the base plate covers an additional mounting hole. If it is necessary to use this mounting hole, simply press the screw through the label. A cross hair on the label identifies the location of the mounting hole.

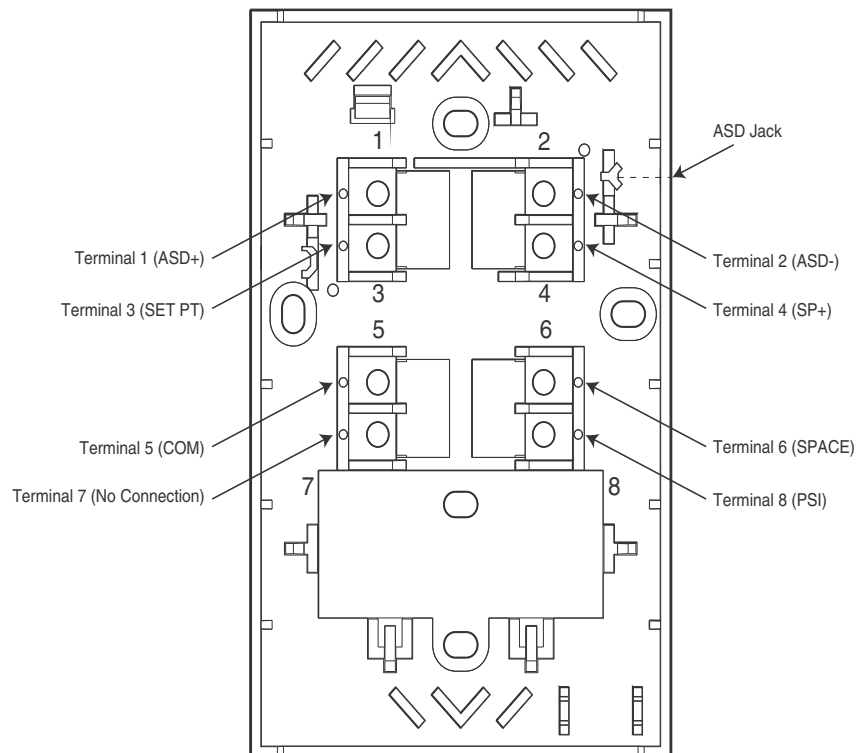


Figure-3 Base Plate Terminal Identification.

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