



**Electronic Room Temperature Sensor
General Instructions**

Application

Electronic thermistor sensing of room temperature at wall locations.

Specifications

Sensing Element: See Tables 1 and 2.

Environment:

Ambient Temperature Limits,

Shipping and Storage -40 to 160°F (-40 to 71°C).

Operating 40 to 140°F (4 to 60 °C).

Humidity 5 to 95% RH, non-condensing.

Locations, NEMA Type 1 indoor only.

Connections: Coded screw terminals.

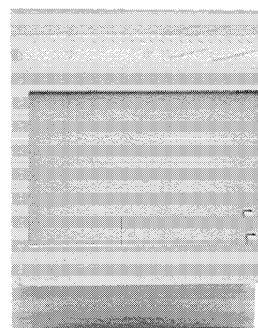
Cover: Shadow white plastic.

Mounting: Wall.

Dimensions: 4-13/16" high x 3-1/4" wide x 1-31/64" deep (122.2 mm x 82.6 mm x 37.5 mm).

Accessories

- AT-504 Plaster hole cover kit
- AT-1155 Plastic guard
- AT-1163 Wire guard (requires AT-504)



- Appropriate screws for mounting to European 1/4 DIN standard electrical box or mullion mounting (not provided)
- Appropriate accessories

Caution:

1. Installer must be a qualified, experienced technician.
2. Disconnect power supply before installation to prevent electrical shock and equipment damage.
3. Make all connections in accordance with electrical wiring diagrams, and in compliance with national and local codes. Use copper conductors only.
4. Do not exceed ratings of the device.
5. Avoid locations where excessive moisture, corrosive fumes or vibrations are present.

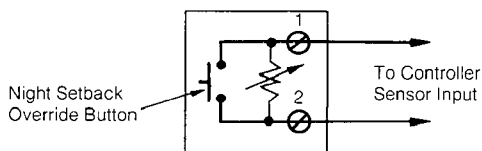


Figure-1 TS-90110-000-1 Sensor Wiring.

Pre-Installation

Inspection

Visually inspect the carton for damage. If damaged, notify the appropriate carrier immediately. Visually inspect the device for obvious damage due to shipping. Return damaged parts to place of purchase.

Required Installation Items

- Wiring diagram
- Tools (not provided):
 - Digital volt-ohm meter (DVM)
 - Room temperature thermometer in °F or °C
 - Appropriate screwdriver(s) for cover, terminals and mounting screws
 - Appropriate drill and drill bit for mounting screws
 - Wire stripper/cutter

Table-1 Specifications.

Cover Mounting Position	Temperature Sensing Element			Night Setback Override
	Resistance	Maximum Error over 100°F (55.6°C) span	Resistance Change	
Vertical	Thermistor 10,000 ohms at 77°F (25°C)	±0.36°F (±0.2°C)	See Table 2	External Button

Table-2 Temperature vs. Resistance

Temperature °F (°C)	Nominal Resistance Values (in 1000 ohms)
40(4)	24.55
50(10)	18.79
68(20)	12.26
77(25)	10.0
86(30)	8.194
104(40)	5.592
122(50)	3.893
140(60)	2.760

IMounting

Location

Locate the sensor on a wall where it will be exposed to unrestricted air circulation, at a minimum of 15 ft./min. (4.6 m/min.), which represents the average temperature of the sensed space. Normally, the sensor is located 5-1/2 to 6-1/2 ft. (1.0 to 2.0 m) from floor level.

Caution: Do not locate the sensor near sources of heat or cold, such as lamps, motors, sunlight, or concealed ducts or pipes. Avoid locations where excessive vibration, moisture, corrosive fumes or vapors are present. NEMA Type 1 covers are intended to provide a degree of protection against contact with the enclosed equipment.

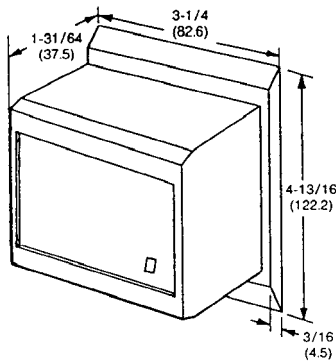


Figure-2 Overall Dimensions NEMA Standard Mounting.

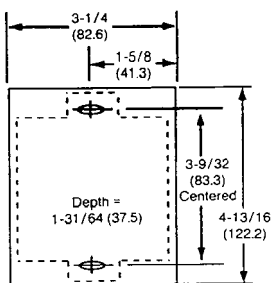


Figure-3 Mounting Dimensions NEMA Standard Mounting.

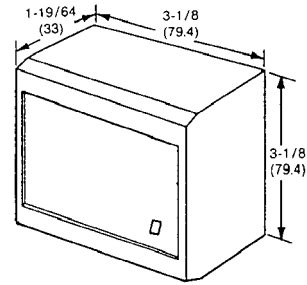


Figure-4 Overall Dimensions European 1/4 DIN Standard Mounting.

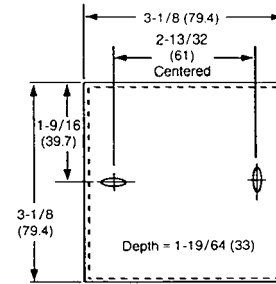


Figure-5 Mounting Dimensions European 1/4 DIN Standard Mounting.

Mounting Procedure for NEMA Standard Electrical Box

1. Remove sensor cover (see Figure 6).
2. Snap off wall plate from base assembly.
3. Feed the two (2) wires from the electrical box through the sensor base assembly feedthrough.
4. Using the two (2) 6-32 x 5/8" flat head screws provided, mount the sensor base assembly to the electrical box.

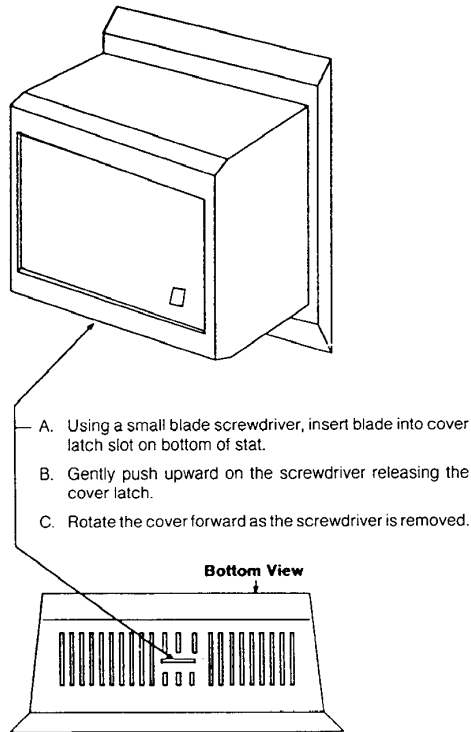


Figure-6 Removing Sensor Cover.

5. Strip 1/4" (6 mm) of insulation from end of wires.
6. Connect wires to appropriate marked terminals. See wiring diagram (Figure 1). When installing wire, insert from top side of terminal and secure by tightening screw located on front side.

Caution: Do not use excessive force.

7. Dress wires down and inside the perimeter of the sensor base assembly.
8. Attach wall plate by snapping on to sensor base assembly.
9. Replace cover by inserting top inside edge of cover over tab on top of sensor base assembly and rotating cover downward and snap on.

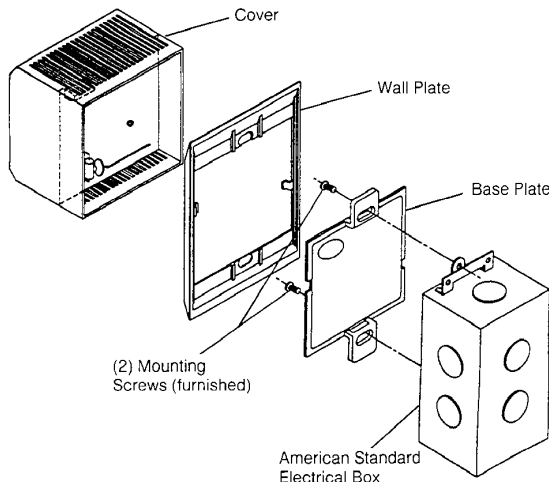


Figure-7 Mounting Procedure for NEMA Standard Electrical Box.

Mounting Procedure for European 1/4 DIN Standard Electrical Box

1. Remove sensor cover. See Figure 8.
2. Snap off wall plate from base assembly. Discard or use as a cover plate.
3. Using diagonal wire cutters, cut mounting tabs off top and bottom of sensor base assembly (see Figure 10).
4. Feed the two (2) wires from the electrical box through the sensor base assembly feedthrough.
5. Using two (2) appropriate screws (not provided), mount the sensor base assembly to the 1/4 DIN standard electrical box.
6. Strip 1/4" (6 mm) of insulation from end of wires.
7. Connect wires to appropriate marked terminals. See wiring diagram (Figure 1).

Caution: Do not use excessive force.

8. Dress wires down and inside the perimeter of the sensor base assembly.

Note: No more than 6" (152 mm) of wire should remain under the cover.

9. If used, attach wall plate by snapping on to sensor base assembly.
10. Replace cover by inserting top inside edge of cover over tab on top of sensor base assembly and rotating cover downward and snap on.

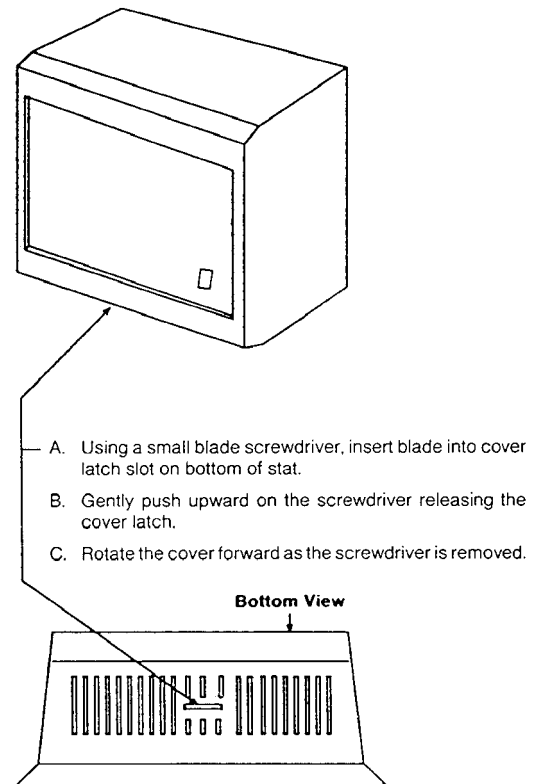


Figure-8 Removing Sensor Cover.

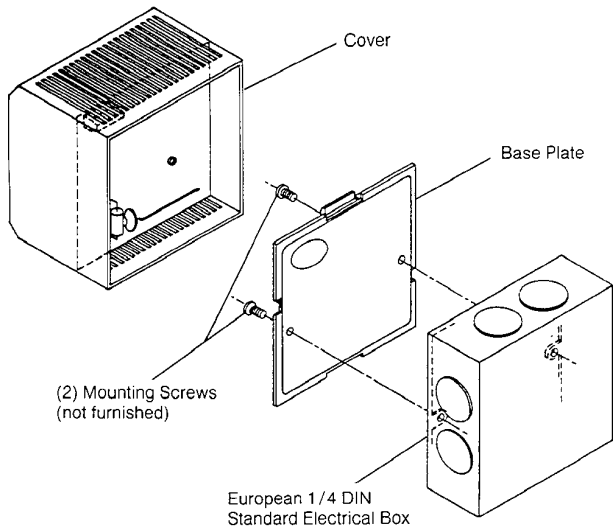


Figure-9 Mounting Procedure for European 1/4 DIN Electrical Box.

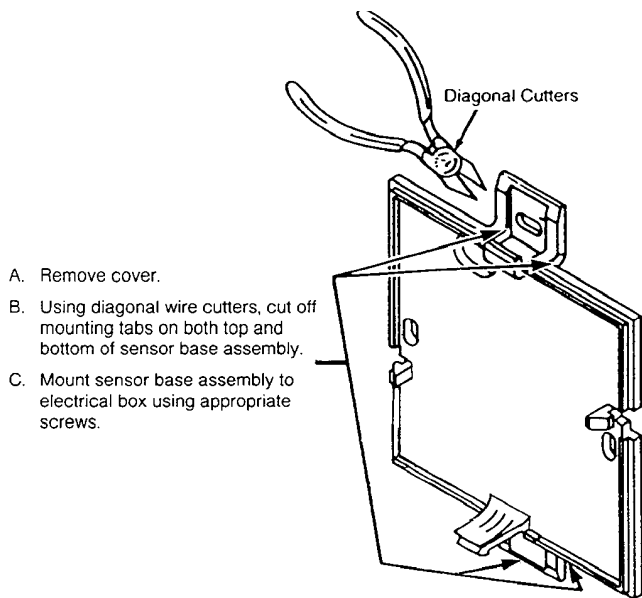


Figure-10 Removing Mounting Tabs.

Wiring

Two conductor shield wire, Class II, low voltage, is suitable for the sensor leads. System ground the shield at the controller. Refer to the controller manufacturer's specifications.

Caution:

Do not install the sensor lead in the same conduit with power wiring.

Do not use inside of the sensor cover as a junction box for other control units.

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Restrict element lead to shortest length practical. See Table 3 for maximum recommended wire lengths.

Table-3 Sensor Wiring Lengths.

Wire Gauge	Max. Length of Run - ft. (m)
	Sensor to Controller
22	150 (46)
18	1000 (305)
16	2250 (686)
14	4000 (1219)

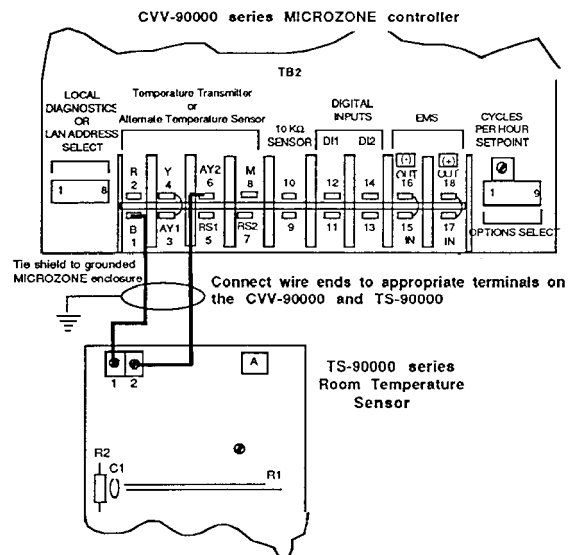


Figure-11 Room Sensor to TAC MicroZone Connection.

Checkout

A DVM should measure the appropriate resistance between terminals 1 and 2 (see Figure 1 and Table 2).

Maintenance

Regular maintenance of the total system is needed to assure sustained optimum performance. Sensors should be periodically inspected for dirt or blockage of air over the elements.

Field Repair

These sensors are not field repairable. Replace the sensor with a functional unit.