

Series 2000 (Interactive) Room Temperature Sensors, TEC

Product Description

These sensors allow users to view and adjust points in the controller using the sensor buttons and digital display.



They work with the Terminal Equipment Controller (TEC), and use a 10K Ω thermistor to detect temperature. The effective sensing and setpoint range is 55 to 95°F (13 to 35°C).

These sensors can be mounted on electrical boxes, stud-type mounting brackets, or drywall. Obtain the necessary mounting hardware and follow the appropriate mounting procedures for the type of installation required.

Product Numbers

540-650A	Desert beige
540-650B	White
544-643A	Passkey
129-363	Quick Reference Guide

Warning/Caution Notations

WARNING		Personal injury/loss of life may occur if you do not perform a procedure as specified.
CAUTION		Equipment damage or loss of data may occur if you do not follow a procedure as specified.

Required Tools

- Phillips sizes 1 and 2 screwdrivers
- Medium, flat-blade screwdriver
- Small, flat-blade screwdriver
- Medium-duty electric drill
- 3/16-inch (4.8 mm) drill bit
- One-inch (25 mm) hole saw
- Small level
- Tape measure
- Marker or pencil

If using non-terminated or damaged cables, you also need:

- Room sensor connector tool (RJ-11 crimping tool)
- Room sensor connector kit

Expected Installation Time

20 minutes

Prerequisites

- Review these instructions before beginning.
- Installed: appropriate field wiring (standard six-conductor room sensor cables, plenum or non-plenum as required), within the maximum wiring run length for the individual equipment controller. The maximum recommended length is 100 feet (30 m).
- All wiring must comply with National Electric Code (NEC) and local regulations.

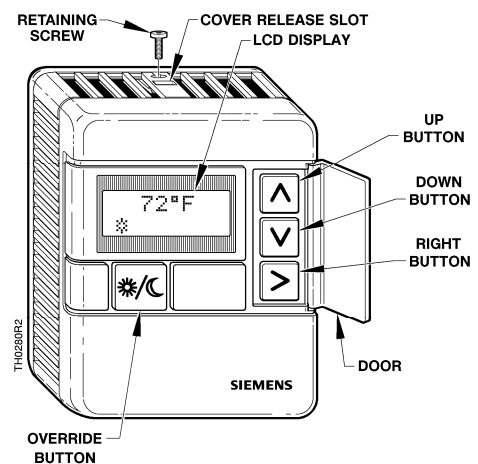


Figure 1. Room Temperature Sensor.

Accessories

Review Table 1 to verify that you have the appropriate mounting hardware.

For retrofit installations, normally follow the method used by the pre-existing device. You may need to replace existing mounting hardware. Always mount the sensor vertically.

Table 1. Accessories.

P/N	Description	Used For	Reference
182-621	Gym Guard Kit, desert beige	gyms and similar environments requiring a guard. (Incompatible with adapter bases and the extender ring.)	155-222P25 (TB 193)
182-621E	Gym Guard Kit, satin chrome	See above.	155-222P25 (TB 193)
182-683	Metal (and Wood) Stud Mounting Bracket (pkg. 5)	single-sensor rough-in installations. Kit includes locator.	129-057
182-685	Spring Clips: Finished Drywall Mounting Kit (10 pack)	drywall mounting.	129-073
192-506	Electrical Box Adapter Plate Assembly Kit (pkg. 5)	electrical boxes mounted flush with the wall and for gyms and similar environments requiring a guard. (Also see 544-782.)	Figure 4
192-860	Finish Plate Kit 1 Gang 1 Sensor; stainless steel	single-sensor, low-cost mounting. Plate is 3.7 x 5.1 inches (9.5 x 12.9 cm)	155-252P25 (TB 238)
536-666	Mounting Strap	standard light switch plate (field-supplied) to mount sensor on 2 x 4 electrical box	540-040 540-237
544-782*	Single Adapter Base Mounting Kit	2 x 4 boxes, all single sensor installations on walls with oversized holes, paint lines, etc., that need to be covered, and on exterior brick/cement-type walls. Kit includes Electrical Box Adapter Plate Assembly (192-495. Adapter base is 3-1/2 x 5 inches (8.8 x 12.7 cm).	Figure 4
544-783*	Double Adapter Base Mounting Kit	4 x 6 boxes and all double sensor installations on walls with oversized holes, paint lines, etc., that need to be covered, and on exterior brick/cement-type walls. Kit includes two mounting plates (192-720). Adapter base is 5 x 7 inches (12.7 x 18 cm).	Figure 4
544-784	Non-conduit Rough-in Kit, Double	double-sensor non-conduit rough-in installations. Kit includes locator.	540-784
544-785*	Extender Ring Kit	exterior brick or cement-type walls; fits to back of sensor base plate	—
544-800	Universal Adapter Kit	retrofitting a previous horizontal installation to a vertical one, or when the screw spacing does not fit the electrical box adapter plate. Kit includes multi-slotted adapter plate.	Figure 4
981-344	Electrical Box Cover Plate Kit	2 x 4 box rough-ins. Kit includes locator and connector.	—
—	Various finish plates	double-sensor, low-cost mounting for a variety of applications.	155-252P25 (TB 238)

* Product number suffixes indicate color: A = desert beige; B = white (e.g., 544-782**B**)

Mounting Information

Always mount the sensor vertically.

Locate the sensor:

- according to design specifications and local regulations.
- where the air circulates around it freely (not in recessed areas or behind doors).
- allowing a minimum of 4 inches (10 cm) free space above and below for proper airflow, the front cover removal tool, and the computer communication cable.
- away from drafts caused by doors, windows, outside walls, air registers, pipes, return air plenums, etc.
- away from heat sources such as strong lights, fireplaces, direct sunlight, etc.
- on an inside wall (preferably), about 5 feet (1.5 m) above the finished floor.

While not recommended, if you need to mount the sensor on exterior brick or cement-type walls, see *Accessories*.

Drywall Mounting (No Rough-in), Typical

1. Mark the center (cable) hole and the mounting hole locations, using the sensor base plate as a template. See Figure 2.



CAUTION:

For drywall mounting, only use the top and bottom holes.

2. Drill two 3/16-inch (4.8 mm) mounting holes.
3. Cut a 1-inch (25 mm) center hole with a hole saw.
4. If using screws to attach the sensor, insert two plastic wall anchors.
5. Pull about three inches (75 mm) of the cable through the mounting hardware in the order shown.

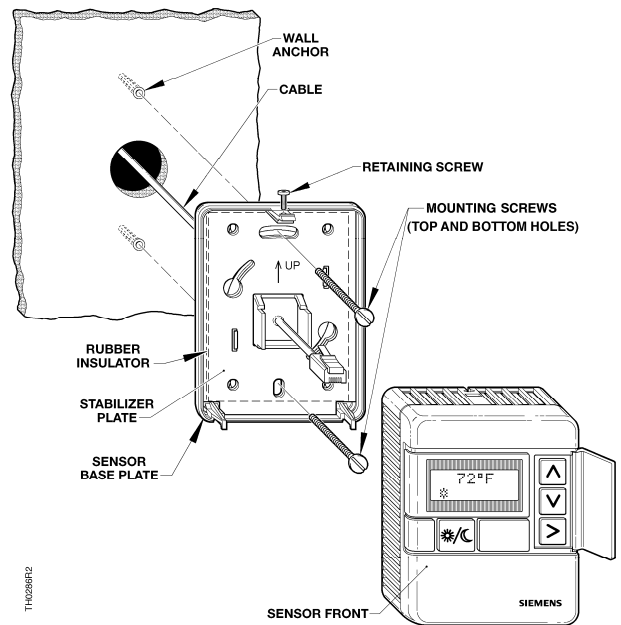


Figure 2. Drywall Mounting (No Rough-in), Typical.

6. Mount the sensor base plate on the wall, noting the "UP" arrow on the stabilizer plate:
 - a. Install either the two mounting screws provided, the drive rivets provided, or spring clips, but do not tighten.



CAUTION:

Pounding too hard or over-tightening may cause the sensor base plate to crack or bend.

- b. Level the sensor base plate for appearance.
 - c. Tighten the two mounting screws to the sensor base plate.
7. Do one of the following:
 - If the cable is terminated: Inspect the RJ-11 connector for damage.
 - If the cable is non-terminated or if the RJ-11 was damaged: Cut the cable, leaving about three inches (75 mm) on the sensor side of the drywall, and attach an RJ-11 connector with an RJ-11 crimping tool. On the RJ-11 connectors, ensure that pin Number 1 connects to the same wire at each end of the cable. See Figure 3.



CAUTION:

For retrofits: Before cutting the cable, make sure it is disconnected from the Room Temperature Sensor (RTS) port on the TEC cable end.

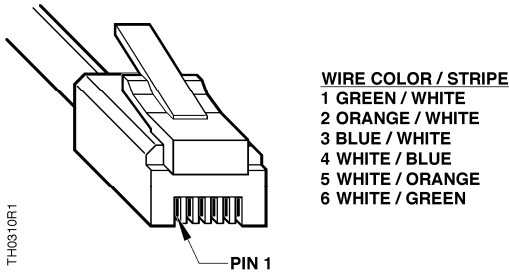


Figure 3. Terminating the RJ-11 Connector.

8. Plug the terminated cable into the RJ-11 connector on the back of the sensor's printed circuit board (PCB).
9. Feed the extra cable back through the hole in the rubber insulator.
10. Snap the sensor front to the sensor base plate by first hooking the sensor front to the bottom latches, and then pushing the top of the sensor front into place until it latches.
11. Tighten the sensor front retaining screw. See Figure 2.
12. Connect the sensor to the Room Temperature Sensor (RTS) port on the TEC.

The installation is now complete.

Electrical Box and Rough-in Mounting, Typical

1. If a locator is attached to the rough-in device, remove the locator by removing the two screws and lightly rocking the locator to pull it free.
2. Untie the twist tie and pull about three inches (75 mm) of the sensor cable into the space.

3. If you have a single-sensor electrical box, install the electrical box adapter plate. See Figure 4.

If you have a double-sensor electrical box, install the required mounting plate(s).

If you use a universal adapter kit for a retrofit job, install the multi-slotted plate in place of the electrical box adapter plate. See Figure 4.

4. Pull the cable through the required mounting hardware in the order shown.
5. Install the two sensor mounting screws provided but do not tighten.
6. Mount the sensor base plate on the wall, noting the "UP" arrow on the stabilizer plate:
 - a. Level the sensor base plate for appearance only.
 - b. Tighten the two mounting screws to the sensor base plate.



CAUTION:

Over-tightening may cause the sensor base plate to crack or bend.

7. Continue with *Drywall Mounting (No Rough-in), Typical*, Steps 7 through 13.

The installation is now complete.

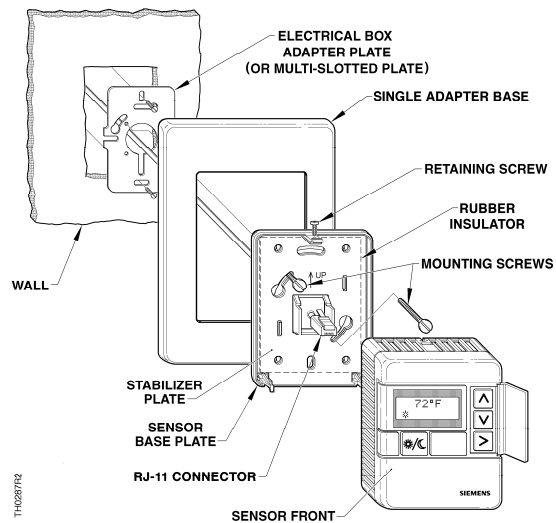


Figure 4. Electrical Box and Rough-in Mounting, Typical.

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