

T7147A,G Remote Space Sensors and Override Modules

INSTALLATION INSTRUCTIONS

APPLICATION

The T7147A,G Remote Space Sensors and Override Modules are used with T7300/Q7300 Thermostat/ Subbase to provide space temperature control, switch initiation and override indication from a remote location.

SPECIFICATIONS

Temperature Sensor: Thermistor-resistor (NTC) element.

Sensor Resistance:

Resistance decreases as temperature increases (Fig. 2).

T7147A: 1420 ohms nominal at 75°F (24°C);
resistance changes 15 ohms for each 1°F (0.6°C)
temperature change.

T7147G: 710 ohms nominal at 75°F (24°C);
resistance changes 7.5 ohms for each 1°F (0.6°C)
temperature change.

Mounting: Mounts on wall or 2 x 4 in. vertical outlet box with screws provided.

Dimensions: See Fig. 1.

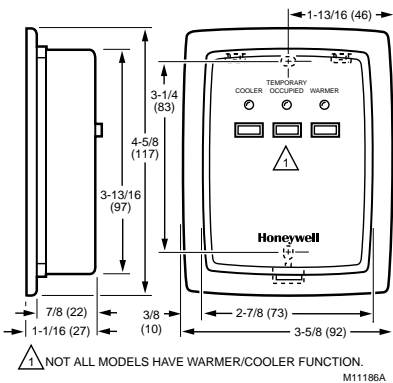


Fig. 1. T7147 dimensions in in. (mm).

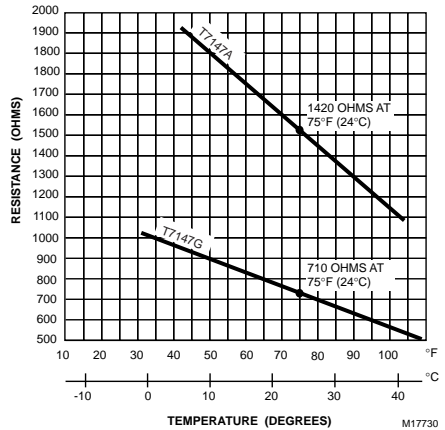


Fig. 2. T7147 Remote Sensor resistance change with change in temperature.

INSTALLATION

When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.



CAUTION

Electrical Shock or Equipment Damage Hazard.

Can shock individuals or short equipment circuitry.

Disconnect power supply before installation.



Location

Locate the T7147 or remote sensor about 5 ft (1.5m) above the floor on an inside wall where it is affected by freely circulating air at average room temperatures.

Mounting

1. Loosen the cover locking screw and remove the thermostat cover.
2. Run wire to selected location; thread wire through semicircular hole in base; and make connections to the T7147 (see the Wiring section).
3. Four mounting screws are provided: two self-tapping for wall mounting, and two for outlet box mounting. Select proper screws for the application.
4. If air drafts occur through the wall opening, *eliminate* with suitable material.
5. Fasten the T7147 on the wall or outlet box with screws through the thermostat mounting holes. See Fig. 3.
6. Replace cover and tighten the cover locking screw.

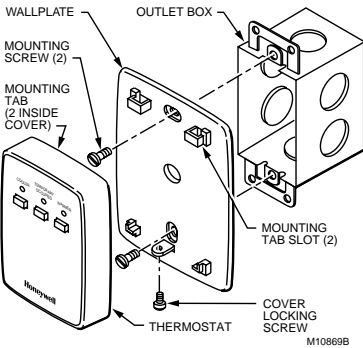


Fig. 3. Mounting the T7147.

Wiring



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IMPORTANT

All wiring must agree with applicable codes, ordinances and regulations.

IMPORTANT

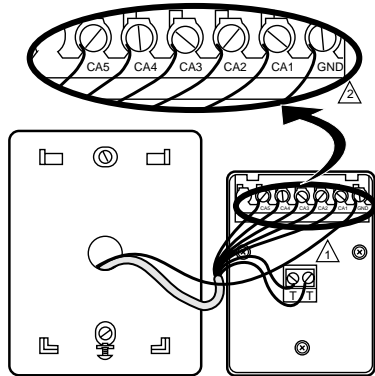
- To avoid electrical interference, which can cause erratic performance, keep wiring runs as short as possible and do not run thermostat wires adjacent to the line voltage electrical distribution systems.
- Use shielded cable (Belden type 8762 or equivalent for 2-wire and Belden type 8772 or equivalent for 3-wire).
- The cable shield must be grounded only at the controlled equipment case.

Refer to instructions supplied with other system components.

Connect the correct Q7300 control wires to the T7147 as shown in Fig. 4 through 9. Be sure all connections are tight. Loose or intermittent wire connections cause inconsistent system operation.

IMPORTANT

The T7147 ground (GND) connection is required. Use the junction box or conduit for a grounding location.



- ⚠️ ROUTE EXCESS WIRING AWAY FROM SENSOR ELEMENT FOR OPTIMUM PERFORMANCE.
- ⚠️ CONNECTIONS TO CA3 AND CA4 NOT REQUIRED ON T7147A2000.

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Fig. 4. Connecting wires to T7147.

OPERATION AND CHECKOUT

Operation

The remote sensor control element is a negative temperature coefficient (NTC) thermistor. As the room temperature increases, thermistor resistance decreases.

The thermistor resistance change causes the motor, system logic panel or system transmitter bridge circuit to become unbalanced. As the electronic motor, system logic panel or system transmitter circuits react to rebalance the circuit, damper or valve movement, or heating and/or cooling equipment sequential staging occurs.

Overrides

Keys on the face of the T7147 can enact override functions programmed at the T7300/Q7300.

NOTE: All overrides must be programmed at the T7300/Q7300. The T7147 cannot change these programmed settings.

Temporary Occupied

Pressing the *Temporary Occupied* key sends a signal from the T7147 to the T7300/Q7300. The T7300 proceeds into an occupied override and sends a signal to the T7147 that turns on the *Temporary Occupied* LED. The LED remains on for the duration of the override.

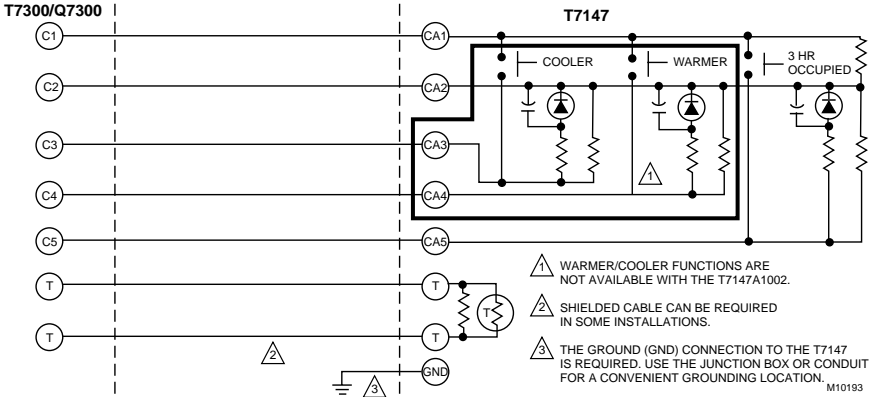


Fig. 5. Typical wiring diagram for T7147 used with T7300/Q7300 Thermostat/Subbase.

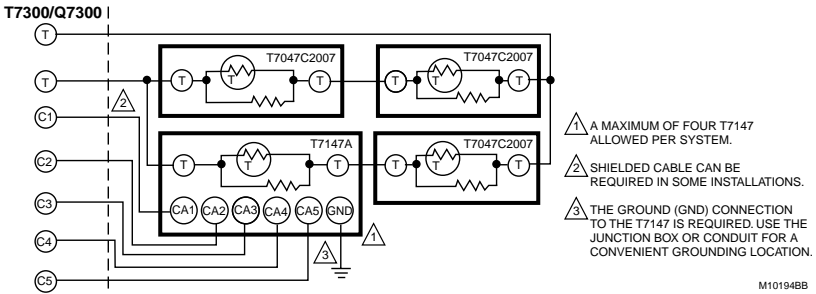


Fig. 6. T7147 used in a four-temperature sensor averaging application with T7300/Q7300 Thermostat/Subbase.

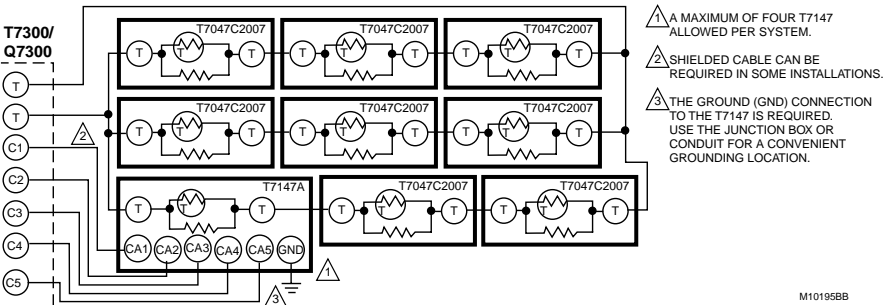


Fig. 7. T7147 used in a nine-temperature sensor averaging application with T7300/Q7300 Thermostat/Subbase.

Temporary Setpoint Adjust

Pressing the *Temporary Occupied* key followed by the *Warmer* or *Cooler* key sends a signal from the T7147 to the T7300/Q7300. The T7300 proceeds into the programmed setpoint override, and sends a signal to the T7147 turning on the *Temporary Occupied* LED with appropriate *Warmer* or *Cooler* LED. The LED remains on for the override duration.

NOTES:

- This override is a 0 to 5 degree offset from the occupied control point.
- The override can be performed at any time regardless of the mode in which the T7300 is operating.
- Press the override key again to exit the override feature and return to normal T7300 operation.

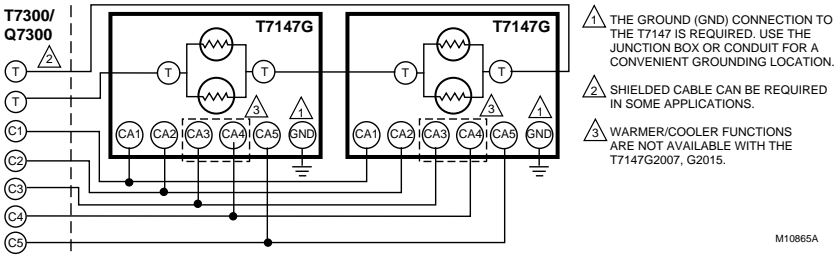


Fig. 8. T7147G in 2-temperature sensor averaging application with T7300/Q7300 Series 2000 Thermostat/Subbase.

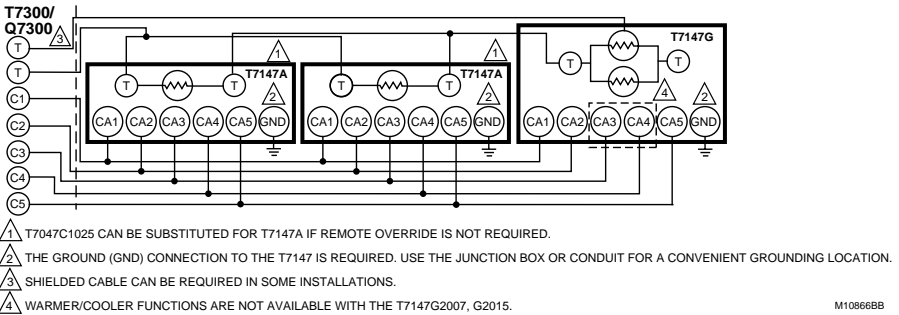


Fig. 9. T7147 in 3-temperature sensor averaging application with T7300/Q7300 Series 2000 Thermostat/Subbase.

Averaging Sensors

For large zone temperature control, use a T7300 with several remote temperature sensors. The T7300 averages the temperature signals from all the remote temperature sensors for more comfortable control.

NOTE: Up to four sensors can be used with one T7300/Q7300 Series 2000 Thermostat.

Calibration

The T7147 Electronic Thermostat or Remote Space Sensor is accurately calibrated at the factory. It cannot be field calibrated.

Checkout

Allow the T7147 Remote Sensor and Override Module to stabilize to ambient conditions before measuring the resistance:

1. Measure nominal resistance according to the values described in the Specifications section.
2. Measure the T7147 resistance in accordance with the temperature curves. See Fig. 2.

3. Press the *Temporary Occupied* key once. The LED turns on. Check that the T7300 displays *Temporary Occupied*.
4. For models with *Warmer* and *Cooler* keys, press the *Warmer* key once. The *Warmer* LED turns on. Press the *Cooler* key and the *Warmer* LED turns off. Press the *Cooler* key again and the *Cooler* LED turns on.
5. Press the *Temporary Occupied* key once. All LED turn off. T7300 *Temporary Occupied* display turns off and returns to normal operation.

NOTE: If the T7147 does not check out, review the wiring and connections between the Q7300 and T7147. Replace the T7147 if wiring continuity checks out. If the new T7147 does not check out, replace the Q7300.

6. Check the complete control systems operation as directed in the associated technical publications.

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