

## T7147 Remote Sensor and Override Module

### PRODUCT DATA



### FEATURES

- Locking cover.
- Override key.
- Warmer/Cooler keys on some models.
- Key-lock override security available.

### APPLICATION

The T7147 Remote Sensor and Override Module is for use with the T7300/Q7300 Programmable Commercial Thermostat system. The T7147 provides space temperature sensing, switch initiation, and indication of overrides from a remote location.

### Contents

Application .....	1
Features .....	1
Specifications .....	2
Ordering Information .....	2
Installation .....	3
Wiring .....	4
Operation .....	6
Checkout .....	6



# SPECIFICATIONS

**IMPORTANT**

The T7147 is factory-calibrated. It does not require field calibration and cannot be field adjusted.

**Models:**

- T7147A1002 Remote Temperature Sensor & Override Module: Connects to Q7300. Contains remote sensor, LED and push-button switch to invoke 3 Hour Occupied from remote location.
- T7147A1010 Remote Temperature Sensor & Override Module: Connects to Q7300. Contains remote sensor, LED and 3 push-button switches to invoke 3 Hour Occupied and Warmer/Cooler setpoint adjustments from remote location.
- T7147A1028 Remote Temperature Sensor & Override Module: Connects to Q7300. Same as T7147A1010 except includes key-lock switch to enable/disable remote override operation.

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

**Dimensions:** See Fig. 1.

**Wiring:**

Maximum cable length between T7300/Q7300 and T7147: 500 ft (152 m); use 18, 20 or 22 AWG wire.  
 Temperature offset per 500 ft (152 m) of 2-wire sensor wire cable (1000 ft [305 m] total length): See Table 1.

**Temperature Sensor:** Thermistor-resistor (NTC) element.

**Sensor Resistance:**

Resistance decreases as temperature increases (Fig. 2). 1420 ohms nominal at 75°F (24°C); resistance changes 15 ohms for each 1°F (0.6°C) temperature change.

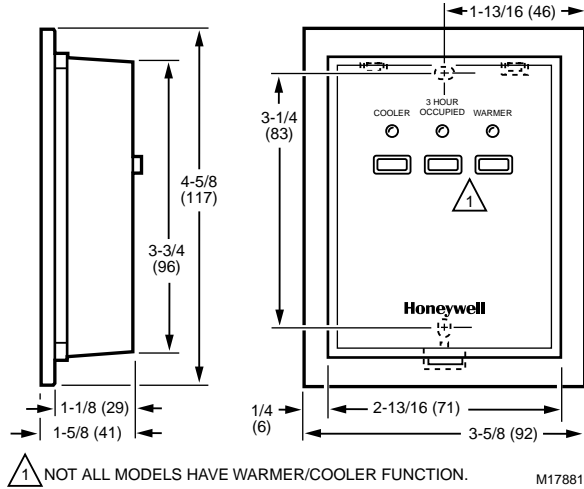
**Temperature Ratings:**

Ambient: 40 to 110°F (4 to 43°C).  
 Shipping: -30 to +150°F (-34 to +66°C).

**Humidity Ratings:** 5 to 90% RH, non-condensing.

**Accessories:**

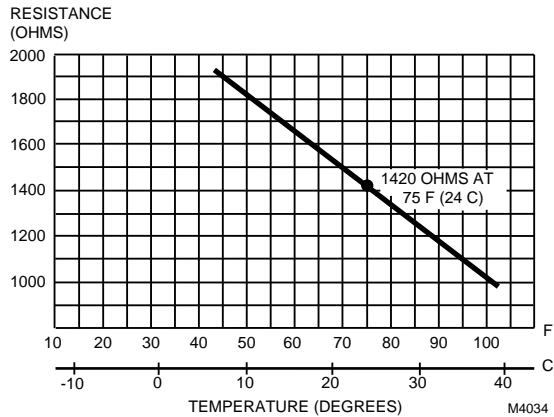
230492A Keys for T7147A1028.



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

**Table 1. Temperature Offset for Remote Sensor Wiring.**

Temperature Monitored	18 AWG	20 AWG	22 AWG
50 to 90°F	-0.4°F	-0.7°F	-1.0°F
10 to 32°C	-0.3°C	-0.4°C	-0.6°C



**Fig. 2. T7174 Remote Sensor Resistance change with change in temperature.**

# ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Relations  
 Honeywell, 1885 Douglas Drive North  
 Minneapolis, Minnesota 55422-4386 (800) 328-5111

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.

International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

## 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

Select a location on an inside wall away from:

- drafts or dead air spots behind doors and corners.
- hot or cold air ducts.
- radiant heat from the sun or electrical equipment.
- unheated areas behind the thermostat wall.

Locate the T7147 about 5 ft (1.5 m) above the floor in an area with good air circulation within easy reach of users.

### Mounting

1. Loosen the cover-locking screw with the Allen wrench provided and remove the T7147 cover.
2. Run wire to the selected location.
3. Thread wire through T7147 base semicircular hole.
4. Make connections to T7147 (see Wiring section).
5. If air drafts occur through the wall opening, eliminate them with suitable insulation material.
6. Four mounting screws are provided:
  - a. 2 self-tapping type for wall mounting.
  - b. 2 for outlet box mounting.
7. Select the proper screws for the application.
8. Fasten the T7147 to the wall or outlet box with screws through the T7147 base assembly mounting holes. (See Fig. 3).
9. Replace the cover assembly and tighten the cover-locking screw.

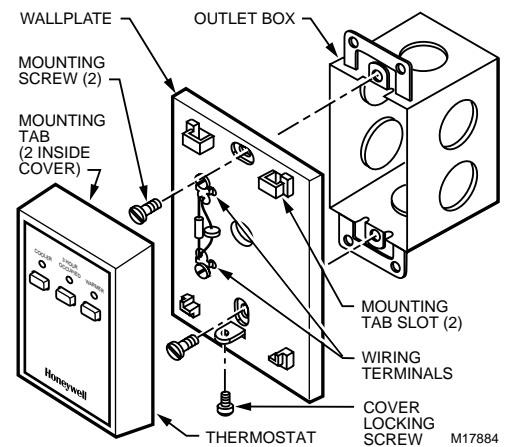


Fig. 3. Mounting the T7147.

## WIRING

### CAUTION

**Erratic System Operation Hazard.**  
**Failure to follow proper wiring practices can introduce disruptive electrical interference (noise).**  
 Keep wiring at least one foot away from large inductive loads such as motors line starters, lighting ballasts, and large power distribution panels.  
 Shielded cable is required in installations where these guidelines cannot be met.  
 Ground shield only to grounded controller case.

### IMPORTANT

*All wiring must comply with local codes and ordinances.*

### NOTES:

- Terminal screws are provided on the device for wiring connections.
  - Wiring to device is low voltage and need not be in conduit unless required by code.
1. Connect correct control wires from the Q7300 subbase to the T7147 (see Fig. 4 and 5).
  2. Ensure that Q7300 subbase switch 5 (local/remote sensor select switch) is in the OFF position. (Refer to the T7300/Q7300 Specification sheet, form 63-4038, for details).

### IMPORTANT

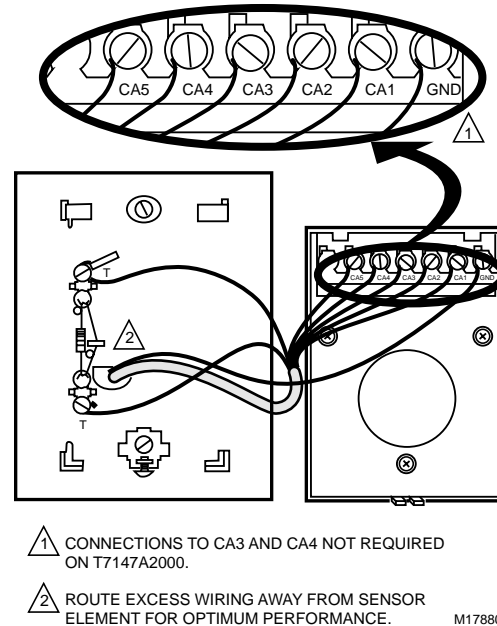
*The ground (GND) connection at the T7147 is required. Use the junction box or conduit for a convenient grounding location.*


3. Ensure all connections are tight and secure. Loose or intermittent wire connections cause inconsistent system operation.
4. When installation is complete, perform the checkout procedure (see the Checkout section).


## Averaging Sensors

When the controlled zone is a large area, it can be advantageous to use a T7147 and several remote temperature sensors dispersed throughout the area to obtain an average zone temperature signal. (See Fig. 6 and 7.)

NOTE: Only one T7147 can be used in any one T7300/Q7300 system.



 CONNECTIONS TO CA3 AND CA4 NOT REQUIRED ON T7147A2000.

 ROUTE EXCESS WIRING AWAY FROM SENSOR ELEMENT FOR OPTIMUM PERFORMANCE.

M17880

**Fig. 4. Connecting wires to T7147.**

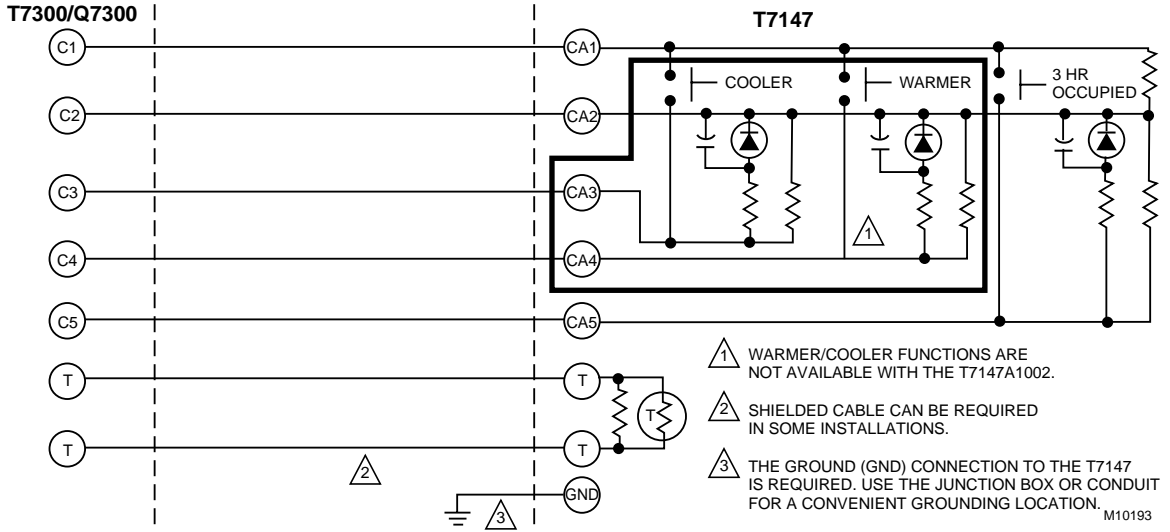


Fig. 5. Typical wiring diagram for T7147 used with T7300/Q7300 Thermostat/Subbase.

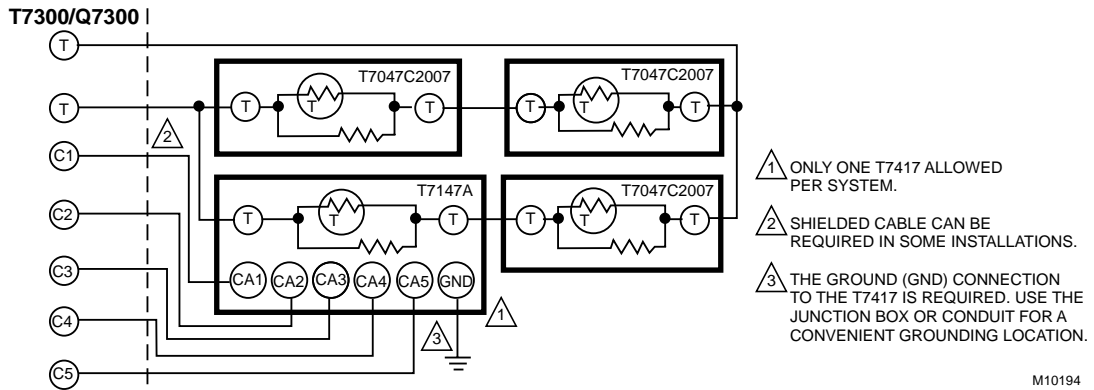


Fig. 6. Wiring for T7147 used in a four-temperature sensor averaging application.

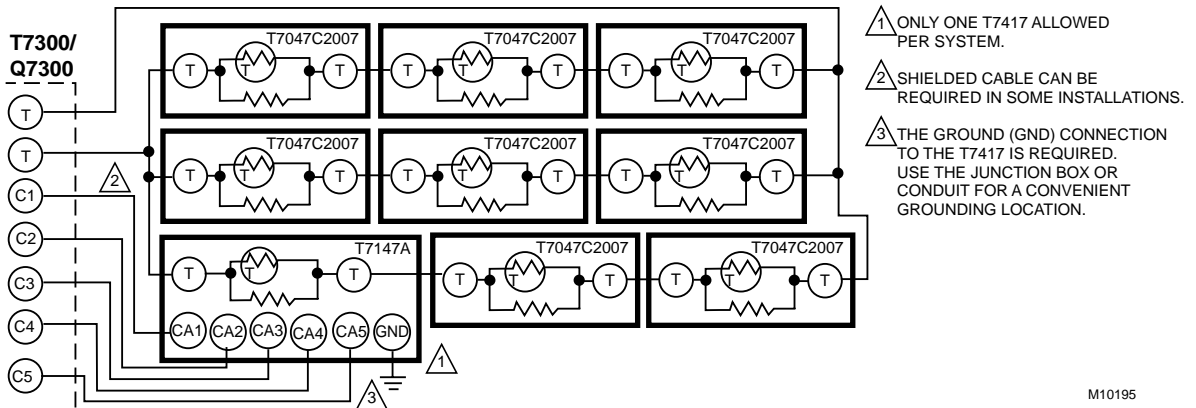


Fig. 7. Wiring for T7147 used in a nine-temperature sensor averaging application.

## OPERATION

### Sensor

The remote sensor control element is a negative temperature coefficient (NTC) thermistor. As room temperature increases, the resistance of the thermistor decreases. As room temperature decreases, the resistance of the thermistor increases. The T7300 detects the thermistor resistance change and controls the space temperature by sequentially staging the heating/cooling equipment on and off.

NOTE: The T7047C1025 uses the same sensor element.

### 3 Hour Occupied

When correctly wired, pressing the *3 Hour Occupied* key sends a signal from the T7147 to the T7300/Q7300. Upon receipt of this signal, the T7300/Q7300 proceeds into the 3 Hour Occupied override. In response, the T7300/Q7300 sends a signal back to the T7147 to turn on the 3 Hour Occupied LED. The 3 Hour Occupied LED remains on for the duration of the 3 hour override.

NOTE: For additional details, consult the T7300/Q7300 Specification sheet, form 63-4038.

### 3 Hour Setpoint Adjust

When wired correctly, pressing the *3 Hour Occupied* key, followed by the *Warmer* or *Cooler* key sends a signal from the T7147 to the T7300/Q7300. The T7300/Q7300, upon receipt of this signal, proceeds into the 3 Hour Setpoint Adjust override. In response, the T7300/Q7300 sends a signal back to the T7147 that turns on the 3 Hour Occupied LED and the appropriate *Warmer* or *Cooler* LED. The 3 Hour Occupied LED and *Warmer* or *Cooler* LED remains on for the duration of the 3 hour override.

This override may be performed at any time, regardless of whether the thermostat system is operating in the occupied or unoccupied mode.

#### NOTES:

- For additional details, consult the T7300/Q7300 Specification sheet, form 63-4038.
- Premature exit from either override can be achieved by pressing the *3 Hour Occupied* key again. The T7300 then returns to normal operation.

## CHECKOUT

1. Allow the sensor to stabilize to ambient conditions before taking a resistance measurement. The sensor resistance measurement should be in accordance with the device temperature curve (see Fig. 2).
2. Check operation of the *3 Hour Occupied* key:
  - a. Press the *3 Hour Occupied* key once.
  - b. The LED above the key turns on.
3. Go to the T7300 thermostat and check it to see that the display arrow indicator points to *3 Hr Occupied*.
4. On models with *Warmer* and *Cooler* keys:
  - a. Press the *Warmer* key once.
  - b. The LED above the *Warmer* key comes on.
  - c. Press the *Cooler* key.
  - d. The LED above the *Warmer* key turns off and the LED above the *Cooler* key turns on.
  - e. Press the *3 Hour Occupied* key once.
  - f. The LED above this key turns off, as well as those above either the *Warmer* or *Cooler* keys.
5. Go to the T7300 thermostat and check to see that the arrow indicator on the display no longer points to *3 Hr Occupied* and has returned to its currently programmed occupied or unoccupied period.

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

6. Check operation of the complete control system as directed in the T7300/Q7300 Specification sheet, form 63-4038.



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