

## T87F Easy-to-See™ Thermostats

### INSTALLATION INSTRUCTIONS

## APPLICATION

The Easy-to-See™ 24 Vac Thermostats are:

| Model | Application                             | Includes   |
|-------|---|--|
| T87F  | Heating or Heating/Cooling <sup>a</sup> | T87F3467/T87F5199 Thermostats and 137421A Wallplate. |

<sup>a</sup> For heating/cooling, order the Q539 Subbase, which provides System and Fan switches at the thermostat location.

The thermostat features a raised setpoint knob for easy adjustment, a cover ring with large embossed numbers for easy reading and an audible *click* with indents every two degrees as the dial is turned.



## MERCURY NOTICE

If this control is replacing a control that contains mercury in a sealed tube, do not place your old control in the trash. Dispose of properly.

Contact your local waste management authority for instructions regarding recycling and the proper disposal of an old control.

## INSTALLATION

### When Installing this Product. . .

1. Read these instructions carefully. Failure to follow them could 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

1. Disconnect power supply to prevent electrical shock or equipment damage.
2. To prevent interference with the thermostat linkage, keep wire length to a minimum and run wires as close as possible to the subbase.
3. Do not overtighten thermostat captive mounting screws, because damage to subbase threads can result.
4. Do not short across coil terminals on relay. This can burn out the thermostat heat anticipator.

### IMPORTANT

*An incorrectly leveled thermostat can cause the temperature control to deviate from setpoint.*

### Location

Install the thermostat between 4 ft (1.2m) and 5 ft (1.5m) above the floor. Locate in an area with good air circulation at average temperature.

**NOTE:** Due to the height restrictions of some disabled users, it may be necessary to lower the thermostat location to 4 ft (1.2m) above the floor.

Do not install the thermostat where it can be affected by:

- drafts, or dead spots behind doors and in corners.
- hot or cold air from ducts.
- radiant heat from sun or appliances.
- concealed pipes and chimneys.
- unheated (uncooled) areas such as an outside wall behind the thermostat.

This thermostat is a precision instrument and was carefully adjusted at the factory. *Handle it carefully.*

### Mount Wallplate or Subbase

#### IMPORTANT

*When using the thermostat with a Q539 Subbase, follow the mounting and wiring instructions furnished with the subbase.*

**NOTE:** To mount the thermostat on an outlet box, order 129044A Adapter Ring Assembly.



1. Hold wallplate in position and mark holes for anchors. See Fig. 1. Obtain wall anchors locally. Be careful that the wires do not fall back into the wall opening. Set aside the wallplate. Drill four 3/16 in. (4.6 mm) holes and gently tap anchors into the holes until flush with the wall.
2. Pull electrical wires through the wallplate opening. See Fig. 1.
3. Secure the wallplate with the screws provided. Do not fully tighten the screws.
4. Level the wallplate using a spirit level. See Fig. 1. Firmly tighten the mounting screws. The mounting holes provide for minor out-of-level adjustments.

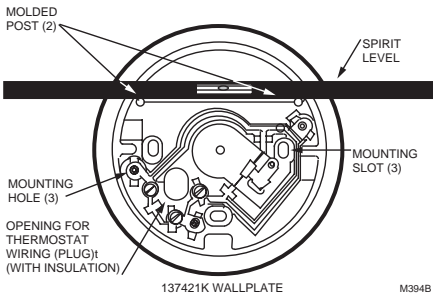


Fig. 1. Level wallplate before mounting thermostat.

### Wiring

All wiring must comply with local electrical codes and ordinances. Follow equipment manufacturer's wiring instructions when available.

The thermostat is adaptable to most two-wire and three-wire (series 10 spdt) 24 Vac to 27 Vac heating systems. To wire wallplate, proceed as follows:

1. Connect the system wires to the wallplate as shown in Fig. 2 through 6. A letter code is near each terminal for identification.
2. Firmly tighten each terminal screw.
3. Fit wires as close as possible to the wallplate. Push excess wire back into hole.
4. Plug hole with nonflammable insulation to prevent drafts from affecting the thermostat.

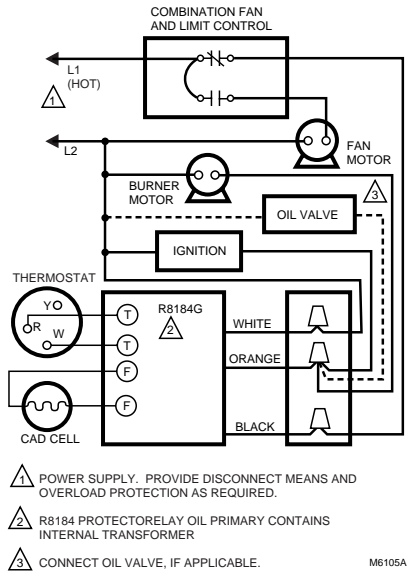


Fig. 2. Typical oil heating system.

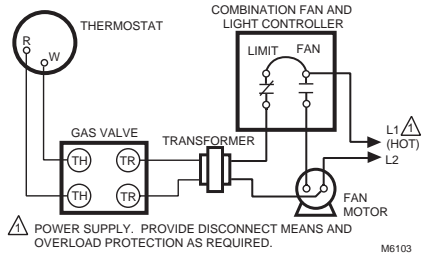


Fig. 3. Typical gas heating system.

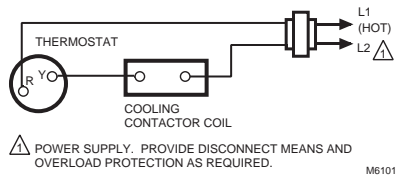


Fig. 4. Typical cooling only system. Note that R and Y terminals are used.

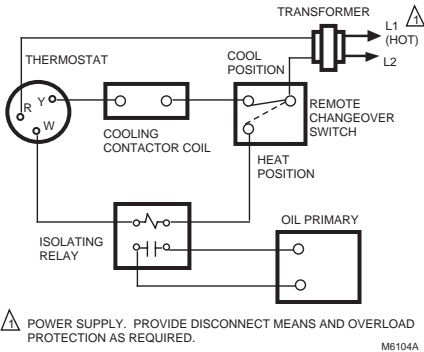


Fig. 5. Typical heating-cooling application using a remote-mounted system changeover switch.

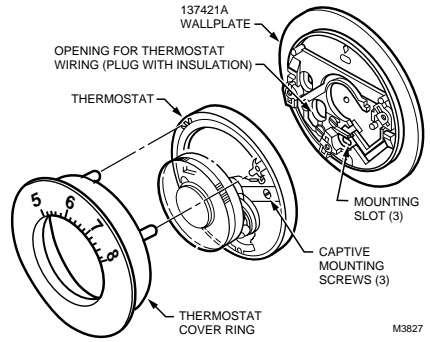


Fig. 7. Mounting thermostat and 137421A Wallplate.

## SETTINGS

### Heat Anticipator Setting

Move the heat anticipator indicator to match the current draw of the heating primary control, or the anticipator setting of the old thermostat. See Fig. 8. Indicator may be moved with fingers or pencil point through hole. If the current rating is not given, proceed as follows:

1. Remove the thermostat and have the power on.
2. Connect an ac ammeter of appropriate range between the heating terminals (R or R<sub>H</sub> and W) of the subbase or wallplate.
3. After one minute, read the ammeter and record the reading.
4. Set the anticipator to match the ammeter reading and mount the thermostat.

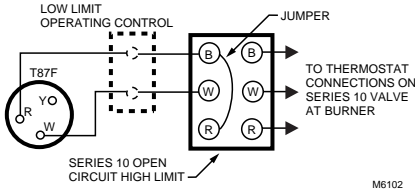


Fig. 6. Replacing a series 10 thermostat.

## Mount Thermostat

1. Remove the cover ring by pulling outward with fingertips, pressing lightly on the dial with thumbs.
2. Carefully remove and discard the polystyrene packing insert that protects the mercury switches during shipment.

### IMPORTANT

*Set the heat anticipator NOW. If set too low when mounted, it can burn out the heat anticipator when the heating system operates. See Settings section for instructions.*

3. Align the three captive mounting screws in the thermostat with the posts on the wallplate. See Fig. 7. These captive screws complete the electrical connections to the thermostat. Tighten the three screws. **Do not overtighten screws** or damage to the wallplate posts can result.

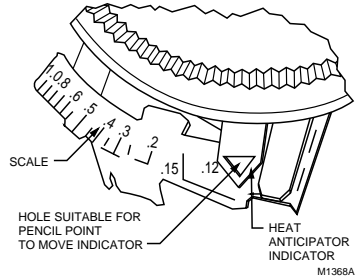


Fig. 8. Adjust heat anticipator to match current rating of the heating primary control.

**NOTE:** Move the indicator to a larger number (example: from .4 to .45) to lengthen the burn time and have fewer cycles per hour.

## Temperature Setting

Align the three posts of the cover ring with the three clips on the thermostat; press firmly. Turn the clear dial to the desired setpoint (upper scale). A *click* is heard and an indent felt every two degrees on the dial as the setpoint is adjusted. A deeper indent is felt at the 10 degree increment marks. The indents make it easier to adjust for energy savings and check the temperature setting.

The enlarged cover ring includes raised temperature markings every two degrees F. Large, raised 5, 6, 7 and 8 numbers identify the 50°F, 60°F, 70°F and 80°F setpoints.

## Mount Switch Labels

Attach the included switch labels when using a Q539 Subbase. See Fig. 9. The system switch and one of the two fan switch labels can be mounted on the decorative cover ring (if used) or on the wall as follows:

1. After the thermostat and subbase are installed, select the labels that read the same as the subbase.
2. Peel from the backing.
3. With the bottom edge of the label next to the subbase, align the dots on the label with the dots molded into the subbase.
4. Press firmly.

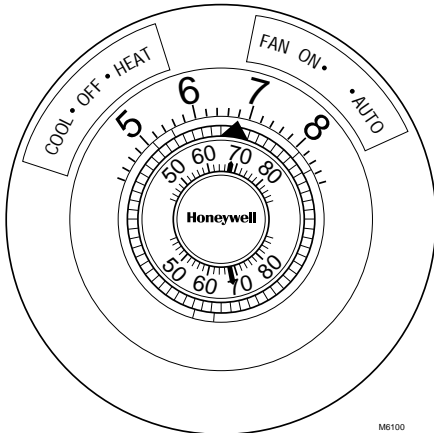


Fig. 9. Placing the Easy-to-See™ Subbase Switch labels.

## CALIBRATION

### Thermostat

The Easy-to-See Thermostats are accurately calibrated at the factory. If the thermostat is accurately leveled and still appears to be out of calibration, order 104994A Calibration Wrench. Instructions for recalibrating are included with the wrench.

## CHECKOUT

### Heating

Move the setpoint indicator to about 10°F (6°C) above room temperature. If using a Q539 Subbase, move the system switch to HEAT and the fan switch to AUTO. The heating equipment should start and the fan should run. Move the setting about 10°F (6°C) below room temperature. The heating equipment and fan should shut off.

### Cooling



## CAUTION

**Equipment Damage Hazard**  
Operating cooling below 50°F can damage the compressor.

If outside air or heat exchange medium (water) is below 50°F (10°C), do not operate cooling.

Move the setpoint indicator to about 10°F (6°C) below room temperature. If using a Q539 Subbase, move the system switch to COOL and the fan switch to AUTO. The cooling equipment should start and the fan should run. Move the setting about 10°F (6°C) above room temperature. The cooling equipment and fan should shut off.

### Fan

If using a Q539 Subbase, move the subbase system switch to OFF, and the fan switch to ON. The fan should run continuously. Move the fan switch to AUTO. In this position, fan operation is controlled by the heating or cooling system control circuit.

**NOTE:** Before leaving the installation, hang the large-print Homeowner's Guide from the thermostat. If user desires Braille Homeowner's Guide or additional information, instruct user to call 1-800-468-1502.

**Honeywell**

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