T822A,D,F,G; TS822A; and T8022D Low Voltage Thermostats

Application

T822A,D,F, TS822A, and T8022D Thermostats provide control of heating systems. T822G provides control of AC heating or cooling appliances.

The T822A two-wire switch thermostat provides low voltage control of heating systems and features a fixed heat anticipator.

The T822D and T8022D two-wire, mercury switch thermostat provides low voltage control of heating systems and features an adjustable heat anticipator.

The T822F three-wire, mercury switch thermostat provides low voltage control of heating systems and features an adjustable heat anticipator and AUTO-ON fan switching.

The T822G three-wire, mercury switch thermostat provides low voltage control of AC heating and cooling appliances and features an adjustable heating anticipator and nonadjustable cooling anticipator.

The TS822A two-wire, mercury switch thermostat provides millivoltage control of heating systems.

T822A,D; TS822A, and T8022D Thermostats are available with a positive OFF switch. All models are available with temperature range stops.

Recycling Notice

If this control is replacing a control that contains mercury in a sealed tube, do *not* place your old control in thetrash.

Contact your local waste management authority for instructions regarding recycling and the proper disposal of this control, or of an old control containing mercury in a sealed tube.

If you have questions, call Honeywell Inc. at 1-800-468-1502.

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*

Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.

LOCATION

Locate the thermostat about 5 ft [1.5 m] above the floor on an inside wall in an area with good air circulation at average temperature.

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

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

MOUNTING AND WIRING

Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.

All wiring must comply with local codes and ordinances.

T822A,D,F,G and TS822A Thermostats are designed to be mounted vertically on a wall or a vertical outlet box. T8022D is designed to be mounted horizontally on a wall.

In a 250 or 500 mV application, use No. 14 wire if possible and make the run as short as possible; remember this when selecting a location. For maximum wire lengths of a 750 mV application, see Table 1.

TABLE 1—WIRE LENGTH.

Wire Size	Max. Length 2-Wire Cable		Max. Combined Length 2-Single Wires	
	ft	m	ft	m
No. 18	30	9.0	60	18.0
No. 16	50	15.0	100	30.0
No. 14	80	24.5	160	40.0

1. In replacement applications, check the existing thermostat wires for cracked or frayed insulation. Replace any wires in poor condition. If the wire is plastered into the wall, make a hole next to the wires and loosen the wires so they can be pushed back into the wall later.

2. In new installations, run wiring (if necessary) to the thermostat location.

3. Connect the wires to the terminals on the back of the thermostat. See Figs. 1 through 6 for internal schematics and typical hookup diagrams.

4. Remove thermostat cover by pulling outward on bottom edge of cover until it snaps free of the thermostat base. Carefully remove and discard the foam plastic shipping insert. This insert protects the switch and bimetal assembly during shipping.

5. Set the adjustable heat anticipator indicator (T822D,F,G only) to match the current draw of the primary heating control (see Heat Anticipator Setting).

6. Push excess wire back through the hole and plug any opening with insulation to prevent drafts that may affect thermostat performance.

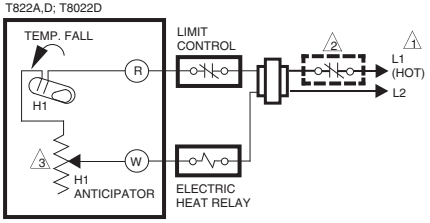
7. Loosely fasten the thermostat to the wall or outlet box with a screw through the top mounting hole. Do not tighten.

8. Level the thermostat exactly using a spirit level or plumb line. Tighten the mounting screws.

IMPORTANT: *An incorrectly leveled thermostat will cause the temperature control to deviate from setpoint.*

9. Replace the thermostat cover.

Fig. 1—T822A,D and T8022D in typical electric heating application.



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 ALTERNATE LIMIT CONTROL LOCATION.

3 T822D, T8022D ADJUSTABLE HEAT ANTICIPATOR SHOWN. T822A HAS A FIXED HEAT ANTICIPATOR.

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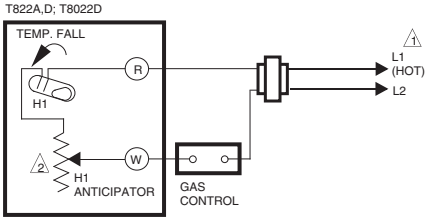
Fig. 2—T822A,D and T8022D in typical gas heating application.



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 T822D, T8022D ADJUSTABLE HEAT ANTICIPATOR. T822A HAS A FIXED HEAT ANTICIPATOR.

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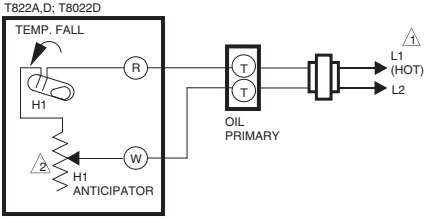
Fig. 3—T822A,D and T8022D in typical oil heating application.

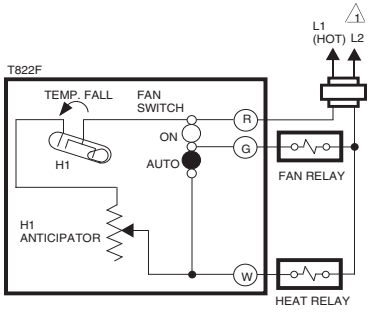


1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 T822D, T8022D ADJUSTABLE HEAT ANTICIPATOR SHOWN. T822A HAS A FIXED HEAT ANTICIPATOR.

M1184A

Fig. 4—T822F in typical heating application.



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

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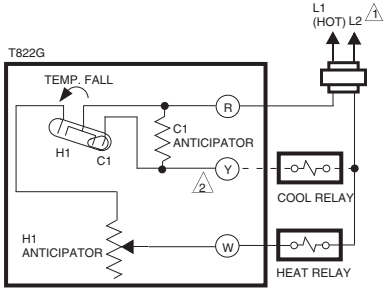
Fig. 5—T822G in typical heating or cooling application.

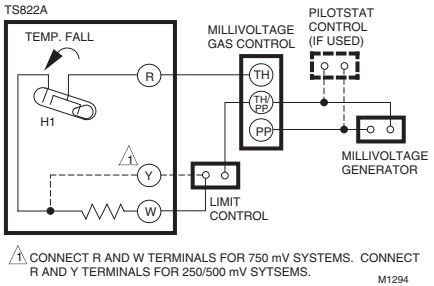


1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 USE EITHER "W" OR "Y" TERMINAL, BUT NOT BOTH.

M5512

Fig. 6—TS822A in typical millivoltage heating application.



1 CONNECT R AND W TERMINALS FOR 750 mV SYSTEMS. CONNECT R AND Y TERMINALS FOR 250/500 mV SYTSEMS.

M1294

Setting and Adjustment

TEMPERATURE SETTING

Move the temperature setting lever to the desired control point on the temperature scale. On positive off models, the control circuit is broken when the lever is moved to the extreme low end of the temperature scale. On models with temperature range stops, move the temperature setting lever only between the two temperature range stops.

HEAT ANTICIPATOR SETTING (T822D,F,G ONLY)

NOTE: Before Changing your heat anticipator setting, consult your installing contractor or equipment manufacturer. Heat anticipators on some models are factory set to the manufacturer's specifications.

IMPORTANT: *The T822D,F,G has an adjustable heat anticipator and operates properly ONLY IF THE ANTICIPATOR IS ADJUSTED TO MATCH THE CURRENT DRAW OF THE PRIMARY CONTROL. Use the T822D,F,G only on systems with current draws that fall within the range of the heat anticipator. Do not use this device on Powerpile (millivolt) Systems.*

A current rating is usually stamped in the nameplate of the primary control. Set the adjustable heat anticipator indicator to match the value given on the nameplate.

If current rating is not available, proceed as follows to determine the rating:

1. Turn off power.
2. Wire thermostat, except for connection to W terminal, but do not mount it on the wall.
3. Connect the ammeter between W wire and W terminal on the thermostat in series with the primary control.
4. Prepare the system for operation.
5. Turn on power.
6. Turn system switch to heat.
7. Increase thermostat setpoint as necessary to get system operating.
8. With the system operating through the ammeter, wait one minute, then read the ammeter.
9. Turn the system switch to OFF, and turn off power.
10. Adjust the heat anticipator to match the reading on the ammeter.
11. Disconnect the ammeter, reconnect the W wire, and mount the thermostat. Continue with system checkout.

NOTE: For best performance, the heat anticipator may require further adjustment. To lengthen burner-on time, move the indicator in the direction of the *longer* arrows—not more than one-half scale marking at a time. To shorten burner-on time, move indicator in opposite direction.

Checkout

⚠ *CAUTION*

Do not check thermostat operation by shorting across system control terminals. This damages the thermostat heat anticipator.

IMPORTANT: *The T822A,D,F, TS822A, and T8022D can only be installed in heating applications. Perform only steps 1 and 2. The T822G can be installed for either heating or cooling applications. If installed for heating, perform steps 1 and 2. If installed for cooling, perform step 6.*

1. Set T822F FAN switch to AUTO. Fan operation is controlled by the thermostat.
2. Move temperature setting lever about 10° F [6° C] above room temperature.
   - Gas or oil heating systems: heating starts immediately. Fan starts after short delay.
   - Electric heating systems: heating and fan start immediately.
3. Move temperature setting lever about 10° F [6° C] below room temperature.
   - Gas or oil heating systems: heating stops immediately. Fan stops after a short delay.
   - Electric heating systems: heating and fan stop immediately.
4. Set T822F FAN switch to ON. Fan runs continuously.
5. Set temperature lever and T822F FAN switch to the desired settings.

⚠ *CAUTION*

Do not operate T822G in cooling applications if the outdoor temperature is below 50° F [10° C]. Refer to the air conditioner manufacturer's recommendations.

6. T822G COOLING APPLICATIONS ONLY:

NOTE: To prevent compressor short cycling, install a five minute time delay. The time delay will not activate the compressor for five minutes after the thermostat turns off the compressor or for five minutes after the system receives power.

Move the temperature setting lever about 10° F [6° C] below room temperature. Cooling and fan should start immediately. Move temperature setting lever about 10° F [6° C] above room temperature. Cooling and fan should stop immediately.

RECALIBRATION

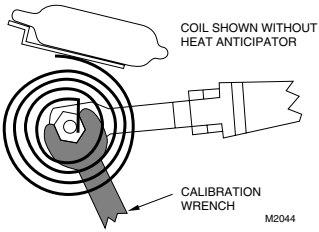
These thermostats are calibrated at the factory and should not need recalibration. If the thermostat seems out of adjustment, first check for accurate leveling. To check calibration, proceed as follows:

1. Move the temperature setting lever to the low end of the temperature scale.
2. Remove the thermostat cover. Move the setting lever until the switch just makes contact. The mercury in the switch will drop to the contact end of the tube.
3. Replace the cover and wait five minutes for the cover and the thermostat to lose the heat it has gained from your hands. If the thermometer pointer and the setting lever indicator read approximately the same, no recalibration is needed.

If recalibration appears necessary, proceed as follows:

1. Place the temperature setting lever at the same setting as the thermometer. Remove cover.
2. Insert 104994A Calibration Wrench (order separately) onto the hex nut under the coil. See Fig. 7. Holding the setting lever so it does not move, turn the wrench clockwise ↷ until the switch just breaks contact. Remove wrench and replace cover.
3. Move the setting lever to a low setting. Wait at least five minutes for temperature to stabilize.
4. Slowly move the setting lever until it reads the same as the thermometer.
5. Remove cover. Holding the setting lever so it does not move, reinsert wrench and carefully turn counterclockwise ↶ until the mercury just rolls to the left end of the tube, but *no farther*.
6. Recheck calibration. Set thermostat system switch for desired operation and replace the cover.

Fig. 7—Recalibration procedure.



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