

T4398A,B High Performance Electric Heat Thermostats

PRODUCT DATA



FEATURES

- Controls both fan-forced and baseboard electric heaters.
- Temperature-responsive, vapor-filled dual diaphragm sensing element provides 2°F (1°C) sensitivity with minimum droop.
- UL listed up to 5 kW at 277 Vac.
- Replaces virtually all standard wall-mounted line voltage thermostats.
- Includes long-lasting Micro Switch™ mechanism.
- Color-coded leads for easy installation.
- Cover thermometer indicates room temperature.
- Rugged, plastic mounting base.
- Contemporary white finish complements almost any decor.

GENERAL

The T4398A,B High Performance Electric Heat Thermostats provide precise line voltage control of resistance-rated electric heating equipment. Snap action switch makes heating circuit on temperature fall; T4398B models make double line break with setting knob at OFF position.

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SPECIFICATIONS

IMPORTANT

The Specifications given in this publication do not include normal manufacturing tolerances. Therefore, this unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed. For exact engineering specifications, contact your Honeywell sales representative.

TRADELINE® MODELS

TRADELINE models are selected and packaged to provide ease of stocking and handling and also maximum replacement value. TRADELINE model specifications are listed in Table 1.

Electrical Ratings (Noninductive Resistive Loads):

22A at 120/208/240 Vac; 19A at 277 Vac, 60 Hz.

Wiring Connections:

6 in. (150 mm) copper leadwires, suitable for connecting to aluminum wiring if approved special service CO/ALR connectors are used.

Sensing Element:

Vapor-filled dual diaphragm.

Temperature Setting Range:

50° to 80°F (10° to 25°C).

Thermometer Temperature Range:

50° to 90°F (10° to 30°C).

Differential:

2°F (1°C), nonadjustable.

Setpoint Adjustment:

Dial on front of thermostat.

Dimensions:

See Fig. 1.

Barometric Sensitivity:

1°F /500 ft (0.5°C/kPa).

Mounting:

Mount directly on vertical 2 x 4 in. outlet box, or on 4 x 4 in. outlet box with ring adapter (ordered separately), using 6-32 Robertson slotted screws.

Approvals:

Underwriters Laboratories Listed: File no. E47434, guide no. XAPX.

Canadian Standards Association Listed: File no. LR1322.

Accessories:

272804A Range Stop and Locking Screw Assembly: Includes locking cover screws, Tinnerman cilps, wrench and range stops—two plastic pins to insert inside cover for field-selection of minimum and maximum temperature settings.

Table 1. Thermostat Specifications.

Model Number	Switching	Temperature Rating °F (°C)	Finish	Includes
T4398A	Spst; makes single line break on temperature fall.	50 to 80 (10 to 25)	White	Cover thermometer, temperature range stops and locking cover.
T4398B	Dpst; makes double line break with setting knob at OFF position.	50 to 80 (10 to 25)	White	Cover thermometer, temperature range stops and locking cover.

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 or specify:

1. Model Number.
2. Switching.

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

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.

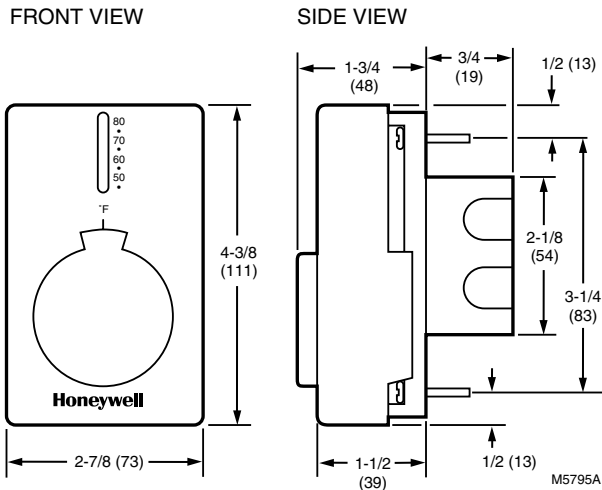


Fig. 1. T4398 approximate dimensions in in. (mm).



RECYCLING NOTICE

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

Contact your local waste management authority for instructions regarding recycling and the proper disposal of any control containing mercury in a sealed tube.

INSTALLATION

When Installing this Product...

1. Read these instructions carefully. Failure to follow these instructions could damage the product or cause a hazardous condition.
2. Check the ratings 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.



WARNING

**HIGH VOLTAGE CONTROL.
ELECTRICAL SHOCK HAZARD.**

Follow local codes and ordinances when installing this thermostat. Improper handling can cause serious injury or death.



CAUTION

1. Disconnect power supply to prevent electrical shock or equipment damage.
2. If connecting with aluminum conductors, use CO/ALR solderless wire connectors to avoid fire hazard.
3. Do not remove thermostat cover until wiring is complete to avoid damaging the sensing element.

Location

Install a vertical outlet box, which is used to mount the thermostat on, about 5 ft (1.5 m) above the floor in an area with good air circulation at room temperature.

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

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

Wiring and Mounting



CAUTION

1. Handle the thermostat with care to avoid damaging the sensing element or control.
2. Use a separate limit control in the heating appliance.

IMPORTANT

If locking cover feature is desired, insert the locking cover clip in the thermostat base before mounting the thermostat on the wall. See Fig. 7.

Replacement Applications

1. Disconnect power to thermostat to prevent electrical shock or equipment damage. All wiring must comply with local electrical codes and ordinances.
2. Remove the old thermostat from the wall, taking care not to damage the wiring insulation.
3. Check the old wire insulation for cracks, nicks or fraying. Apply approved electrical tape to insulate wires or replace wires as necessary.
4. Do not remove T4398 Thermostat Cover. Using wire connectors approved for No. 12 wires, make line voltage connections directly to leadwires on thermostat. See Figs. 2 and 3 for typical wiring connections.
5. Prebend and push solid wires into the outlet box.
6. Remove the thermostat cover by grasping the top and bottom edges and pulling outward away from the base.
7. Turn the setting dial so the indicator is at the 12 o'clock position to prevent damaging the sensing element when mounting the thermostat.
8. Mount the thermostat on the outlet box as shown in Fig. 4. Secure the thermostat by tightening the two mounting screws.

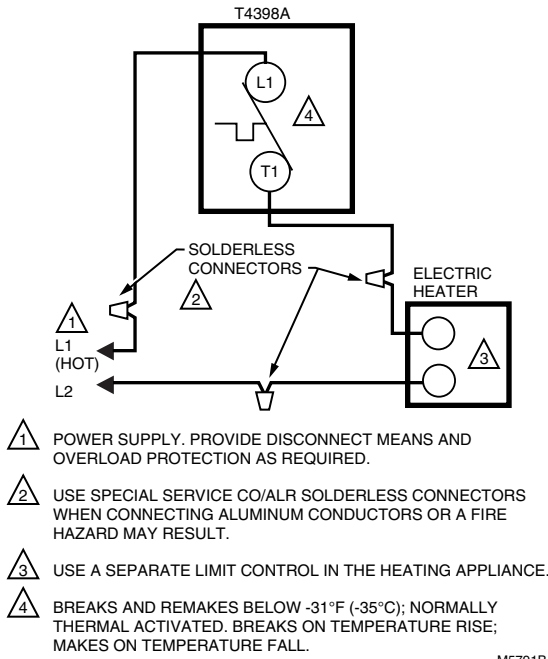


Fig. 2. Typical wiring connections for T4398A.

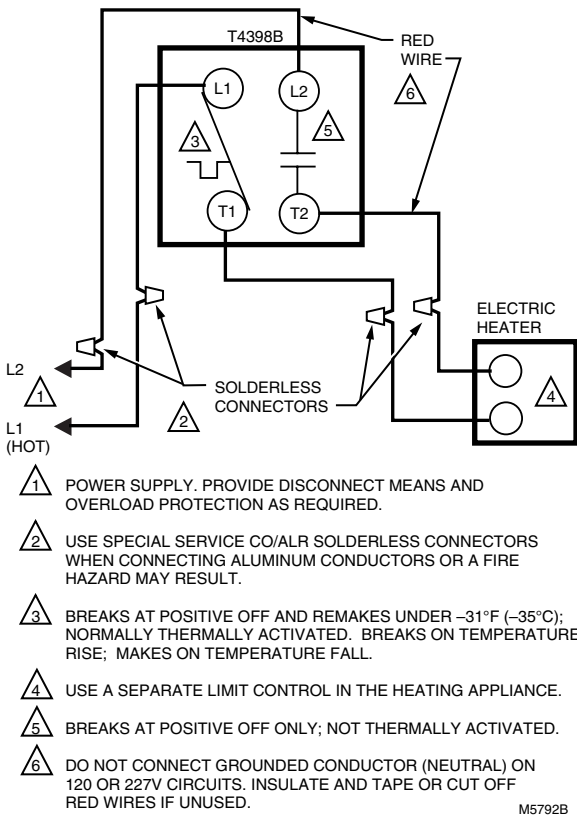


Fig. 3. Typical wiring connections for T4398B.

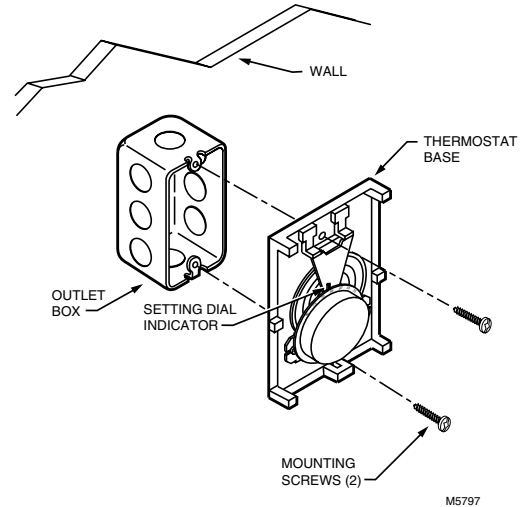


Fig. 4. Mounting thermostat to outlet box.

New Applications

- 1** Disconnect power supply to prevent electrical shock or equipment damage. All wiring must comply with local electrical codes and ordinances.
- 2** Run line voltage wiring to the thermostat location.
- 3** Do not remove T4398 Thermostat Cover. Using wire connectors approved for No. 12 wires, make line voltage connections directly to leadwires on thermostat. See Figs. 2 and 3 for typical wiring connections.
- 4** Prebend and push solid wires into the outlet box.
- 5** Remove the thermostat cover by grasping the top and bottom edges and pulling outward away from the base.
- 6** Turn the setting dial so indicator is at the 12 o'clock position to prevent damaging the sensing element when mounting the thermostat.
- 7** Mount the thermostat on the outlet box as shown in Fig. 4. Secure the thermostat by tightening the two mounting screws.

SETTINGS AND ADJUSTMENTS

Calibration

The T4398 Thermostats are calibrated at the factory using precise instruments under closely controlled conditions. Recalibration should not be necessary. Allow the thermostat to operate for several hours before checking calibration. The T4398 Thermostat vapor-filled dual diaphragm sensing element is affected by barometric pressure and altitude. Temperature deviations of 1°F (0.5°C) are normal. If the thermostat is mounted in a suitable location (as instructed in the Location section) and still appears out of calibration, check calibration as follows.

Check Calibration

- 1** Remove the thermostat cover and set it aside for several minutes because radiant heat from your hands will affect the thermometer reading.
- 2** Turn the setting dial clockwise until the switch makes (click sound). The heating equipment and fan start.
- 3** No recalibration is necessary if the thermostat switch makes with the thermostat setting at the same temperature as indicated on the thermostat cover thermometer.

- 4 If the thermostat setting differs from the thermometer, record the temperature difference and recalibrate as instructed in the Recalibration Procedure section.

Recalibration Procedure

- 1 Note the temperature difference between the thermostat setting and the thermometer.
- 2 Turn the setting dial clockwise until the switch makes (click sound).
- 3 Firmly hold the setting dial with one hand. Using the other hand, turn the outer scale ring counterclockwise until the 12 o'clock position of the scale ring is the same temperature as the cover thermometer. See Fig. 5.
- 4 Wait five minutes and recheck the calibration.

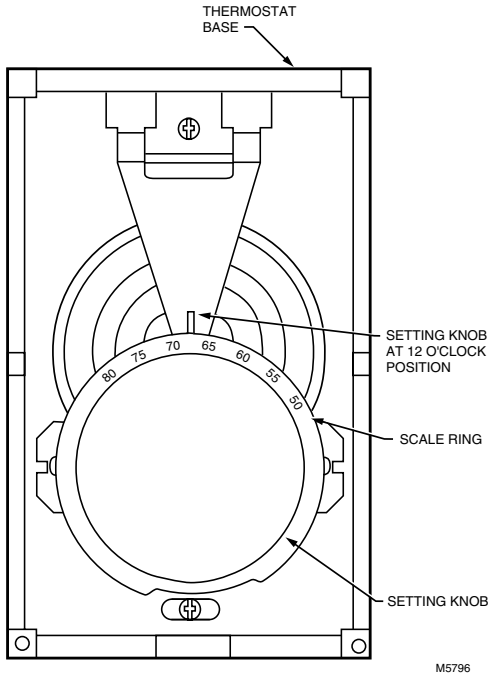


Fig. 5. Calibrating thermostat.

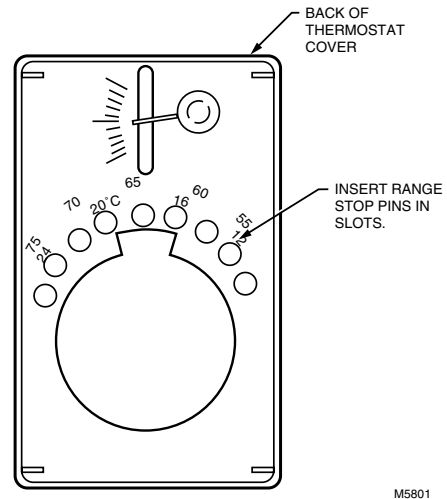


Fig. 6. Setting range stops.

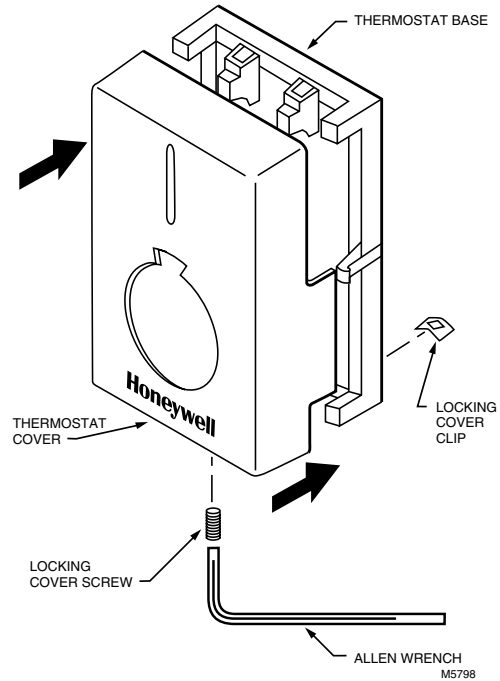


Fig. 7. Locking cover.

Setting Range Stops

Use the range stops, included, to limit the maximum and minimum temperatures that may be set.

- 1 Move the thermostat setting dial to the desired maximum temperature.
- 2 Remove the thermostat cover.
- 3 Insert the range stop pins in the desired minimum and maximum temperature setting positions on the back of the thermostat cover. See Fig. 6.
- 4 Make sure the pins are completely seated before replacing the thermostat cover.
- 5 Replace the thermostat cover and check the range stops.

Locking Cover

The thermostat cover may be locked using the locking cover screws included. Locking the cover prevents unauthorized tampering of the thermostat temperature setting.

- 1 Remove the thermostat cover.
- 2 Insert the locking cover clip (included) into the slot at the back of thermostat base as shown in Fig. 7.
- 3 Using the Allen wrench, insert the locking cover screw into the clip. Secure the screw in place until it is flush with the thermostat base.

CHECKOUT

IMPORTANT

Make sure that all wiring connections are secure before beginning checkout.

After thermostat installation is complete, check the operation as follows:

- 1 Move the thermostat setting knob clockwise until the switch makes (click sound); the electric heater starts.
- 2 Move the setting knob counterclockwise all the way; the switch breaks and the electric heater starts to cool.
- 3 Allow the thermostat to operate for several hours to determine the appropriate temperature setting. Adjust the setting as necessary. The precise temperature control of the T4398 allows the user to select a lower temperature setting, which saves energy while maintaining comfort.

OPERATION

The T4398 Thermostat provides precise temperature control of resistance-rated electric baseboard heating equipment with minimum droop. The T4398 controls room temperature within 2°F (1°C), regardless of the load of the baseboard heater.

The vapor-filled dual diaphragm sensing element is more sensitive to temperature changes than a bimetal sensor. This accuracy, usually associated with low voltage thermostats, is now available for line voltage control.

Electric heat thermostats are often affected by the heat generated in the control. Temperature control points can vary or *droop* 2° to 4°F (1° to 3°C) depending on the load demand. Temperature settings are adjusted to offset this. The T4398 provides precise control with minimum droop. This allows better control of room temperatures from day to night and season to season while saving energy.

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