T8024D Programmable Multistage Thermostat

TRADELINE®

The T8024 Programmable Multistage Thermostat provides electronic control of single-zone, multistage heating and cooling systems. First stage and second stage cooling cycle rates are fixed at 3 cph. Heating cycle rate is selectable. Temperature indication can be set for °F or °C.

The T8024 Thermostat is powered from the system transformer. Batteries are not required because setpoints are held permanently by non-volatile memory.

T8024 includes a thermostat, wallplate (for wiring and mounting thermostat) and owner’s guide.

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.

Contact your local waste management authority for instructions regarding recycling and the proper disposal 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 hazard-ous 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

Install the thermostat about 5 ft (1.5m) above the floor in an area with good air circulation at average temperature. See Fig. 1. 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 the 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.

Mounting Wallplate to Wall

IMPORTANT

Level only for appearance. The thermostat functions normally even when not level.

Mount wallplate, T8024 and the screws provided (see Fig. 2) as follows:
1. Place the wallplate at the desired location on the wall.
2. Pull the thermostat wire through the entrance hole on the decorator cover plate, then through the wall-plate entrance hole.
3. Select the two mounting holes that best fit the application.
4. Fasten the wallplate to the wall using the anchors and screws provided.
5. After wiring the wallplate, plug the hole to prevent drafts from affecting the thermostat; see Wiring section.
Fig. 1. Typical location of thermostat.

Fig. 2. Mounting wallplate to wall.

Wiring

**IMPORTANT**

Use an 18-gauge maximum wire for wiring the T8024 Thermostat.

All wiring must comply with local electrical codes and ordinances. Disconnect the power supply to prevent electrical shock or equipment damage.

**NOTE:** To ensure proper mounting of thermostat, restrict all wiring to the shaded area. See Fig. 3.

The shape of the terminals permits insertion of straight or wraparound wiring connections; either method is acceptable. See Fig. 4.

The T8024 Thermostat is powered through the system transformer and is adaptable to most 24 Vac multistage heating-cooling systems. Refer to Fig. 5 for typical wiring hookups.

Fig. 3. Restrict wiring to shaded area.
Mounting Thermostat to Wallplate
1. Engage the tabs at the top of the thermostat and wallplate.
2. Swing down the thermostat and press the lower edge of the thermostat onto the wallplate to latch. See Fig. 6.

OPERATION

Setting FAN and SYSTEM Switches
Fan and system settings are controlled manually by using the switches located at the bottom of the thermostat case. See Fig. 7.

FAN Switch
Fan switch settings are:
- On: The fan runs continuously. Use for improved air circulation and air quality.
- Auto: Normal setting for most homes. In cooling, the fan starts and stops with the cooling equipment. In heating, the fan is controlled directly by the heating equipment and may start a few minutes after the heating equipment turns on (on most systems). When using an electric heat thermostat, the fan starts and stops with the heating equipment.

SYSTEM Switch
System switch settings control thermostat operation as follows:
- Cool: The thermostat controls the cooling system.
- Off: Both heating and cooling are off.
- Heat: The thermostat controls the heating system.
Slide the SYSTEM switch in the bottom right corner of the thermostat to select the desired system setting.

**Fig. 7. Digital display and system switches (FAN and SYSTEM).**

### INSTALLER SETUP

#### Setting °F/°C Indication and Heat Cycle Rate

The following instructions provide information to change the heating cycle rate to match the heating equipment and to choose either Fahrenheit (°F) or Celsius (°C).

**NOTE:** All four steps must be completed to save changes to °F/°C indication and heat cycle rate.

1. Enter Installer Setup.
   a. Use ▲ or ▼ key to set the temperature setpoint to 52°F (11°C).
   b. Press the ▲ and ▼ keys simultaneously for more than two seconds to enter installer setup.
   c. When released, a software revision code is displayed.
   d. Press the ▲ key. Factory configuration (FC) is displayed. A typical example is shown, but information displayed varies by model. This information is for factory use only.

2. Setting °C or °F.
   a. Press the ▲ key again to display the current setting.
   b. Press the ▼ key to change the °C or °F indication.

3. Setting Number of Cool/Heat Stages (T8024 only).
   a. Press ▲ to display number of cooling stages.

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**OPTIONAL SYSTEM CHECKOUT**

When in steps 1c and 1d only, pressing the ▼ key can be used to turn heat or cool outputs on and off. Change the SYSTEM switch setting to test heat or cool outputs. No action takes place if the system switch is in the Off position.

Examples: System setting at HEAT. If heat is on, pressing the ▼ key turns it off; if heat is off, pressing the ▼ key turns it on.

System setting at COOL. If cool is on, pressing the ▼ key turns it off; if cool is off, pressing the ▼ key turns it on. The five minute minimum off time is bypassed.

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**CAUTION**

Equipment Damage Hazard. Can short equipment. Allow compressor to remain off for 5 minutes before restarting. Refer to manufacturer recommendations.

**NOTE:** In Installer Setup only, each press of the ▲ key momentarily displays 1. Each press of the ▼ key momentarily displays 2. When the keys are released, these one-digit codes are no longer displayed.
5. Exit Installer Setup.
   a. Press the ▲ key to save all changes and return to normal operation.

Table 1. Heating Cycle Rates for Stage-Two Heating.

<table>
<thead>
<tr>
<th>System</th>
<th>Cycles Per Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam, gravity</td>
<td>1</td>
</tr>
<tr>
<td>Hydronic heat, condensing gas furnaceb</td>
<td>3</td>
</tr>
<tr>
<td>Special applicationsb</td>
<td>4.5</td>
</tr>
<tr>
<td>Gas or oil forced air (default)</td>
<td>6</td>
</tr>
<tr>
<td>Electric heat</td>
<td>9</td>
</tr>
<tr>
<td>Special applicationsb</td>
<td>4, 5, 12</td>
</tr>
</tbody>
</table>

*High efficiency furnace.
bRefer to equipment manufacturer’s instructions.

PROGRAMMING

The thermostat is flexible and can be programmed for different schedules for weekdays and weekends.

Four time periods are available during weekdays and weekends — WAKE, LEAVE, RETURN, and SLEEP.

IMPORTANT Always press the keys with your fingertip or similar blunt tool. Sharp instruments like pens and pencil points can damage the keyboard.

Setting the Current Time and Day

1. To set current time.
   a. Press Select twice.
   b. Press ▲ or ▼ to set current time.

NOTE: While setting the current time, the word SET is displayed.

2. To set day of week.
   a. Press Select again.
   b. Press ▲ or ▼ to set current day.

To use the preprogrammed time and temperature (see Table 2), press Hold to exit the programming mode. For instructions on programming the thermostat, refer to the Owner’s Guide.
Table 2. Preprogrammed Time and Temperature Settings.

<table>
<thead>
<tr>
<th>Period</th>
<th>Time</th>
<th>Heat Setpoint</th>
<th>Cool Setpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAKE</td>
<td>6:00 AM</td>
<td>70°F (21°C)</td>
<td>78°F (26°C)</td>
</tr>
<tr>
<td>LEAVE</td>
<td>8:00 AM</td>
<td>62°F (17°C)</td>
<td>85°F (29°C)</td>
</tr>
<tr>
<td>RETURN</td>
<td>6:00 PM</td>
<td>70°F (21°C)</td>
<td>78°F (26°C)</td>
</tr>
<tr>
<td>SLEEP</td>
<td>10:00 PM</td>
<td>62°F (17°C)</td>
<td>85°F (29°C)</td>
</tr>
</tbody>
</table>

CHECKOUT

Heating
1. Slide the SYSTEM switch to Heat and the FAN switch to Auto.
2. Press and hold the ▲ key to raise the temperature setting several degrees above the room temperature. After approximately ten seconds, the heating equipment should start. In conventional systems, the system turns on the fan through the use of a time delay relay or through a limit control. When using an electric heat thermostat, the fan starts immediately.
3. Press the ▼ key to lower the temperature setting below the room temperature. Heating equipment should stop.

CAUTION
Low Temperature Hazard.
Operating at too low of an outdoor temperature may cause compressor damage. Do not operate cooling if outdoor temperature is below 50°F (10°C). Refer to manufacturer’s recommendations.
• Allow compressor to remain off for five minutes before restarting.

1. Slide the SYSTEM switch to Cool and the FAN switch to Auto.
2. Press the ▼ key to lower the temperature setting several degrees below the room temperature. After approximately five minutes, the cooling equipment should start. The fan starts and stops with the cooling equipment.
3. Press the ▲ key to raise the temperature setting above the room temperature. Cooling system should shut down.

NOTE: To bypass the 5 minute delay, see the Optional System Checkout section.

Fan
1. Slide the SYSTEM switch to Off and the FAN switch to On. The fan should run continuously.
2. Slide the FAN switch to Auto. In heating, the fan is controlled directly by the heating equipment and may start a few minutes after the heating equipment turns on (on most systems). When using an electric heat thermostat, the fan starts and stops with the heating equipment. In cooling, the fan starts and stops with the cooling equipment.

Make certain all equipment responds properly to the thermostat.