

# Programmable Load Management *ExpressStat* Thermostat



Weekday/Weekend  
(5-day/  
Saturday/Sunday)  
Programmable  
T7512A,B

**USER'S GUIDE**



69-1575

Welcome to the world of comfort and energy savings with your new Honeywell Programmable Load Management Thermostat.

This thermostat allows full weekday/weekend programming so you can set the thermostat to control the temperature in your home according to your personal schedule and preferences. When programmed according to the instructions in this guide, the features available with this thermostat will not only keep you comfortable, but will also save you energy.

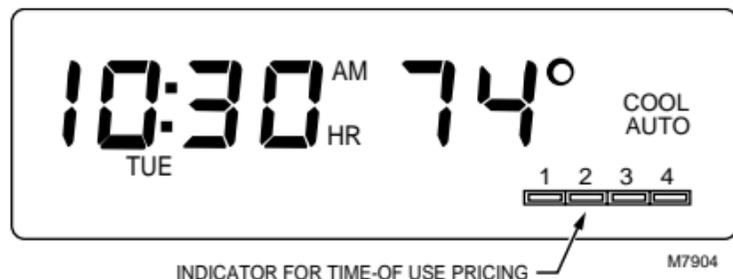
In addition to being programmable, this thermostat also contains a communications module. This module allows your utility company to communicate with your thermostat to

take advantage of special programs you can subscribe to that can further increase your energy savings.

These special programs can include one or both of the following:

**Time-of-Use Pricing.** If your utility offers Time-of-Use Pricing rates, this thermostat will communicate with the utility to inform you of the rate in effect at any given time. The rate that is in effect is indicated on the thermostat display as shown in Fig. 1. A special feature of this thermostat allows you to set an offset temperature that automatically adjusts your energy use for each rate. This typically involves control-

ling your home at a higher temperature during the cooling season and a lower temperature during the heating season.



**Fig. 1. Time-of-use pricing indicator.**

**Direct Load Control.** If your utility offers Direct Load Control (DLC), this thermostat can be controlled by your utility to limit your cooling and heating use during peak demand times. When your thermo-

stat is under DLC, the word SAVING is displayed on the thermostat. See Fig. 2.

You must subscribe to these programs before your utility company can communicate with your thermostat. If you have any questions concerning the application of this thermostat or these special programs and features, please contact your local utility.



**Fig. 2. Savings indicator.**

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## RECOVERY FROM SETBACK

The term *recovery* refers to the process the thermostat uses to operate the heating or cooling equipment to return the house from the energy savings setting you selected for when you are away or asleep to the temperature you prefer when you are home and awake.

This thermostat uses a recovery process that turns your heating/cooling equipment on or off at the time you program the temperature to change. For example, if you program the thermostat's heating program to 72°F at 6:00 AM, the heating equipment will come on at 6:00 AM and begin warming the house to 72°F. If

you want the temperature in the house to be 72°F at 6:00 AM, you should program the thermostat to an earlier time; for example, 5:30. (The exact amount of time it takes your home to warm or cool to the temperature you want depends on many factors such as the size of your heating/cooling equipment and the outdoor temperature.)

If this thermostat is for a heat pump system, the thermostat uses an algorithm when recovering from setback that helps reduce the use of auxiliary heat.

# PROGRAMMING YOUR THERMOSTAT

## **IMPORTANT**

*Batteries must be installed to maintain time and date in the event of power loss.*

You will find it helpful to complete the Personal Programming Charts on the following pages before you begin programming the thermostat.

Plan your program schedule of time and temperature settings for various times of the day by filling in the boxes in the Personal Programming Charts. There are four time periods available for weekdays, Saturday, and Sunday—WAKE, LEAVE, RETURN, and

SLEEP on the T7512A,B Thermostats. These periods can be displayed individually on the thermostat as you press the **WEEKDAY SCHEDULE** or **WEEKEND SCHEDULE** keys. You may want to enter a different schedule for the cooling and the heating seasons.

WAKE is the time you get up. Generally you want the house at a comfortable temperature when you wake up and get ready to go to work or school. Set the WAKE time earlier than your alarm clock so the house has time to warm up or cool down before you get up.

LEAVE is the time you leave for work or school. Generally, once you leave the house, you want the temperature higher or lower (depending on the season) so that you can save energy while you are away.

RETURN is the time you return from work or school. Once again, you want the house at a comfortable temperature when you return and go about the normal activities of your day before bedtime. Set the RETURN time earlier than the time you actually get home so the house has time to warm up or cool down before you get there.

SLEEP is the time you usually go to sleep. While you are sleeping, you can save energy by setting the thermostat to control the temperature higher or lower (depending on the season). For more comfortable sleeping, some people choose not to raise the cooling temperature at night.

If you decide not to program the thermostat, it automatically controls heating and cooling temperatures as follows:

Starting at 6:00 AM every day, the thermostat sets the heating temperature to 68° and the cooling temperature to 76°F.

At 10:00 PM every night, the thermostat sets the heating temperature back to 60°F; the cooling temperature remains at 76°F.

You do not need to enter a time and temperature program for every period if your schedule does not require it. For example, if your house is occupied during the day on weekdays, you can program only the WAKE and SLEEP times.

**NOTE:** Temperatures cannot be set any higher than 88°F or any lower than 45°F.

## Personal Programming Charts

### Cooling Schedule (for Summer Use):

| Schedule | Time Period | Time | Cooling Temperature |
|----------|-------------|------|---------------------|
| Weekday  | WAKE        |      |                     |
|          | LEAVE       |      |                     |
|          | RETURN      |      |                     |
|          | SLEEP       |      |                     |
| Saturday | WAKE        |      |                     |
|          | LEAVE       |      |                     |
|          | RETURN      |      |                     |
|          | SLEEP       |      |                     |
| Sunday   | WAKE        |      |                     |
|          | LEAVE       |      |                     |
|          | RETURN      |      |                     |
|          | SLEEP       |      |                     |

## Heating Schedule (for Winter Use):

| Schedule | Time Period | Time | Heating Temperature |
|----------|-------------|------|---------------------|
| Weekday  | WAKE        |      |                     |
|          | LEAVE       |      |                     |
|          | RETURN      |      |                     |
|          | SLEEP       |      |                     |
| Saturday | WAKE        |      |                     |
|          | LEAVE       |      |                     |
|          | RETURN      |      |                     |
|          | SLEEP       |      |                     |
| Sunday   | WAKE        |      |                     |
|          | LEAVE       |      |                     |
|          | RETURN      |      |                     |
|          | SLEEP       |      |                     |

If you subscribe to Time-of-Use Pricing, use the following table to plan the offset values you will enter for each Time-of-Use Pricing rate, use a numerical value as described in Enter Offset Values. You should enter a different offset value for the heating and cooling seasons, see chart. You do not need to enter an offset for rate 1.

| Offsets for Cooling Season (+) |        |        | Offsets for Heating Season (-) |        |        |
|--------------------------------|--------|--------|--------------------------------|--------|--------|
| Rate 2                         | Rate 3 | Rate 4 | Rate 2                         | Rate 3 | Rate 4 |
|                                |        |        |                                |        |        |

Before programming the thermostat, remove the clear plastic overlay that covers the display. When pressing the keys, use the ball of your finger or a soft pencil eraser; using sharp fingernails or pencil points can damage the keypad. If you make a mistake during programming, press the **Run Program** key and reprogram the time, temperature, or offset value with the error.

## Step 1—Set the Current Time/Day

To set the time, press and release the **Set Clock/Day** key once. Press **Ahead** or **Back** keys until the current time is displayed. To set the day, press and release the **Set Clock/Day** key again. Press **Ahead** or **Back** keys until the

current day is displayed. After you have set the time and day, press the **Run Program** key.

## Step 2—Enter the Program Schedules

### Entering a Heating Schedule

Refer to your Personal Programming Charts and proceed as follows:

Press the **System** key until the thermostat displays the word HEAT to indicate you are in the heating mode. Press and release the **Weekday Schedule** key once. The words WAKE, MON...FRI and SET appear on the display.

Press the **Ahead** or **Back** keys to set the weekday WAKE time from your Personal Programming Charts. Press the **Warmer**

or **Cooler** keys to set the weekday WAKE temperature from your Personal Programming Charts.

Repeat the above sequence for the other weekday schedules: LEAVE, RETURN, and SLEEP.

Press the **Weekend Schedule** key until SAT, WAKE and SET appear on the display. Set the WAKE, LEAVE, RETURN and SLEEP schedules for Saturday just as you did for the weekdays.

Press the **Weekend Schedule** key again so that SUN, WAKE and SET appear on the display. Set the WAKE, LEAVE, RETURN and SLEEP schedules for Sunday just as you did for the weekdays and Saturday.

### Enter Offset Values

Enter the offset value for each Time-of-Use Pricing rate using the **Offset** key. You can enter offset numbers only if you are a subscriber to Time-of-Use Pricing.

The offset value you enter is the number of degrees you are willing to allow the heating or cooling temperature you have already programmed for normal operation to change so you can save money at each rate. For example, if you normally want your home heated to 72° when rate 1 is in effect, but are willing to let your home cool to 70° when rate 2 is in effect, your heating offset value for rate 2 is -2 (72° - 2° = 70°). If you do not enter an offset, the offset is 0°. The first time you press the **Offset** key, the

offset for rate 1 is displayed (note the indicator on the thermostat display as shown in Fig. 1). Use the **Warmer** and **Cooler** keys to set the offset value. Repeat the procedure for each rate. After you have entered the last offset value, press the **Run Program** key.

### Entering a Cooling Schedule

Press the **System** key until the thermostat displays the word COOL to indicate you are in the cooling mode.

Enter cooling temperatures for the WAKE, LEAVE, RETURN and SLEEP times by following the same instructions as for Entering a Heating Schedule above. If you subscribe to

Time-of-Use Pricing, enter offset values for the cooling season as you did for the heating season.

## Step 3—Set the System and Fan Controls

After programming the thermostat, set the system and fan controls as follows:

### System Control

If you have a conventional heating/cooling system, the system can be set to: HEAT, COOL or OFF. If you have a heat pump system, the system can be set to: HEAT, EM. HEAT, COOL or OFF.

You can change the system setting by pressing the **System** key. Each time you press the key, the system status changes to the next setting.

The status of the system is as follows when the associated indicator is displayed:

**HEAT:** The thermostat will control your heating system according to the schedule you programmed (heat pump in heating mode).

**EM. HEAT:** The thermostat will disable the heat pump and control the emergency heater element according to the schedule you programmed.

**COOL:** The thermostat will control your air conditioning system according to the

schedule you programmed (heat pump in cooling mode).

**No status:** Both the heating and air conditioning systems are off (heat pump off) displayed.

### **Fan Control**

There are two fan settings: AUTO and ON.

Set the fan at the setting you want by pressing the **Fan** key. Each time you press the key, the fan status changes to the next setting.

When FAN is displayed, the fan is on continuously. Use this setting for improved air circulation during special occasions or for more efficient electronic air cleaning.

When nothing is displayed, the fan is in AUTO mode (it comes on with the heating or cooling equipment, as needed). AUTO is the normal setting for most homes and allows a single-speed fan to turn on automatically with the air conditioner or furnace. If you have a two-speed fan, it usually runs on high with the air conditioner and on low with the furnace.

### **Step 4—Start the Thermostat Program**

To start the thermostat using the program you have just entered, press the **Run Program** key.

## **OPERATING YOUR THERMOSTAT**

Normally you want your thermostat to run according to the program you entered; however, you can also change your program to perform the following operations.

**NOTE:** The system control must be set to HEAT or COOL to perform the following operations.

### **Temporarily Change Temperature Setting for the Current Period Only**

Press the **Warmer** or **Cooler** key until the temperature you want is displayed. The temporary setting stays in effect only until the next scheduled program change. (If you

subscribe to Time-of-Use Pricing, it stays in effect only until the next rate change.) To cancel the temperature change, press the **Run Program** key. When a temporary temperature is in effect, the display alternates between the time/temperature and the temporary setting.

### **Hold a Temperature Indefinitely**

You could find this operation useful when you go out of town on business or on vacation. Press the **Hold Temp** key and then set the temperature using the **Warmer** or **Cooler** keys. This temperature stays in effect until you press the **Run Program** key.

### **Check the Current Temperature Setting**

To check the current (programmed) temperature setting, press the **Present Setting** key. Then verify the setting you selected.

### **Check the Programs You Entered**

Press the **Weekday Schedule** or **Weekend Schedule** key. Each time you press the key, the next program schedule is displayed. You can use this feature to verify that you correctly entered the program as shown in your Personal Programming Charts.

### **Cancel a Program**

You can cancel a program by pressing the **Weekday Schedule** or **Weekend Schedule**

key until the program you want to cancel is displayed; then press the **Clear** key.

NOTE: You cannot cancel the WEEKDAY WAKE program.

### Check Usage

This thermostat keeps a record of the current and accumulated on-time of your heating and cooling equipment. It tracks *current day* usage (since midnight) and *accumulated* usage (since the accumulator was last cleared). If you subscribe to Time-of-Use Pricing, the thermostat records usage for each rate.

To view heating or cooling equipment usage, press the **System** key to display HEAT or

COOL, then press the **Usage** key. Each time you press the **Usage** key, the thermostat displays the next usage value. The HR and MIN segments are lit and the display shows the numerical value for each.

If you do not subscribe to Time-of-Use Pricing, the thermostat displays current usage the first time you press the **Usage** key and accumulated usage the next time you press the **Usage** key.

If you subscribe to Time-of-Use Pricing, there are eight usage values that can be displayed. The first time you press the **Usage** key, the thermostat displays the current usage value for rate 1. Each time you press the **Usage** key

again, usage values for rates 2, 3 and 4 , respectively, are then incrementally displayed. If you continue to press the **Usage** key, accumulated usage values are repeated for rates 1 through 4.

Press the **Run Program** key to stop viewing usage.

Current day usage is automatically cleared at midnight. To clear an accumulated value, press the **Usage** key until the value you want to clear is displayed and then press the **Clear** key. If you subscribe to Time-of-Use Pricing, your utility can also clear the accumulators by sending a message to the thermostat.

### **Permanently Change a Program**

To permanently change a program, repeat the appropriate steps in Programming Your Thermostat.

### **Return to Normal Program or Start Program**

Any time you want to return to the normal program or start the program, press the **Run Program** key. If you temporarily changed the temperature or you used the **Hold Temp** key, pressing the **Run Program** key will cancel your change.

### **Change Fan or System Control Settings**

Change the fan setting by pressing the **Fan** key. Each time you press the key, the fan status changes to the next setting. When FAN is

displayed, the fan is on continuously. When nothing is displayed, the fan is in AUTO mode (it comes on with the heating or cooling equipment, as needed).

Change the system setting by pressing the **System** key. Each time you press the key, the system status changes to the next setting.

## THERMOSTAT OPERATION WHEN SPECIAL PROGRAMS ARE IN EFFECT

Normally your thermostat operates as you programmed it. If you subscribe to either of the following special programs, there may be times when it does not operate as you expect. Before calling for service, read the following information.

### **Direct Load Control (DLC)**

When the thermostat is operating under DLC, the amount of time your heating/cooling system can operate is controlled by radio signal from

your utility company. If you notice the temperature in your home is higher or lower than the setting you programmed into the thermostat, check the thermostat display. To indicate the equipment is under DLC, the thermostat displays the word SAVING. You cannot control the heating/cooling equipment when it is under DLC.

When the utility releases your thermostat from DLC, your heating or cooling equipment may not be immediately available. To prevent damage to your heating and cooling equipment and to allow the utility to bring the equipment on-line effectively of all homes that subscribe to DLC, your thermostat automatically calculates

and initiates a time delay before the heating or cooling equipment comes on. You cannot override this time delay.

### **Time-of-Use Pricing**

If you subscribe to Time-of-Use Pricing, the thermostat displays the rate in effect, see Fig. 1. You cannot adjust which rate is in effect; you can only adjust the temperature offset value for each rate. Refer to Programming Your Thermostat section for information on setting the offset value for Time-of-Use Pricing. To notify you a rate change will be occurring, the Time-of-Use indicator on the thermostat begins blinking one-half hour before the rate change takes effect.

When a rate change message is received by the thermostat, your heating/cooling system automatically operates at the temperature and offset value you programmed. You cannot temporarily override the offset. If you need to change the offset, refer to Programming Your Thermostat.

For additional information about either of these programs, contact your utility company.

## REPLACING THE THERMOSTAT BATTERIES

### **IMPORTANT**

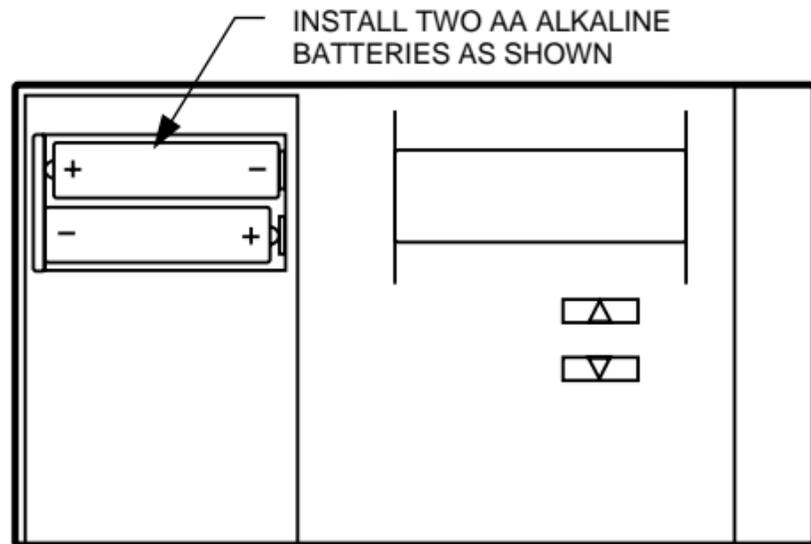
*Batteries must be installed to maintain the time and date in the event of a power loss. Although the thermostat has a low battery indicator, replace the batteries once every two years to prevent the thermostat from losing its time/date information in the event of a momentary power loss.*

As the batteries run low, the display shows **bAt Lo**. This low battery indication flashes for one to two months before the batteries run out

completely. Replace the batteries as soon as possible after the indicator starts flashing.

You will need two AA alkaline batteries; non-alkaline batteries will not last as long, and can leak, causing damage to the thermostat or the wall surface. We recommend Energizer® batteries.

- Use a coin to carefully remove the battery door.
- Press down on the left ends of the batteries to remove them.
- Install the fresh batteries as shown in Fig. 3. Make sure positive and negative terminals are oriented correctly.
- Replace the battery door.



M7905

**Fig. 3. Battery replacement.**

# TROUBLESHOOTING GUIDE

## *IF...*

**Display will not come on.**

**Temperature display will not go lower than 45°F or higher than 88°F during programming.**

**Temperature change occurs incorrectly.**

## *THEN...*

- There is no power applied to the thermostat. Check fuse or circuit breaker.
- You have reached the temperature setting limit. The setting range is 45°F to 88°F.
- Check the program times for the period in question. Be sure that AM and PM indications are correct. Make sure the current day and time are correct. Reprogram if necessary.
- Remember that it takes time for the system to recover. Refer to Recovery from Setback section.

### **Heating will not come on.**

- Check that the system control on the thermostat is set to HEAT.
- Check the display. If SAVING is displayed, the system is in in DLC mode and the thermostat is utility controlled. Heating cannot come on until the DLC period ends.
- If the temperature setting is higher than current temperature, and the display says HEAT, contact your utility company.

### **Cooling will not come on.**

- Check that the system control on the thermostat is set to COOL.
- Check the system fuse or circuit breaker and replace or reset, if necessary.
- Check the display. If SAVING is displayed, the system is in DLC mode and the thermostat is utility controlled. Cooling cannot come on until the DLC period ends.

**Cooling will not come on. (cont.)**

- The thermostat has a built-in time delay on cooling. To prevent equipment damage, allow five to ten minutes after changing the setting before the air conditioner starts.
- If temperature setting is lower than the current temperature, and the display shows COOL, set the system control to the OFF setting for ten minutes. After ten minutes, return the system control to the COOL setting. If the air conditioner comes on, the compressor may have reached its high limit temperature protection and shut down. If the air conditioner does not come on after ten minutes and the display shows COOL, contact your utility.

**The house is too warm or too cool.**

- Press **Present Setting** key to check the current temperature setting.
- If desired, change the temperature setting. See Operating Your Thermostat section.

**The house is too warm or too cool. (cont.)**

**System ON indicator is lit, but no heat is coming from the registers.**

**The thermostat's current setting does not match the display temperature.**

- If you subscribe to Real-time Pricing, you may need to adjust your offset values to provide a more comfortable temperature.
  - Check the display. If SAVING is displayed, the system is in DLC mode and your thermostat is utility controlled. Cooling or heating cannot come on until the DLC period ends.
  - Allow time for the furnace or heat pump to heat up and the fan to come on before checking for heat at the register.
- 
- Be aware that it is normal for the current setting and display temperature to differ occasionally.
  - During recovery from setback or setup, setting and display temperatures may differ to within  $\pm 1^{\circ}$  for up to 30 minutes after the recovery period.

**Incorrect room temperature showing on thermostat display. Thermostat is flashing CALL <xxx-xxxx>.**

- The thermostat is factory-calibrated, and cannot be adjusted.
- You are a subscriber to one of the special pricing programs and your thermostat has lost communication with the utility company. Call the number displayed on the thermostat or the number on the thermostat label for information.

## TOLL-FREE CUSTOMER ASSISTANCE

For all questions concerning this thermostat, please read and follow the instructions. If additional assistance is needed, call your utility's Customer Assistance number.

Before you call, please have the following information available—thermostat model number and date code, type of heating/cooling system (hot water, warm air, oil, gas, heat pump, etc).

## WARRANTY CONDITIONS

Honeywell warrants this product, excluding battery, to be free from defects in the workmanship or materials, under normal use and service, for a period of one (1) year from the date of purchase by the consumer. If, at any time during the warranty period, the product is defective or malfunctions, Honeywell shall repair or replace it (at Honeywell's option) within a reasonable period of time.

If the product is defective,

- (i) return it, with a bill of sale or other dated proof of purchase, to the retailer from which you purchased it, or
- (ii) package it carefully, along with proof of purchase (including date of purchase) and a short description of the malfunction, and mail it, postage prepaid, to the following address:

Honeywell Return Goods  
Dock 4, MN10-3860  
Douglas Drive North  
Golden Valley, MN 55422

This warranty does not cover removal or reinstallation costs. This warranty shall not apply if it is shown by Honeywell that the defect or malfunction was caused by damage which occurred while the product was in the possession of a consumer.

Honeywell's sole responsibility shall be to repair or replace the product within the terms stated above. HONEYWELL SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE OF ANY KIND, INCLUDING ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING, DIRECTLY OR INDIRECTLY, FROM ANY BREACH OF ANY WARRANTY, EXPRESS OR IMPLIED, OR ANY OTHER FAILURE OF THIS PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.

THIS WARRANTY IS THE ONLY EXPRESS WARRANTY HONEYWELL MAKES ON THIS PRODUCT. THE DURATION OF ANY IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IS HEREBY LIMITED TO THE ONE YEAR DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

If you have any questions concerning this warranty, please write Honeywell Customer Relations, 1985 Douglas Drive North, MN10-1461, Golden Valley, MN 55422. In Canada, write Retail Products ON15, Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.



# Honeywell

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