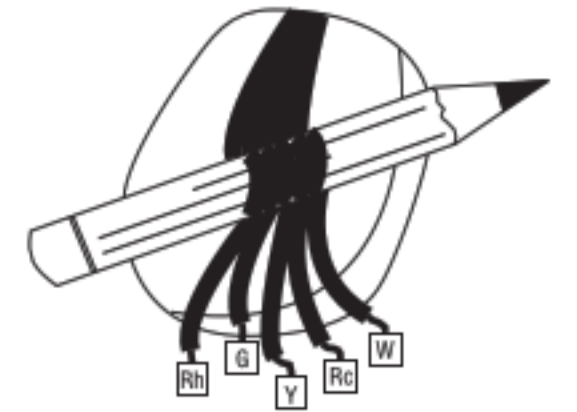


- 4 Wrap the wires around a pencil to prevent them from falling into the wall.
- 5 If the hole in the wall is too big, insulate it using a non-flammable material in order to avoid air draughts behind the thermostat.

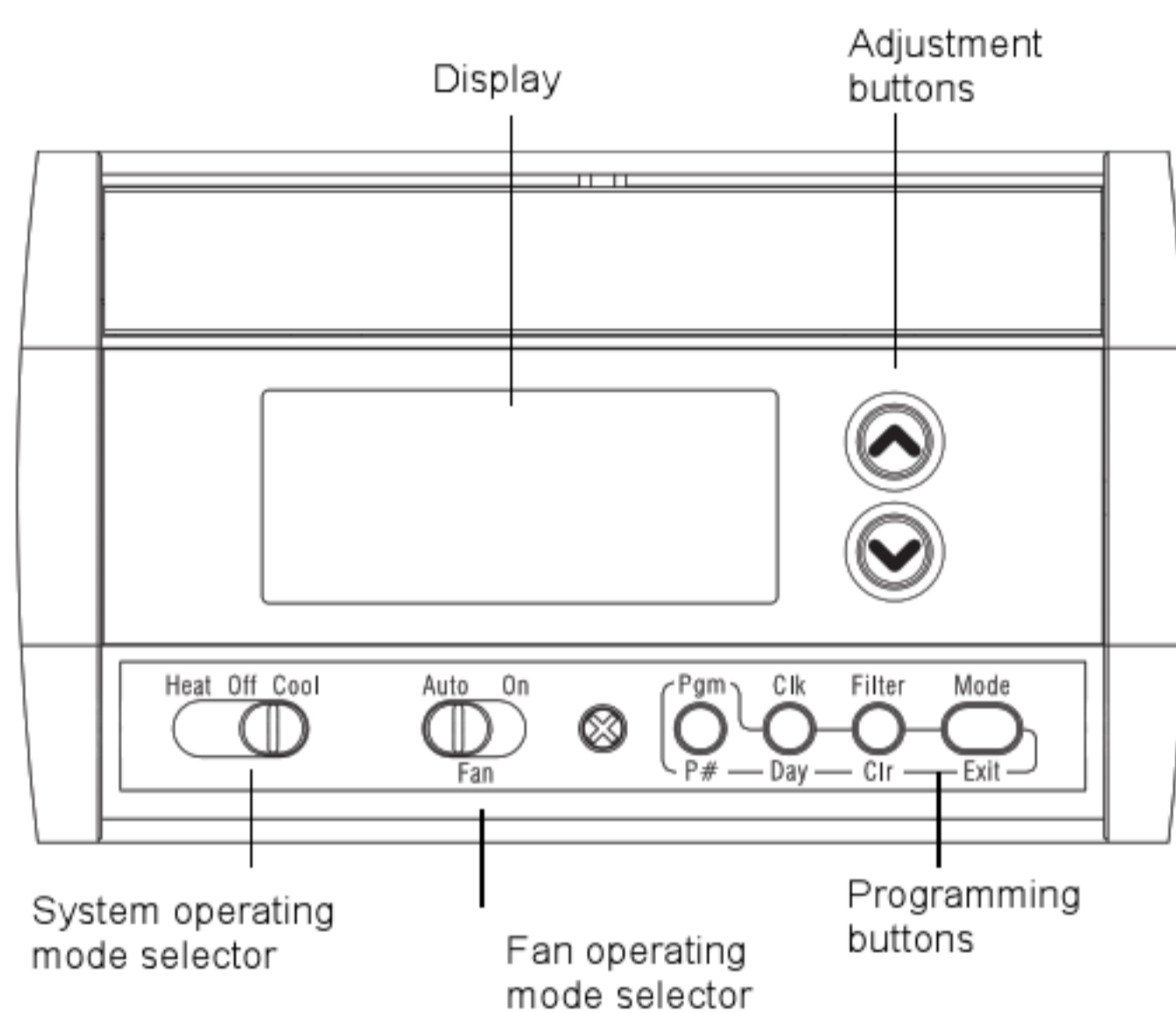


## 1. Introduction

The RTH230B programmable thermostat can be used to control:

- a gas, fuel oil or electric furnace - 2 or 3 wires
- a central air conditioner - 2 or 3 wires
- a hot water system with or without pump - 2 wires
- a millivolt system - 2 wires
- a central heating and cooling system - 4 or 5 wires

**Note:** These thermostats are not compatible with heat pumps or multi-stage systems.



### Features

- System operating mode selection: heat, cool or off
- Fan operating mode selection: automatic or on (continuous)
- Programmable heating and cooling cycle lengths: 10, 12, 15, 20 or 30 minutes
- Temperature display in °F or °C
- Battery replacement indicator
- 5-2 programming including:
  - Preprogrammed energy-saving schedule
  - Early Start
  - Temporary bypass
  - Time display (12 h or 24 h)
- Filter replacement indicator

## 2. Installation

### 2.1 Removing the Old Thermostat

**IN ORDER TO AVOID ANY RISK OF ELECTRIC SHOCK, CUT POWER TO THE HEATING SYSTEM.**

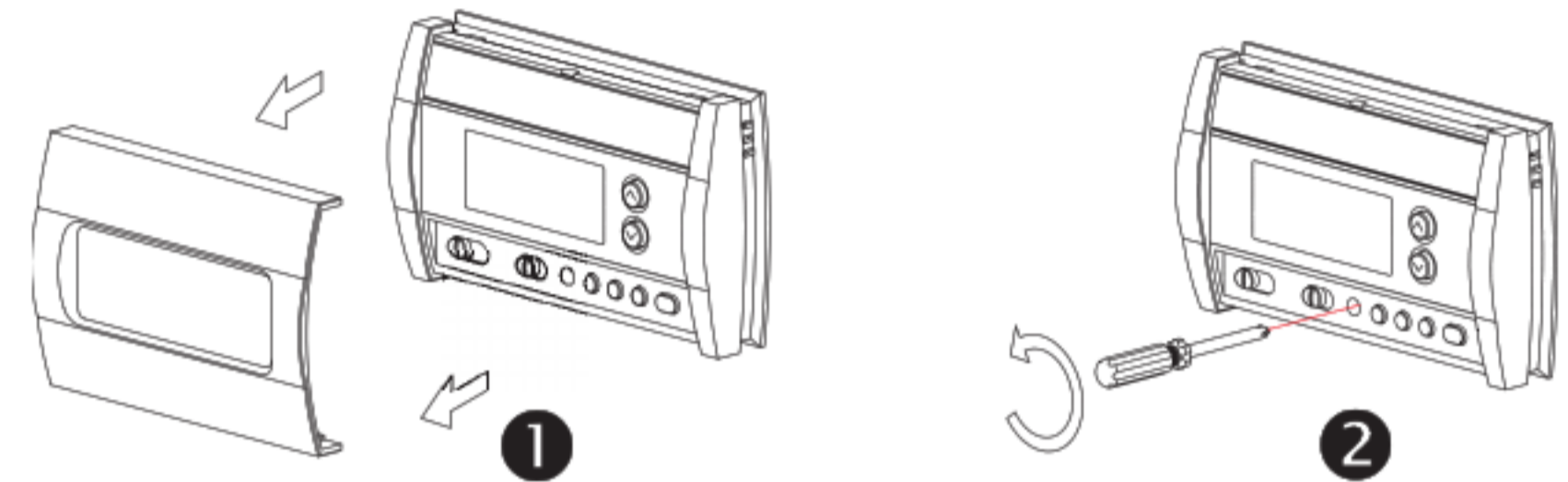
- 1 Remove the old thermostat to access the wires.

**Warning:** If the old thermostat was mounted onto an electrical box, it was probably powered by 120/240 volts. In this case, this thermostat cannot be used.

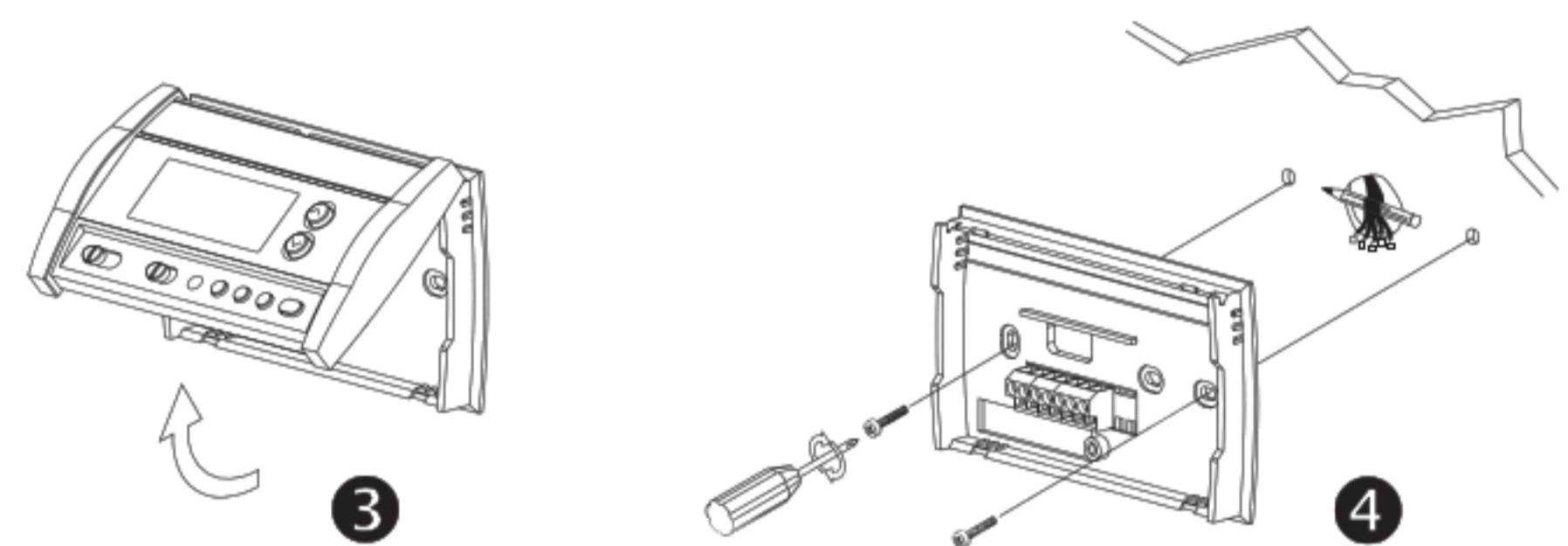
- 2 Identify and label each wire (with the corresponding letter on the wire terminal) and remove them from the terminals.
- 3 If necessary, strip the end of each wire (maximum of 1/4 inch).

### 2.2 Installing the New Baseplate

For a new installation, choose a location approximately 5 feet (1.5 m) above the floor and on an inside wall. Avoid draughty areas (top of staircase, air outlet, etc.), dead air spots (behind doors), direct sunlight or areas near concealed pipes or chimneys.



- 1 Remove the thermostat faceplate.
- 2 Loosen the locking screw to separate the thermostat from its baseplate (the screw cannot be completely removed).



- 3 Tilt the thermostat upwards.
- 4 Mark and bore the appropriate mounting holes (or use the existing holes). Insert the plastic anchors.
- 5 Pass the wires through the opening of the baseplate and fix the baseplate to the wall using the screws provided.

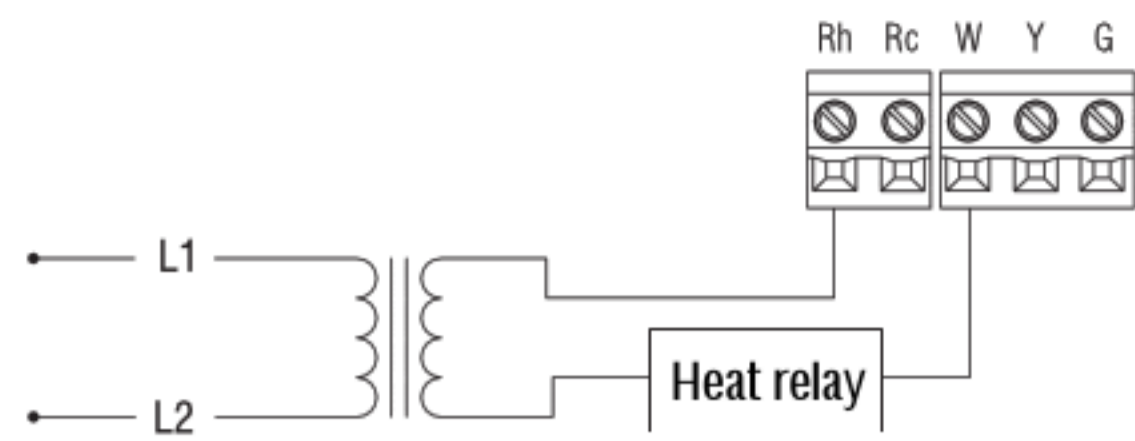
### 2.3 Connecting the Thermostat

The connection of the new thermostat should be similar to that of the old thermostat; however, it can vary depending on the installation.

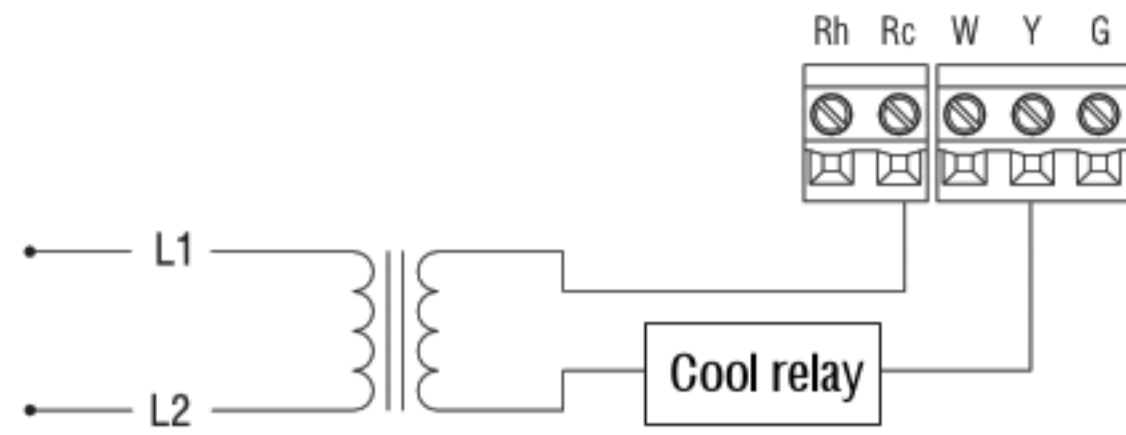
|    |                      |
|----|----------------------|
| Rh | Heating power supply |
| Rc | Cooling power supply |
| W  | Heating signal       |
| Y  | Cooling signal       |
| G  | Fan                  |

**Note:** The red jumper wire between the Rc and Rh terminals must be removed in 2- or 5-wire installations. The jumper must be used in 3- or 4-wire installations if you wish to use the mode selector switch for the fan.

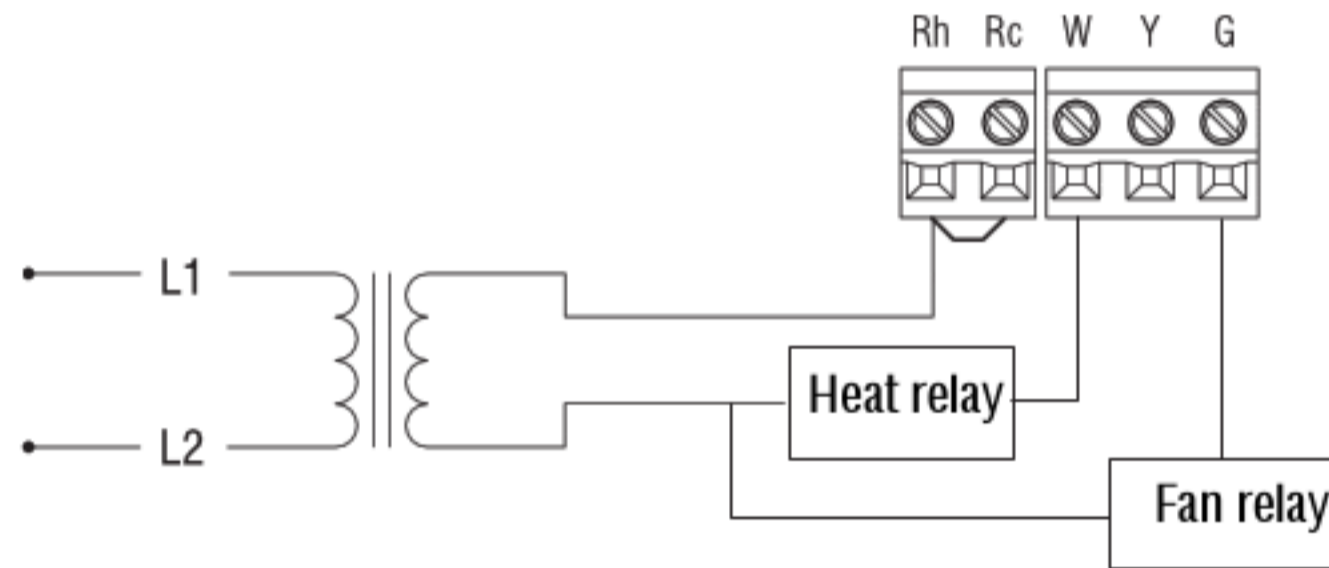
### 2.3.1 2-wire Heating



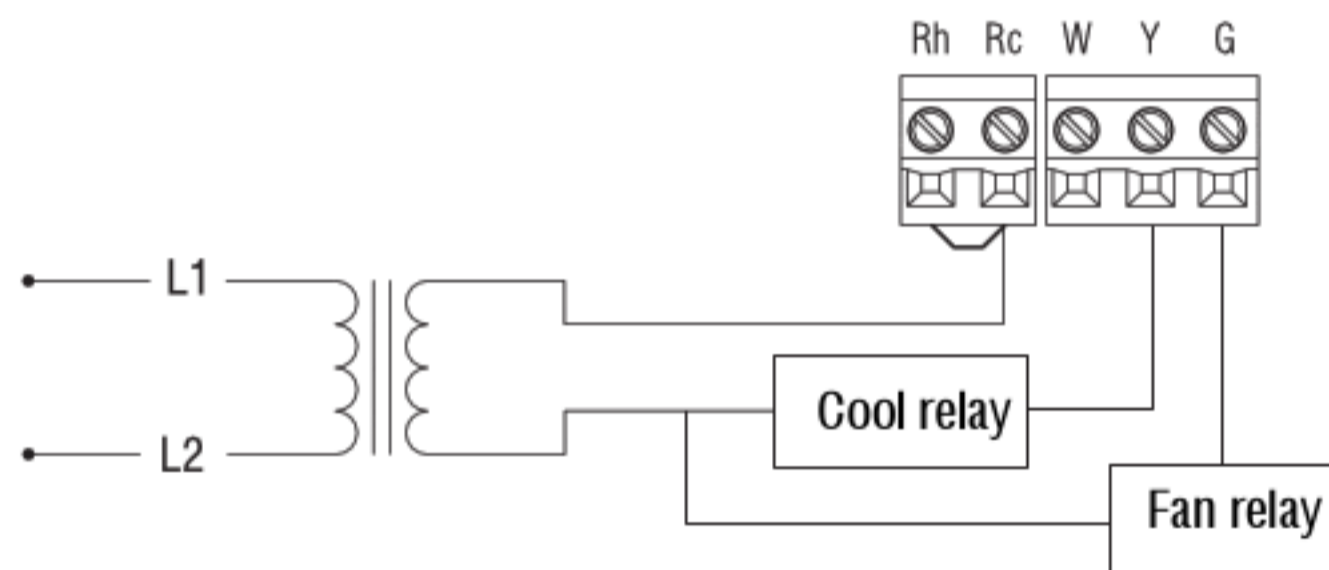
### 2.3.2 2-wire Cooling



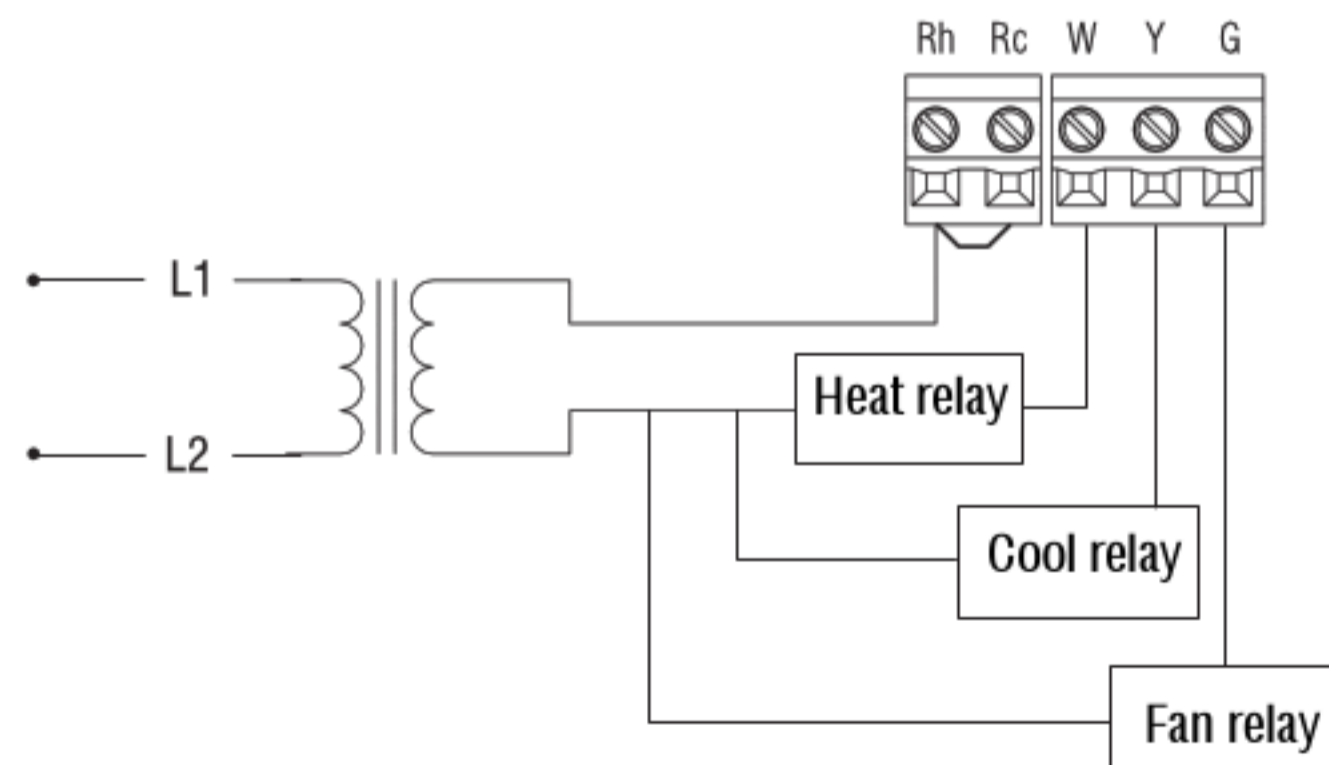
### 2.3.3 3-wire Heating



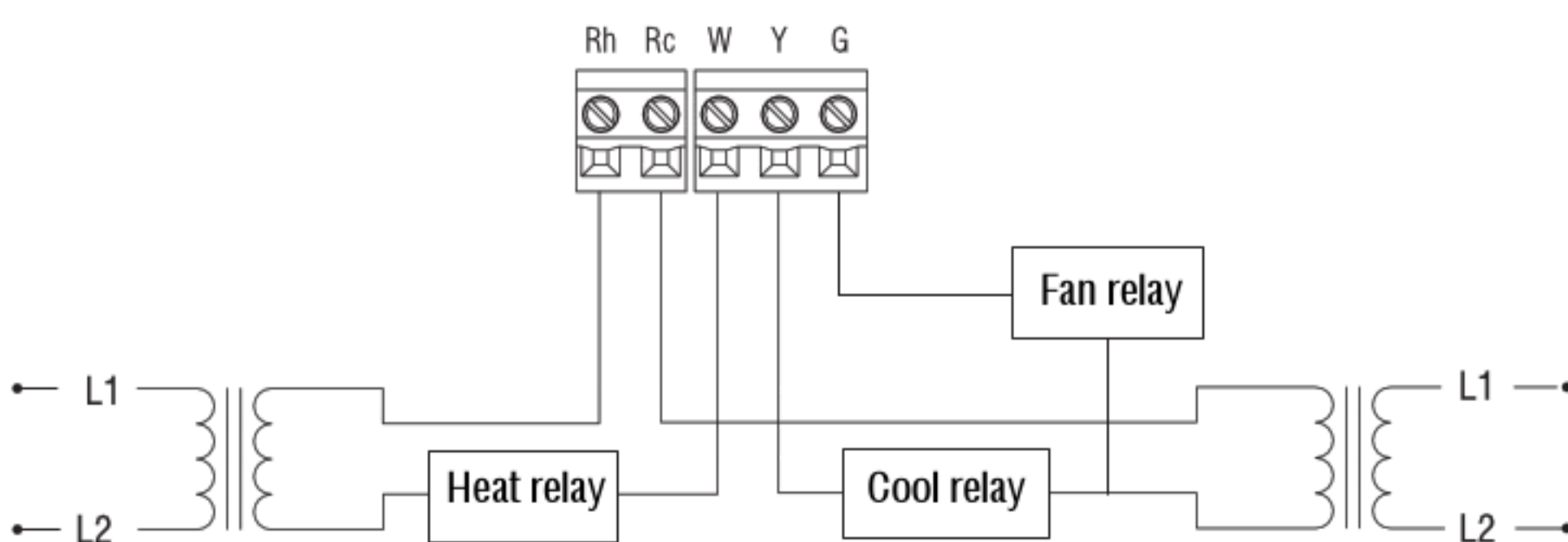
### 2.3.4 3-wire Cooling



### 2.3.5 4-wire Heating and Cooling

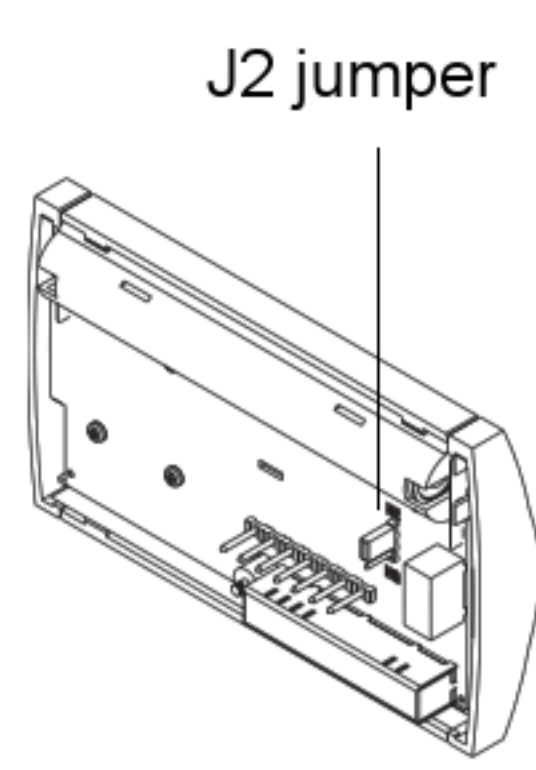


### 2.3.6 5-wire Heating and Cooling



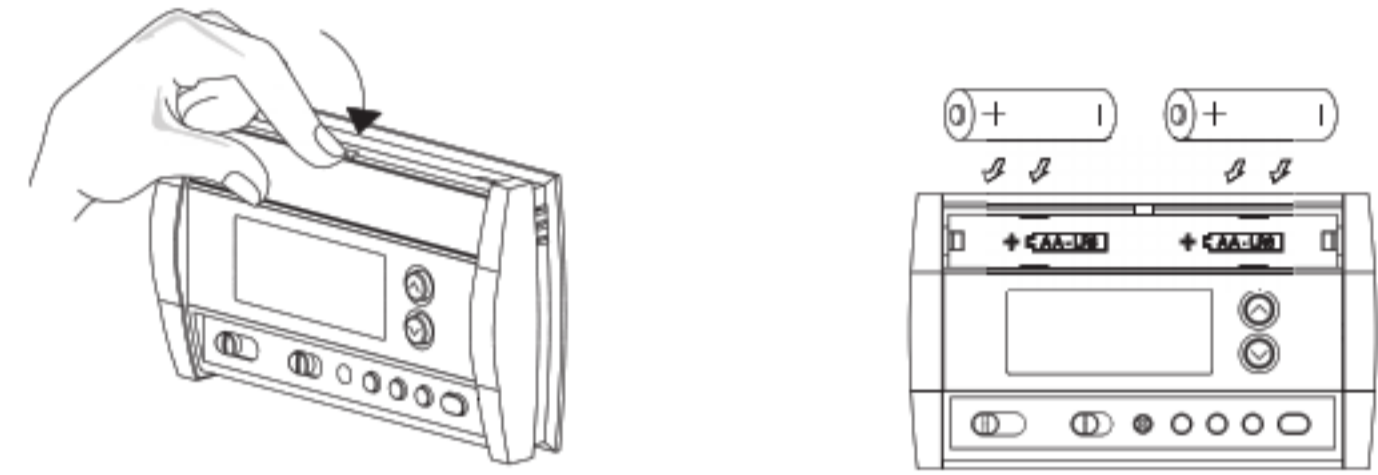
### 2.4 Setting J2 Jumper

The jumper defines the fan operation when the fan is placed in automatic mode.



|           |                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HE</b> | Use this setting if you have an electric furnace. In this setting, when the fan is placed in automatic mode, it works only when heating or cooling is activated.                                                                                                                                                                                                                                     |
| <b>HG</b> | Use this setting if you have a gas or fuel oil furnace. In this setting, when the fan is placed in automatic mode, it works as follows: <ul style="list-style-type: none"> <li>When the thermostat is placed in cool mode, the fan works only when cooling is activated.</li> <li>When the thermostat is placed in heat mode, the fan is controlled by the furnace fan control circuitry.</li> </ul> |

### 2.5 Installing the Batteries



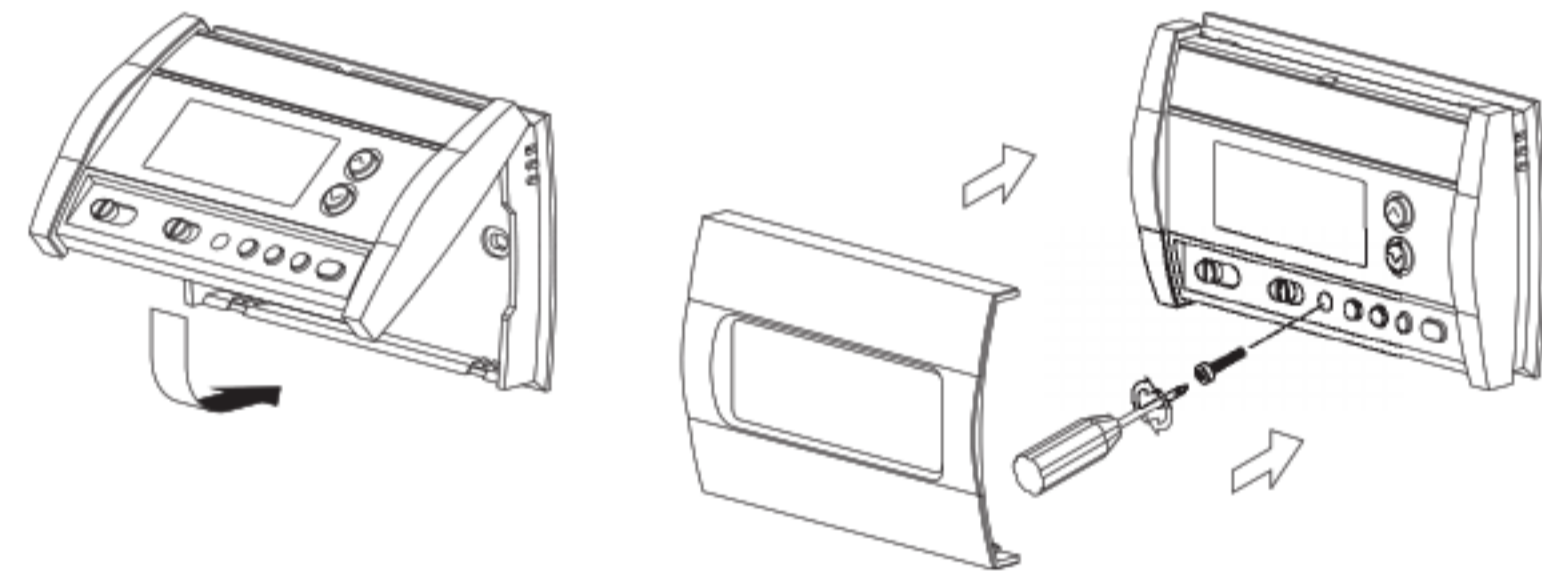
- 1 Pull out the battery cover.
- 2 Install the batteries as shown. Observe the polarity.
- 3 Reinstall the battery cover. You will hear a clicking sound.

After the batteries are installed, the thermostat performs a series of tests for approximately 5 seconds.

Afterwards, the screen displays the actual temperature. It is normal that the displayed temperature be higher than the ambient temperature if you are holding the thermostat. The thermostat will display the ambient temperature once it is installed on the wall. By default, the setpoint is 70°F (21°C).



### 2.6 Completing the Installation



- 1 Once the baseplate and the batteries are installed, mount the thermostat on the baseplate.
- 2 Secure the thermostat using the locking screw and install the faceplate.
- 3 Apply power back to the system.

## 3. Basic Functions

### 3.1 System Operating Mode

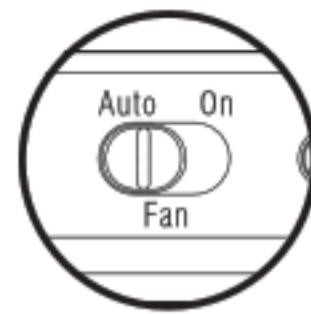
Use the selector switch to place the system in Heating mode (HEAT) or Cooling mode (COOL), or to set the system off.



*Note:* When you place the thermostat in Cooling mode, you might need to wait up to five minutes before cooling can start. This is a safety feature for the compressor. \* will flash on the screen until cooling can start again.

### 3.2 Fan Operating Mode

Use the selector switch to set the fan to automatic mode (AUTO) or continuous mode (ON).



**Note:** This switch is not used if you have a 2-wire installation as the fan is not connected to the thermostat.

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AUTO</b> | <ul style="list-style-type: none"> <li>If you have an electric furnace (see section 2.4), the fan works only when heating or cooling is activated.</li> <li>If you have a gas or fuel oil furnace (see section 2.4), the fan works as follows: <ul style="list-style-type: none"> <li>When the thermostat is placed in cool mode, the fan works only when cooling is activated.</li> <li>When the thermostat is placed in heat mode, the fan is controlled by the furnace fan control circuitry.</li> </ul> </li> </ul> |
| <b>ON</b>   | The fan is always on.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### 3.3 Displaying the Temperature

The actual temperature is normally displayed. To view the setpoint, press once on one of the buttons. The setpoint is displayed for 5 seconds along with the icon.

**Note:** Pressing either of the buttons more than once will change the setpoint.

### 3.4 Setting the Temperature

Press one of the buttons until the desired temperature is displayed.

### 3.5 Thermostat Control Mode

#### 3.5.1 Manual/Permanent Hold Mode

Maintains the temperature at a fixed setpoint. To place the thermostat in this mode, press [ **Mode** ]. The house icon will disappear.

#### 3.5.2 Programmable Mode

Maintains the temperature according to the energy-saving schedule. To place the thermostat in this mode, press [ **Mode** ]. The current period will be displayed. The four possible periods are:



To see the default settings of each period, see section 5.2.

#### Temporary Bypass

If you modify the temperature (using the buttons) when the thermostat is in programmable mode, the new temperature will be used for the next 2 hours. The house icon flashes during the bypass. At the end of the bypass period, the thermostat returns to the temperature settings of the period currently underway.

### 3.6 Filter Replacement Indicator

After 500 hours of operation, an icon appears to indicate that the filter needs replacement. Once the filter is replaced, press [ **Filter** ] for 3 seconds to remove the icon and reset the counter.



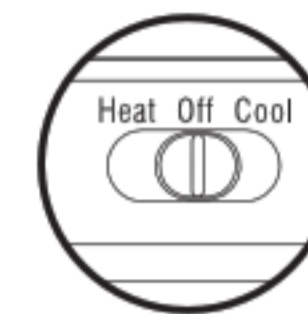
### 3.7 Battery Replacement Indicator

An icon appears when the batteries need replacement. This icon will flash for 120 days, then the thermostat will cut power to the heating/cooling unit. The icon disappears once the batteries are replaced.



After replacing the batteries, readjust the time and day (see section 5.1). However, the temperature and program settings are saved and do not need to be re-entered.

**Warning:** Before removing the batteries, place the system switch on the thermostat to Off. Otherwise, the heating/cooling unit might still be running even after the batteries are removed.



## 4. Configuration Menu

- To access the configuration menu, press both buttons simultaneously for 3 seconds.
- To go to the next parameter (menu item), briefly press both buttons simultaneously.
- To modify a parameter, press one of the buttons.
- Repeat steps 2 and 3 if necessary.
- Press both buttons simultaneously for 3 seconds to exit the configuration menu.

| DISPLAY | DESCRIPTION                          | DEFAULT | OPTIONS                      |
|---------|--------------------------------------|---------|------------------------------|
| Unit    | Temperature display                  | °F      | °C or °F                     |
| Hr      | Time display                         | 12 h    | 12 h or 24 h                 |
| ES      | Early Start <sup>1</sup>             | Off     | On or Off                    |
| [ PH ]  | Heating cycles per hour <sup>2</sup> | 4       | 2, 3, 4, 5 or 6 <sup>3</sup> |
|         | Cooling cycles per hour <sup>2</sup> | 4       | 2, 3, 4, 5 or 6 <sup>4</sup> |

<sup>1</sup> When Early Start is On, the thermostat determines when to start heating or cooling so that the desired temperature is reached at the set time.

<sup>2</sup> When either the heating or cooling parameter is displayed, use the system mode selector switch to alternate between the two parameters.

<sup>3</sup> For optimal heating control, use the setting that matches your system as follows: 2=30 min (steam, gravity), 3=20 min (hot water, 90%+ high-efficiency furnace), 4=15 min (gas or oil), 5=12 min (alternate setting for gas or oil), 6=10 min (electric).

<sup>4</sup> The corresponding cooling cycle lengths are as follows: 2=30 min, 3=20 min, 4=15 min, 5=12 min, 6=10 min

## 5. Programming

### 5.1 Setting the Time and Day

- Press [ **Clk** ]. The hour flashes.
- Set the hour using .
- Press [ **Clk** ]. The minutes flash.
- Set the minutes using .
- Press [ **Clk** ]. The day flashes.
- Set the day using .
- Press [ **Exit** ] to exit.



## 5.2 Energy-saving Schedule

Your thermostat is preprogrammed with an energy-saving schedule. The schedule automatically controls your heating or cooling system by switching from one setpoint to the next according to the preset times.

| Default schedule settings |         |               | Monday to Friday | Saturday & Sunday |
|---------------------------|---------|---------------|------------------|-------------------|
|                           | Heating | 70°F (21°C)   | 6:00 a.m.        | 6:00 a.m.         |
|                           | Cooling | 78°F (25.5°C) |                  |                   |
|                           | Heating | 62°F (16.5°C) | 8:00 a.m.        | --                |
|                           | Cooling | 85°F (29.5°C) |                  |                   |
|                           | Heating | 70°F (21°C)   | 6:00 p.m.        | --                |
|                           | Cooling | 78°F (25.5°C) |                  |                   |
|                           | Heating | 62°F (16.5°C) | 10:00 p.m.       | 10:00 p.m.        |
|                           | Cooling | 82°F (28°C)   |                  |                   |

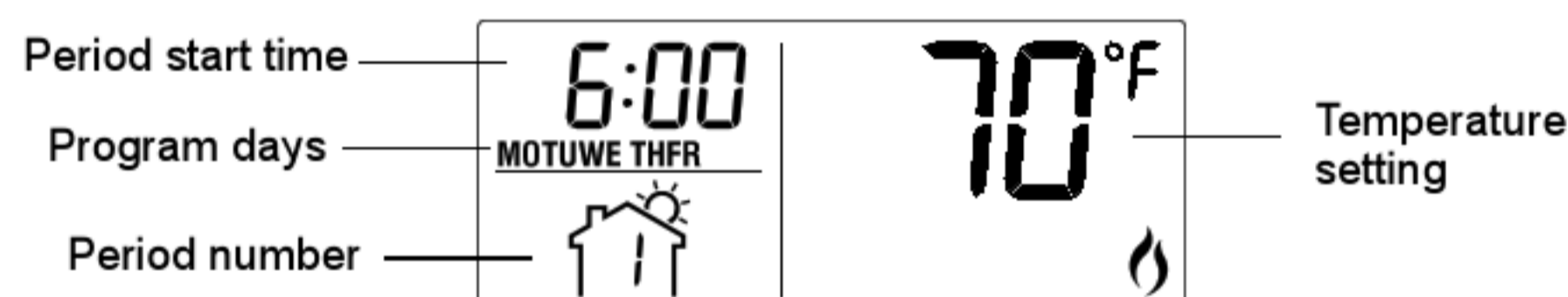
To use the schedule, place the thermostat in programmable mode.

## 5.3 Modifying the Schedule

You can program up to 4 periods per day, each period having its own temperature settings. The same program is repeated daily from Monday through Friday and another program is used for Saturday and Sunday. For each period, you can set the start time, the heating setpoint and the cooling setpoint.

**Note:** If you wish to use only 2 periods, set periods "1 and 4" or periods "2 and 3". Early Start will not work if you set periods "1 and 2" or periods "3 and 4".

- 1 Press [ Pgm ]. The settings for period 1 are displayed.



**Note:** During programming, to skip a period, press [ CLR ] while the period is displayed. For example, in the predefined energy-saving schedule, periods 2 and 3 have been skipped for Saturday and Sunday.

- 2 Select the program using the [ Day ] button (MO TU WE TH FR appears when the Monday-Friday program is selected or SA SU appears when the Saturday/Sunday program is selected). Press for 3 seconds to select all 7 days.
- 3 Set the time (in increments of 15 minutes) using the  $\odot$  buttons.
- 4 Press [ P# ]. The heating or cooling setpoint flashes depending on the position of the Heat/Cool selector.
- 5 Set the desired temperature for the displayed period using the  $\odot$  buttons.
- 6 Use the Heat/Cool selector to switch to the other mode (e.g., if you were in Heating mode, switch to Cooling mode). The setpoint for that mode flashes.
- 7 Set the desired temperature using the  $\odot$  buttons.
- 8 Press [ P# ] to go to the next period.
- 9 Repeat steps 2 to 8 for each of the remaining periods.
- 10 Press [ Exit ] to exit.



To use the schedule, place the thermostat in programmable mode.

## 6. Technical Specifications

Power supply: 2 AA batteries  
 Maximum load: 1 A @ 24 Vca per output  
 Setpoint range (heating): 41 to 82°F (5 to 28°C)  
 Setpoint range (cooling): 59 to 95°F (15 to 35°C)  
 Display range: 23 to 122°F (-5 to 50°C)  
 Storage temperature: -2 to 122°F (-20 to 50°C)  
 Temperature display resolution: 1°F (0.5°C)  
 Accuracy:  $\pm 1^\circ\text{F}$  (0.5°C)  
 Heating/cooling cycle lengths: 10, 12, 15, 20 or 30 minutes (programmable)  
 Compressor short-cycle protection (minimum off time): 5 minutes  
 Data memory: non-volatile  
 Dimensions: 5 in. x 3 in. x 1 in. (127 mm x 75 mm x 28 mm)

## 7. Warranty

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 determined to be defective or malfunctions, Honeywell shall repair or replace it (at Honeywell's option).

If the product is defective,

- (i) return it, with a bill of sale or other dated proof of purchase, to the place from which you purchased it, or
- (ii) call Honeywell Customer Care at 1-800-468-1502. Customer Care will make the determination whether the product should be returned to the following address: Honeywell Return Goods, Dock 4 MN10-3860, 1885 Douglas Dr N, Golden Valley, MN 55422, or whether a replacement product can be sent to you.

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 Dr, Golden Valley, MN 55422 or call 1-800-468-1502. In Canada, write Retail Products ON15-02H, Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Toronto, Ontario M1V4Z9.

## 8. Customer Assistance

If you have any questions about the operation of your thermostat, please go to [www.honeywell.com/yourhome](http://www.honeywell.com/yourhome), or call Honeywell Customer Care toll-free at 1-800-468-1502.