

# Owner's Manual



Model  
S1-THEH21P5S

**BACKLIT DISPLAY**

Use with most  
Heat Pump systems:  
1-Heat, 1-Cool  
2-Heat, 1-Cool

## Heat Pump | Digital 5+2 Day Programmable | Thermostat



- Control up to 2-Heat & 1-Cool
- Battery or System Powered
- Backlit Digital Display
- Emergency Heat
- Auxiliary Heat Indicator
- Fahrenheit or Celsius
- Service Filter Indicator



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## Safety Warnings

P/N S1-THEH21P5S

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**CAUTION**

Follow *Installation Instructions* carefully.

DISCONNECT POWER TO THE HEATER - AIR CONDITIONER BEFORE REMOVING THE OLD THERMOSTAT AND INSTALLING THE NEW THERMOSTAT.

**WARNING****CAUTION**

The two Alkaline “AA” batteries must be replaced at least once every 12 months to ensure proper operation. The Low Battery icon (fig. 1) will appear on the display when it is time to replace the batteries. If the thermostat is connected to 24v power, the batteries should still be installed, but are not required.

**FIG. 1**

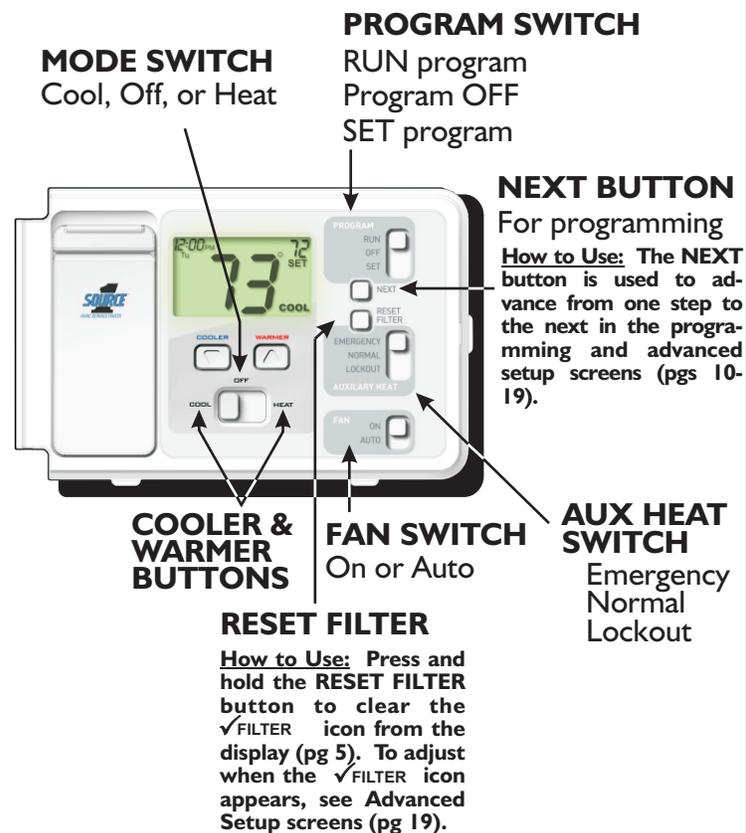
When  is displayed the batteries must be replaced immediately. The manufacturer cannot be liable for improper operation of the thermostat if the batteries are not immediately replaced.

Annual battery replacement is especially critical in locations subject to freezing temperatures. The thermostat will be unable to turn on the heating system if the batteries are exhausted.

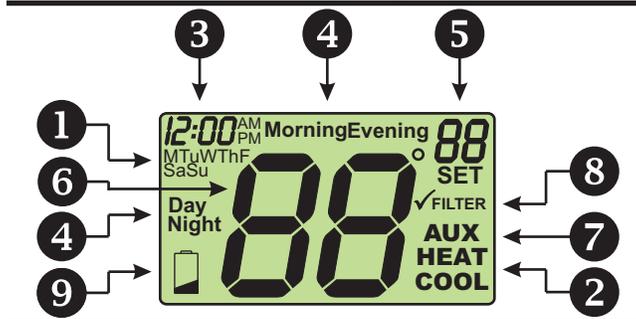
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This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:  
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Location of Controls

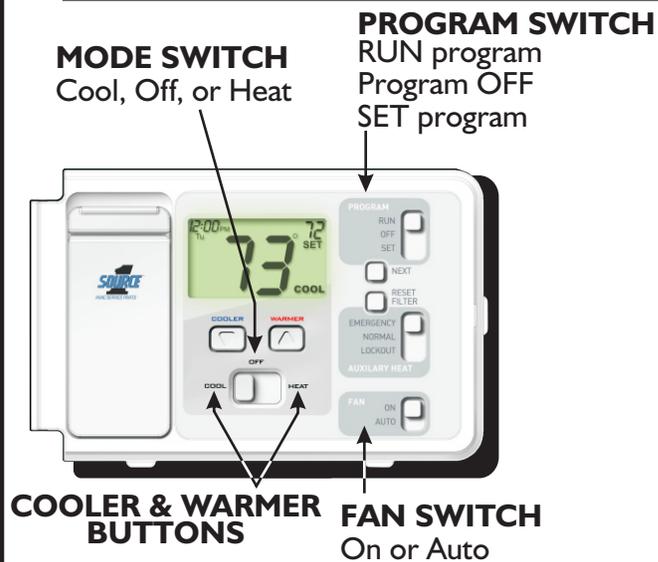


## Display



- 1** Day of the week. When programming, MTuWThF represent the five weekdays and SaSu represent the two weekend days.
- 2** Heat and Cool indicators. In normal operation, Heat or Cool appears, depending on the Mode Switch position. When heat or cool is energized, the Heat or Cool indicator will flash.
- 3** Clock Display.
- 4** Time period indicators. These indicate the part of the program that is currently active, if the Program Switch is positioned to RUN.
- 5** Desired set temperature.
- 6** Current room temperature.
- 7** Indicates that 2nd stage of heat is energized.
- 8** Indicates when the filter should be serviced. Appears after 0 - 1950 hours of blower operation (adjustable).
- 9** Indicates batteries need replacement.

## Normal Operation



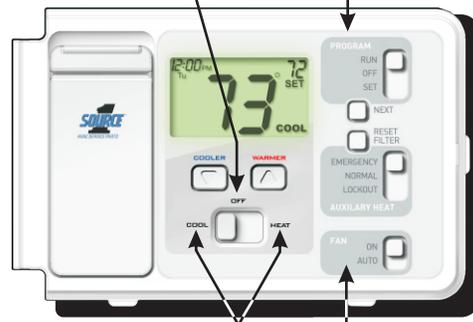
### Manual Operation (Program Switch OFF)

- ❶ Select Cool or Heat with the Mode Switch.
- ❷ Normally leave the fan switched to Auto.  
In Fan Auto, the fan will turn on only with a heat or cool demand. When Fan On is selected, the fan will run continuously.
- ❸ Adjust the desired set temperature with the COOLER and WARMER buttons.

## Normal Operation

**MODE SWITCH**  
Cool, Off, or Heat

**PROGRAM SWITCH**  
RUN program  
Program OFF  
SET program



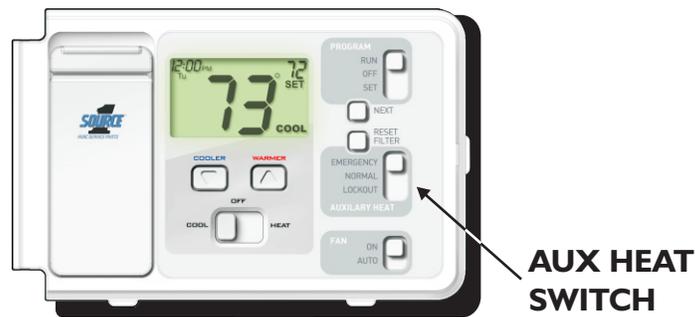
**COOLER & WARMER  
BUTTONS**

**FAN SWITCH**  
On or Auto

### Programmed Operation

- ① Select Cool or Heat with the Mode Switch.
- ② Select RUN with the Program Switch.
- ③ Normally leave the fan switched to Auto.  
In Fan Auto, the fan will turn on only with a heat or cool demand. When Fan On is selected, the fan will run continuously.
- ④ The desired set temperature may be temporarily overridden. The thermostat will revert to the programmed settings in the following time period.

## Aux Heat



**Emergency** - Disables all compressor functions\* and energizes only Aux Heat to satisfy the heat demand.

**Normal** - Aux Heat is allowed to run, if necessary, along with the heat pump to satisfy the heat demand.

**Lockout** - Aux Heat will never turn on regardless of the heat demand.

\* When the Aux Heat switch is in the Emergency position the compressor will also be locked out during cooling operation.

# Clock Set



Slide the program switch to the SET position.

Setting the time & day are the first two steps after sliding the Program Switch to SET.

Press NEXT to advance



Use these buttons to adjust the current time.

To slew the time more rapidly, push and hold the COOLER or WARMER buttons.



Use these buttons to adjust the current day.

This thermostat is preprogrammed from the factory to operate 1 or 2-Stage equipment without the need for further programming. To optimize the installation of this thermostat follow the instructions in the Advanced Setup section.

## Time Period Programming

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### Overview

#### *PROGRAM SWITCH*

- Slide the Program Switch to the SET position.
- The blinking icon(s) on the display may be changed by pressing the COOLER or WARMER buttons.
- After the blinking icon is changed to the desired selection, press the NEXT button.
- Each item in the time period programming screens will flash and can be modified with the COOLER & WARMER buttons.
- Continue the steps above until programming is complete.
- Slide the Program Switch to RUN and the thermostat will run the time period programming.
- If the Program Switch is in the OFF position, the thermostat will not run the time period program. In this case, the thermostat will be a manual heat or cool only thermostat.



# Time Period Programming

## Weekday Programming



Setting the time & day are the first two steps after sliding the Program Switch to SET (page 9).



Press NEXT to advance



Use these buttons to adjust the start time for the morning time period.



Press NEXT to advance



Use these buttons to adjust the cool setpoint for the morning time period.



Press NEXT to advance



Use these buttons to adjust the heat setpoint for the morning time period.



Press NEXT to advance



Use these buttons to adjust the start time for the day time period.

Next Page

# Time Period Programming

## Weekday Programming

Press **NEXT** to advance



8:00<sup>PM</sup>  
MTuWThF  
Day  
85  
SET  
COOL



Use these buttons to adjust the cool setpoint for the day time period.

Press **NEXT** to advance



8:00<sup>PM</sup>  
MTuWThF  
Day  
62  
SET  
HEAT



Use these buttons to adjust the heat setpoint for the day time period.

Press **NEXT** to advance



6:00<sup>PM</sup>  
MTuWThF  
Evening



Use these buttons to adjust the start time for the evening time period.

Press **NEXT** to advance



6:00<sup>PM</sup>  
MTuWThF  
Evening  
78  
SET  
COOL

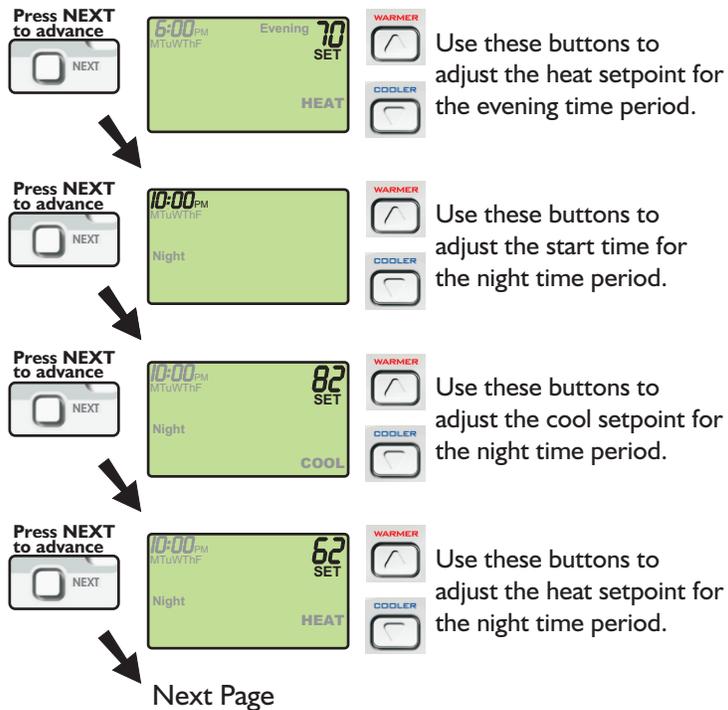


Use these buttons to adjust the cool setpoint for the evening time period.

Next Page

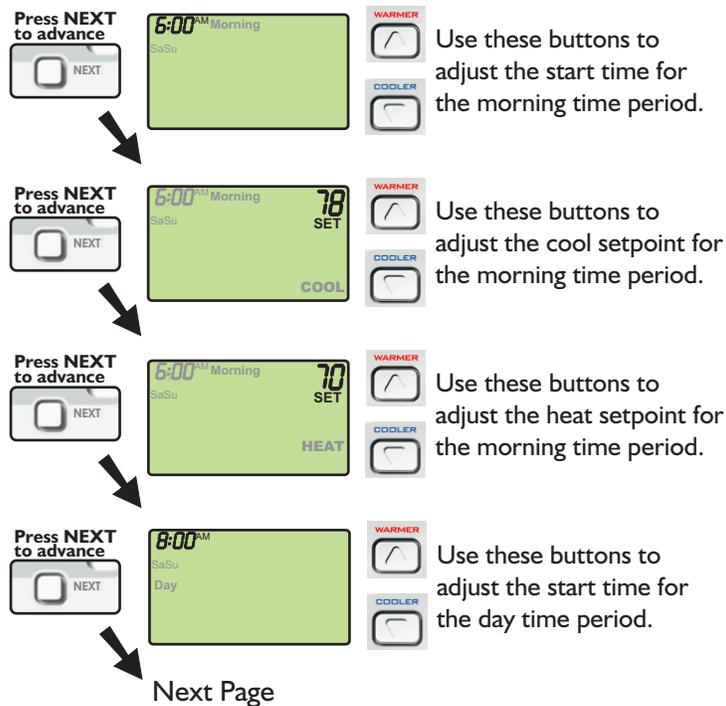
# Time Period Programming

## Weekday Programming



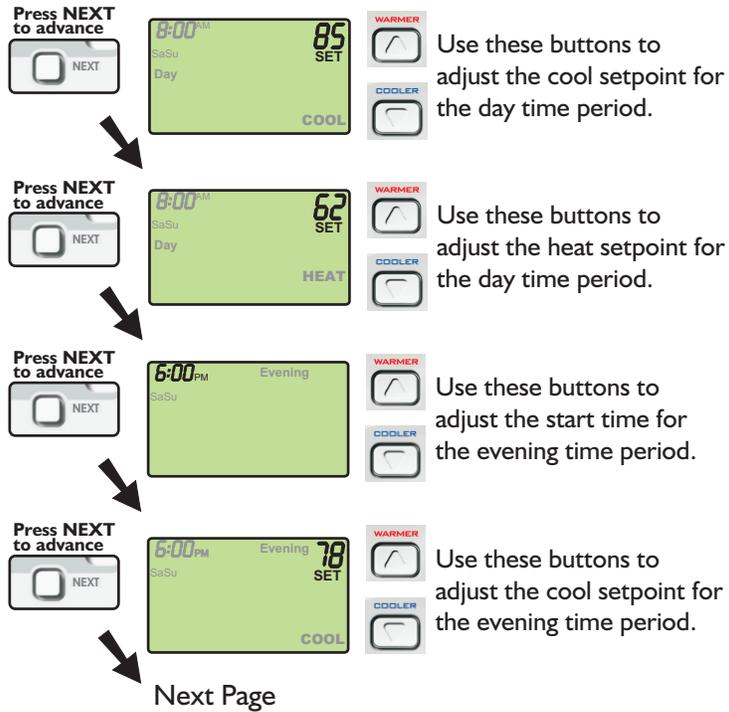
# Time Period Programming

## Weekend Programming



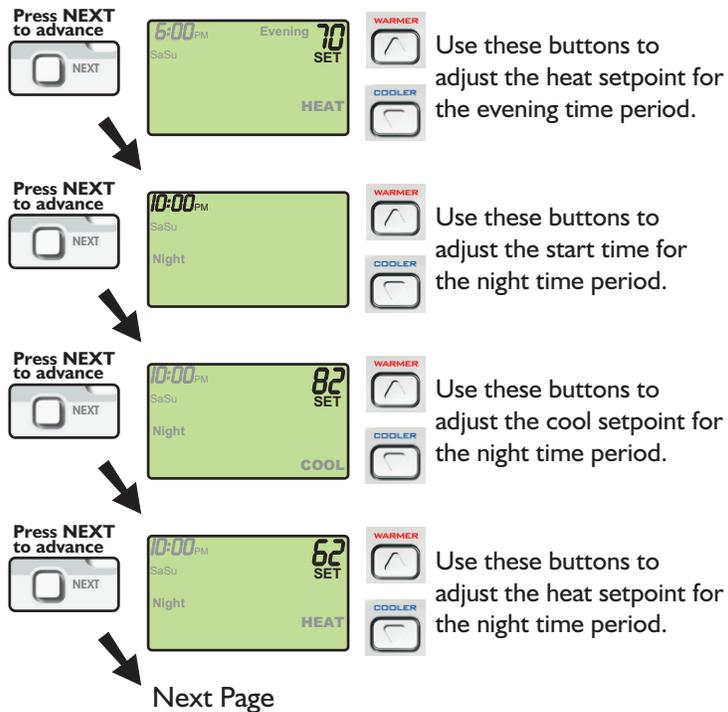
# Time Period Programming

## Weekend Programming



# Time Period Programming

## Weekend Programming



## Time Period Programming

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After you have completed setting the time period programming, you have two options:

- 1) Run the time period program by sliding the Program Switch to the RUN position.



Or,

- 2) Do not run the time period program. The thermostat will operate as a manual heat or cool thermostat. Slide the Program Switch to OFF in this case.



## Advanced Setup

This is normally done by the installer at initial installation.

**Enter advanced setup by sliding the Program Switch to SET. When the clock is flashing, press the NEXT button for 5 seconds. Do not release the button until this screen appears.**

|  |   |  |   |
|--|---|--|---|
| <p>Press NEXT to advance</p>    |    | <br>     | <p>Use these buttons to adjust the deadband from 1 to 6 degrees (page 19).</p>  |
| <p>Press NEXT to advance</p>  |  | <br> | <p>Use these buttons to adjust the Cycles Per Hour from 2 to 6.<br/>           d = no limit (zoning)<br/>           d l = d + no compressor lockout (page 19).</p>                      |
| <p>Press NEXT to advance</p>  |  | <br> | <p>Select backlight operation when a button is pressed:<br/>           OFF: Never turns on.<br/>           2,4,6 or 8: Seconds backlight will be on.<br/>           ON: Always on.*</p> |
| <p>Press NEXT to advance</p>  |  | <br> | <p>Use these buttons to select thermostat operation in degrees C or F.</p>  |

Continued

\* ON is only available if the thermostat is system powered.

Actual hours of fan operation

Press NEXT to advance

Press RESET FILTER

Press and hold the RESET FILTER button to reset the filter counter to 0 and remove the ✓FILTER icon from the display.

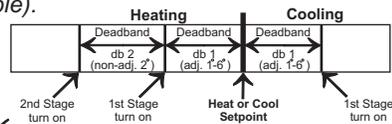
Adjust the number of hours the fan will run before the ✓FILTER icon appears on the display. 0 = off.

Slide the Program Switch to OFF or RUN to exit Advanced Setup.

## About Advanced Features & Operation

 **CYCLES PER HOUR** - The Cycles Per Hour setting (*page 18*) monitors the number of times per hour your HVAC unit may energize. For example, at a setting of 6 cycles per hour the HVAC unit will only be allowed to energize once every 10 minutes. The Cycles Per Hour limit may be temporarily overridden by pressing the WARMER or COOLER button.

 **TWO STAGE OPERATION** - The 2nd stage of heat (auxiliary heat) is turned on when the room temperature is equal to or less than: *the setpoint minus the 1st stage deadband (one degree, adjustable), minus the 2nd stage deadband (two degrees, non-adjustable)*.



 **✓ FILTER ICON** - The ✓ FILTER icon will appear after a set number of hours for fan run time (*see above*) has been achieved. This counter keeps track of the number of hours of fan run time whether the fan is energized in the heating or cooling modes, or in stand alone operation.

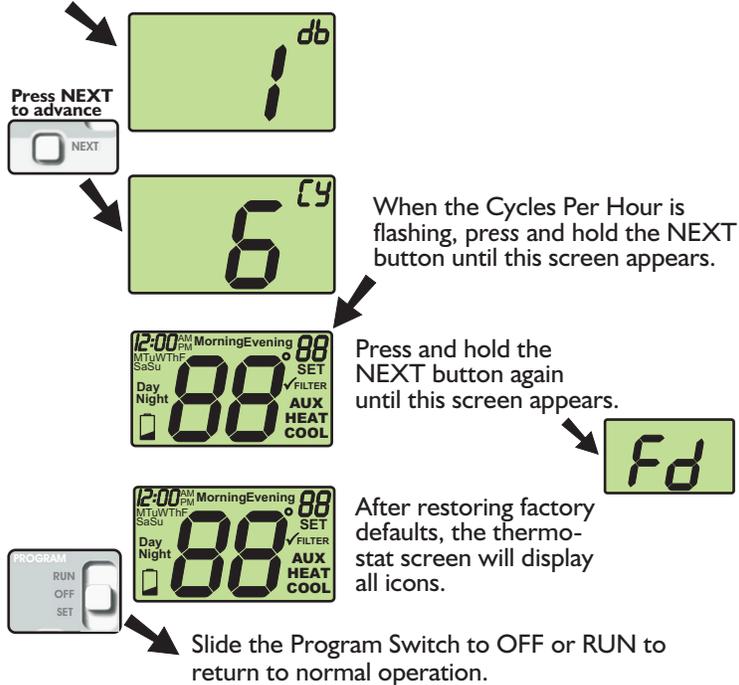
CAUTION



# Factory Default

If, for any reason, you desire to return all the stored settings back to the factory default settings, follow the instructions below.

Enter advanced setup by sliding the Program Switch to SET. When the clock is flashing, press the NEXT button for 5 seconds. Do not release the button until this screen appears.



**WARNING:** This will reset all Time Period and Advanced Programming to the default settings. Any information entered prior to this reset may be permanently lost.

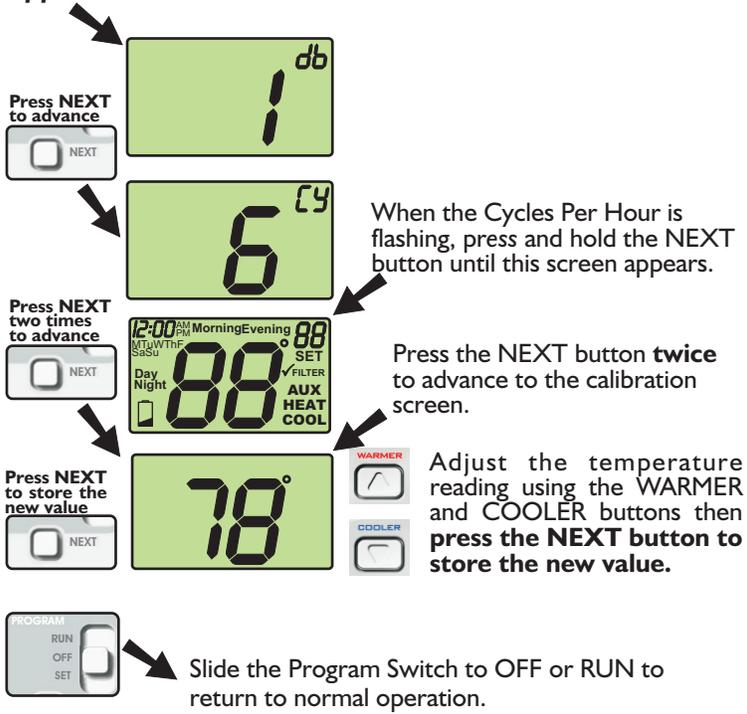
CAUTION



# Calibration

Under normal circumstances it will not be necessary to adjust the calibration of the temperature sensor. If calibration is required, please contact a trained HVAC technician to correctly perform the following procedure.

Enter advanced setup by sliding the Program Switch to SET. When the clock is flashing, press the NEXT button for 5 seconds. Do not release the button until this screen appears.



## Battery Replacement

- 1** The batteries are easily accessible from the battery slot located on the front of the thermostat (fig. 1). To open the battery slot, press down on the battery cover (fig. 1) and pull out (fig. 2).



FIG. 1

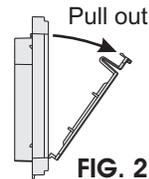


FIG. 2

- 2** Remove the old batteries and replace with the new AA alkaline batteries (fig. 3).

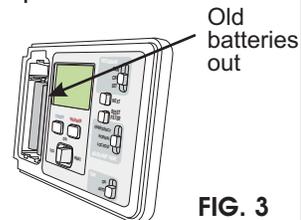
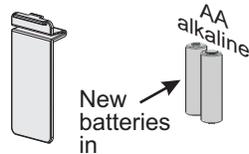


FIG. 3

- 3** Place the bottom hook of the battery cover into the slot and snap closed (fig. 4).

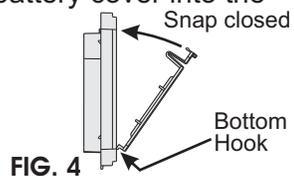


FIG. 4

The batteries must be replaced immediately when the thermostat displays the low battery icon (fig. 1). If the thermostat is connected to 24v power, the batteries should still be installed. Installing the batteries when system powered (24VAC) will keep the clock running in the event of line power interruption.



FIG. 1

## Warranty

One-Year Warranty - This Product is warranted to be free from defects in material and workmanship. If it appears within one year from the date of original installation, whether or not actual use begins on that date, that the product does not meet this warranty, a new or remanufactured part, at the manufacturer's sole option to replace any defective part, will be provided without charge for the part itself provided the defective part is returned to the distributor through a qualified servicing dealer.

THIS WARRANTY DOES NOT INCLUDE LABOR OR OTHER COSTS incurred for diagnosing, repairing, removing, installing, shipping, servicing or handling of either defective parts or replacement parts. Such costs may be covered by a separate warranty provided by the installer.

THIS WARRANTY APPLIES ONLY TO PRODUCTS IN THEIR ORIGINAL INSTALLATION LOCATION AND BECOMES VOID UPON REINSTALLATION.

LIMITATIONS OF WARRANTIES – ALL IMPLIED WARRANTIES (INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY) ARE HEREBY LIMITED IN DURATION TO THE PERIOD FOR WHICH THE LIMITED WARRANTY IS GIVEN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE MAY NOT APPLY TO YOU. THE EXPRESSED WARRANTIES MADE IN THIS WARRANTY ARE EXCLUSIVE AND MAY NOT BE ALTERED, ENLARGED, OR CHANGED BY ANY DISTRIBUTOR, DEALER, OR OTHER PERSON WHATSOEVER. ALL WORK UNDER THE TERMS OF THIS WARRANTY SHALL BE PERFORMED DURING NORMAL WORKING HOURS. ALL REPLACEMENT PARTS, WHETHER NEW OR REMANUFACTURED, ASSUME AS THEIR WARRANTY PERIOD ONLY THE REMAINING TIME PERIOD OF THIS WARRANTY.

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR:

1. Normal maintenance as outlined in the installation and servicing instructions or owner's manual, including filter cleaning and/or replacement and lubrication.
2. Damage or repairs required as a consequence of faulty installation, misapplication, abuse, improper servicing, unauthorized alteration or improper operation.
3. Failure to start due to voltage conditions, blown fuses, open circuit breakers or other damages due to the inadequacy or interruption of electrical service.
4. Damage as a result of floods, winds, fires, lightning, accidents, corrosive environments or other conditions beyond the control of the Manufacturer.
5. Parts not supplied or designated by the Manufacturer, or damages resulting from their use.
6. Manufacturer products installed outside the continental U.S.A., Alaska, Hawaii, and Canada.
7. Electricity or fuel costs or increases in electricity or fuel costs for any reason whatsoever including additional or unusual use of supplemental electric heat.
8. ANY SPECIAL INDIRECT OR CONSEQUENTIAL PROPERTY OR COMMERCIAL DAMAGE OF ANY NATURE WHATSOEVER. Some states do not allow the exclusion of incidental or consequential damages, so the above may not apply to you.

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

**Programming Worksheet***see page 10*

| <b>DAY</b>   | <b>PERIOD</b> | <b>START TIME</b> | <b>COOL</b> | <b>HEAT</b> |
|--|---------------|-------------------|-------------|-------------|
| Monday<br>Tuesday<br>Wednesday<br>Thursday<br>Friday | Morning       |                   |             |             |
|  | Day           |                   |             |             |
|  | Evening       |                   |             |             |
|  | Night         |                   |             |             |
| Saturday<br>Sunday                                   | Morning       |                   |             |             |
|  | Day           |                   |             |             |
|  | Evening       |                   |             |             |
|  | Night         |                   |             |             |



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