AprilAire

Thermostats



OWNER'S MANUAL

Model S86N MU

Multi-Stage Universal Thermostat

Model S86N MUPR

Multi-Stage Universal Thermostat with IAQ

READ AND SAVE THESE INSTRUCTIONS

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ABOUT YOUR NEW THERMOSTAT

THERMOSTAT FEATURES

- Indoor air quality control (S86N MUPR only).

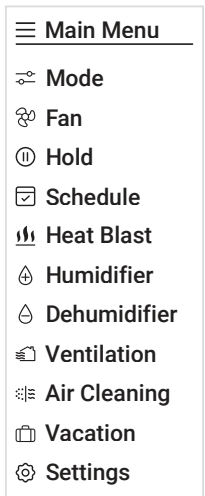
  NOTE: Only one of the following IAQ accessories can be controlled per installation:
  - Humidifier, automatic or manual control.
  - Dehumidifier.
  - Ventilation, with temperature and humidity limits.
- Heat Blast® raises the room temperature 3°F to 5°F.
- Easy to read, color display.
- 7 day programmability.
- Displays room temperature, room humidity, temperature setting, and outdoor temperature.
- Air filter, humidifier, dehumidifier, and HVAC service reminders.
- Programmable fan control with fan circulation mode.
- Easy to use temperature control can override program schedule at any time.
- Progressive recovery ensures proper temperature at the start of a program event.
- Sensor averaging and the ability to assign a sensor to a schedule event.

QUICK REFERENCE TO CONTROLS & DISPLAY

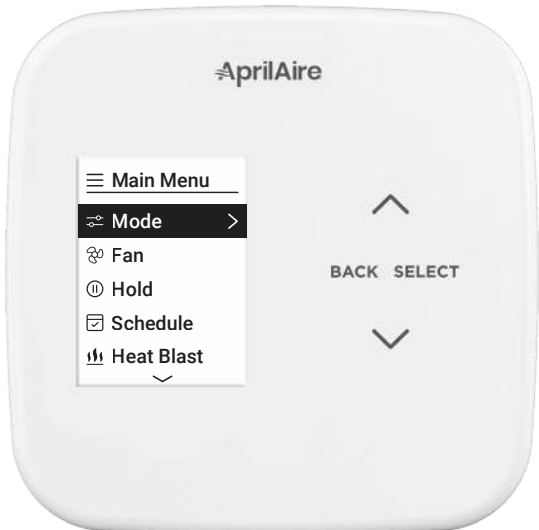
HOME SCREEN



MAIN MENU

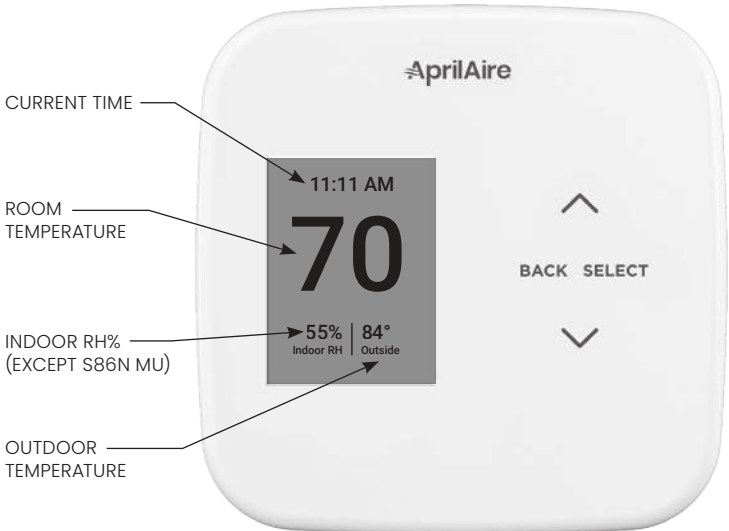


Item availability based on installed options and thermostat model.



SCREEN SAVER

Starts 45 seconds after inactivity, press any button to wake the screen.



OPERATION

SELECT SYSTEM MODE (EM HEAT / HEAT / COOL / AUTO / OFF)

1. Press **SELECT** to enter **Main Menu**.
2. Use ^ or v to select the **Mode** option.
3. Press **SELECT** to enter **Mode** menu:
4. Use ^ or v to select the desired mode.

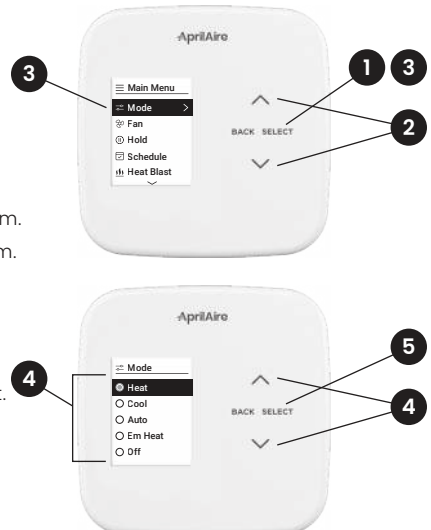
   Heat: Thermostat controls only the heating system.

   Cool: Thermostat controls only the cooling system.

   Auto: (if enabled in installer setup) Thermostat automatically selects heating or cooling depending on the indoor temperature.

   Emergency Heat: (only for heat pumps with auxiliary heat) Thermostat controls auxiliary heat. Heat pump will not operate in **Em Heat** mode.

   Off: Heating and cooling systems are off.
5. Press **SELECT** to save the mode and return to the home screen, or **BACK** to exit without saving.



CHANGE TEMPERATURE SETTING

1. From the **Home** screen press ∧ or ∨ to adjust the current temperature setting.
2. The temperature setting will enlarge during adjustment.
3. The temperature setting will take effect 3 seconds after the last adjustment or press **SELECT** to save and return to the home screen.

See **HOW TO MODIFY PROGRAM SCHEDULES** on pages 23-24 for more information.



SELECT FAN SETTING (AUTO / ON / CIRCULATE)

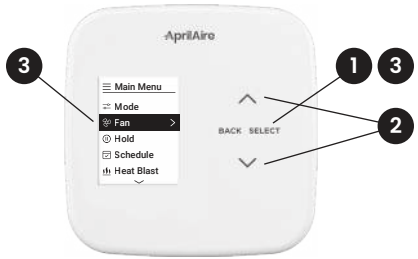
When the fan mode is changed during a program event, it remains in that mode until the next event starts. The fan must be programmed to **Fan On** in the schedule to run continuously through all events.

1. Press **SELECT** to enter **Main Menu**.
2. Use ∧ or ∨ to select the **Fan** option.
3. Press **SELECT** to enter **Fan** menu:
4. Use ∧ or ∨ to select the desired fan mode.

   On: Fan runs continuously. Use this mode for maximum air circulation/filtering.

   Auto: Fan runs only when the heating or cooling system is on.

   Circulate: Same as **Auto**, but ensures the fan is on for at least 30 minutes per hour. Use this mode for a balance of energy savings and air circulation/cleaning.
5. Press **SELECT** to save the fan mode and return to the home screen, or **BACK** to exit without saving.



MAINTENANCE REMINDERS

Maintenance reminders are set up by the installer to indicate when the equipment is due for service. If a maintenance reminder is displayed, call your HVAC dealer for service. They can be reset by selecting the **Reset** option on the reminder message or in the **Reset Service Reminders** option found in the **Settings** menu.

LOCKOUT

The user can disable access to the thermostat's features. (See **USER SYSTEM SETTINGS TABLE** on page 27 for details.) This feature can be overridden by pressing and holding the **SELECT** button for 7 seconds.

INDOOR AIR QUALITY FUNCTIONS

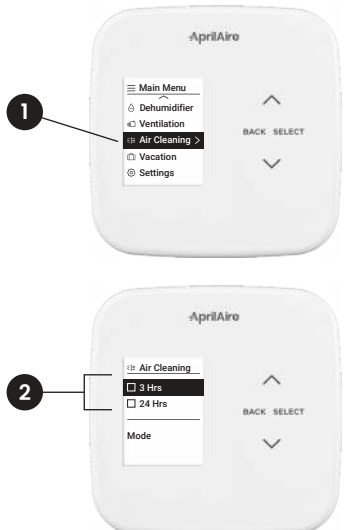
EVENT-BASED™ AIR CLEANING (IF INSTALLED)

1. Select **Air Cleaning** from the **Main Menu**. Air Cleaning has two temporary events and three persistent modes that can be set. Air cleaning will activate the fan for the purpose of air cleaning.
2. **Events** (temporary)

   3 Hrs: When selected, the air cleaner will run for 3 hours continuously and then return to the most recent mode of **Auto**, **Continuous**, or **Off**. This option only cleans the air when needed; an example would be after vacuuming.

   24 Hrs: When seasonal allergies spike and outside air quality is at its worst, choose this option. Your air cleaner will run continuously for 24 hours, then return to the most recent mode of **Auto**, **Continuous**, or **Off**.

NOTE: The thermostat will manage fan and air cleaning selections when the selections overlap.



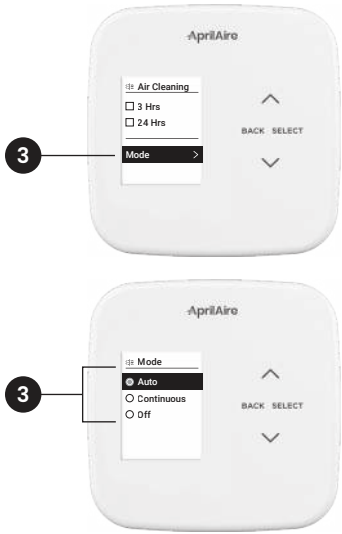
3. **Modes** (persistent)

Auto: The air cleaner will run a minimum of 30 minutes every hour. The air cleaner will monitor the amount of time your heating and cooling system runs; if 30 minutes is not reached the air cleaner will automatically turn on. This will maximize the amount of air cleaning while minimizing energy consumption.

Continuous: This option will provide the maximum amount of air cleaning available. The air cleaner will be active for 24 hours a day, seven days a week.

Off: The air cleaner will not run the fan for the sole purpose of air cleaning.

NOTE: If air cleaning is installed, air cleaning will still occur during normal fan operation during heating, cooling or other indoor air quality events.



HUMIDIFIER CONTROL (S86N MUPR ONLY, IF INSTALLED)

The thermostat can be configured, through the **Installer** set-up, to control a humidifier and operate it in one of two modes, either **Automatic** or **Manual**. The thermostat will allow you to set a range of humidity based on an outdoor temperature reading (Automatic) or set and hold a value based on a single set point (Manual).

1. Select **Humidifier** from the **Main Menu**.
2. From this screen you can select humidity level adjustment or turning the control on or off.
3. To determine which mode the thermostat is set to, see **3a** and **3b** at right.



AUTOMATIC MODE

In **Automatic Mode**, you will receive the optimal amount of humidity so that your home and its furnishings will be protected from the potentially damaging effects of excessive or insufficient humidity during the heating season. The thermostat automatically adjusts your home's relative humidity based on the outdoor temperature to provide as much humidity as possible while avoiding window condensation.



The humidity setting needs to be set low initially to determine the humidity limits of your home. Please follow these steps when adjusting your thermostat.

1. Adjust the humidity setting to **3**, which is within the low-normal range. During the next 24-48 hours, it may be necessary to adjust the setting for more or less humidity, depending on your personal comfort and home's construction.
2. During the coldest days of the first heating season, minor adjustments may be necessary. This will depend on your home's windows and overall insulation. The relative humidity in your home will then be accurately controlled to meet your needs and should not need any adjustment during future heating seasons.

MANUAL MODE

In Manual Mode, it is important to anticipate drops and react to increases in outdoor temperature to maintain as much humidity as possible while avoiding window condensation.

1. Use **TABLE 1** below to determine the proper relative humidity setting. Changes may be necessary several times per day throughout the heating season.

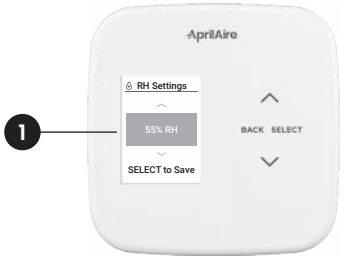
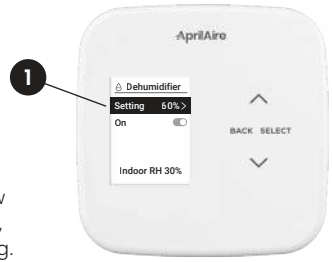


TABLE 1 – RECOMMENDED RELATIVE HUMIDITY

Outdoor Temperature	Indoor Relative Humidity
+50°F	50%
+40°F	45%
+30°F	40%
+20°F	35%
+10°F	30%
0°F	25%
-10°F	20%
-20°F	15%

DEHUMIDIFIER CONTROL (S86N MUPR ONLY, IF INSTALLED)

The thermostat can be configured, through the installer set-up, to control dehumidification with either a whole home dehumidifier or with the air conditioner (cooling unit). The thermostat will allow you to set the desired humidity (% relative humidity) level in your home and can be used to turn the dehumidification **On** or **Off**.



1. Use the dehumidification adjustment to set the dehumidification setpoint to **60%** when first installed. Allow dehumidification to run until the initial setpoint is reached, before deciding if you want to change the humidity setting.

   Raise the setting if you prefer the air to be **less dry**; this will reduce the amount of time that dehumidification runs.

   Lower the setting if you prefer the air to be **more dry**; this will increase the amount of time that dehumidification runs.

Your comfort is the best measure of how to adjust your setting. When first installed, your dehumidifier has to remove all the moisture that is initially in your home. The home acts like a sponge so the moisture in the materials of your home is at the same level as the air. After drying the air, the materials of the home will release the moisture back into the air until they are again at the same level. As a result, it is not uncommon for dehumidification to operate for an extended period of time when it is first installed.

IF DEHUMIDIFICATION IS DONE WITH THE AIR CONDITIONER

The thermostat will cool up to 3°F beyond the cooling setpoint for dehumidification.
NOTE: overcooling may not be sufficient to meet the dehumidification setpoint.

ENERGY SAVING TIP #1:

Adjust the setting to be as high as is comfortable to reduce dehumidification run time – if it feels clammy or smells damp or moldy lower the setting. To save energy, turn the dehumidifier control **OFF** when you open your windows just as you would with air conditioning.

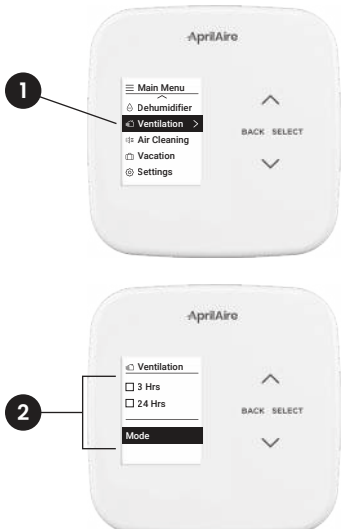
ENERGY SAVING TIP #2:

If vacating your home for an extended period in the summer, set the relative humidity to **60%** and the cooling set point to the highest level that meets the comfort and safety needs of your pets and possessions. Consult with professionals to determine the best set point. This will keep the humidity at a controlled level to help prevent mold while minimizing the amount of the cooling energy used. **Vacation** hold is a convenient way to adjust the dehumidification and cooling setpoint when you will be away. See page 26.

FRESH AIR VENTILATION (S86N MUPR ONLY, IF INSTALLED)

This thermostat can be configured, through the **Installer** set-up, to control fresh air ventilation based on a predetermined hourly schedule. You can temporarily override that schedule to bring in more fresh air, if desired, or even turn it off if outdoor conditions are poor.

1. Select **Ventilation** from the **Main Menu**.
2. From this screen you can select **Ventilation Events** or **Mode**.



Ventilation has two temporary events and two permanent modes that can be set.

3. **Events** (temporary)

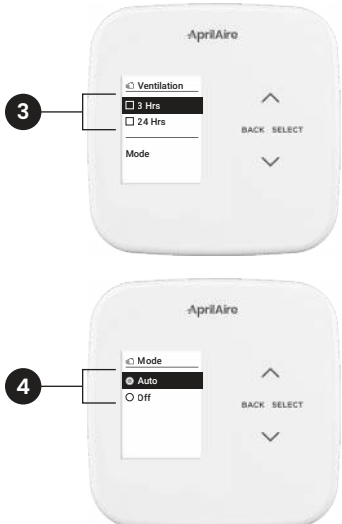
   3 Hours: Ventilation will be constantly energized for 3 hours and then the fresh air mode will return to **Auto** or **Off** depending on which mode was most recently active. This option is used when fresh air is needed. **Example:** To dilute unwanted cooking odors.

   24 Hours: Ventilation will be constantly energized for 24 hours and then the fresh air mode will return to **Auto** or **Off** depending on which mode was most recently active. This option is used when a large amount of fresh air is desired. **Example:** A day with desirable outdoor conditions.

4. **Mode** (persistent)

   Auto: Ventilation will cycle based on the parameters set by the installer to meet your home's ventilation requirements.

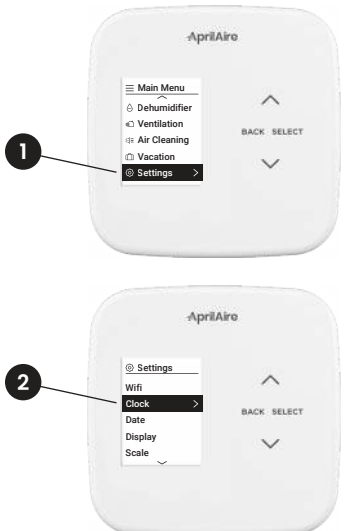
   Off: Ventilation will not run.



PROGRAM SCHEDULE AND HOLDS

SET TIME AND DATE

1. Select **Settings** from the **Main Menu**.
2. From the **Settings** menu, select **Clock** the to set the time, or **Date** to set the date.



UNDERSTANDING PROGRAM SCHEDULES

The daily schedule is split into four sections:

Wake: Temperature you would prefer to wake up to.

Leave: Temperature when you are away from the house.

Return: Temperature you would prefer to return home to.

Sleep: Temperature you would prefer while sleeping.

The times and temperatures shown in **TABLE 2** are the defaults. The start time and temperature of each section can be changed to fit your schedule. We recommend these settings, since they can reduce your heating/cooling expenses. The fan program is pre-set to **Auto** for all events.

TABLE 2 – DEFAULT SCHEDULE

Event Designator	Start Time	Set Temperature		Fan
		Heat	Cool	
Wake	6:00 AM	70°F (21°C)	78°F (25.5°C)	Auto
Leave	8:00 AM	62°F (16.5°C)	85°F (29.5°C)	Auto
Return	5:00 PM	70°F (21°C)	78°F (25.5°C)	Auto
Sleep	10:00 PM	62°F (16.5°C)	82°F (27.5°C)	Auto

PROGRESSIVE RECOVERY

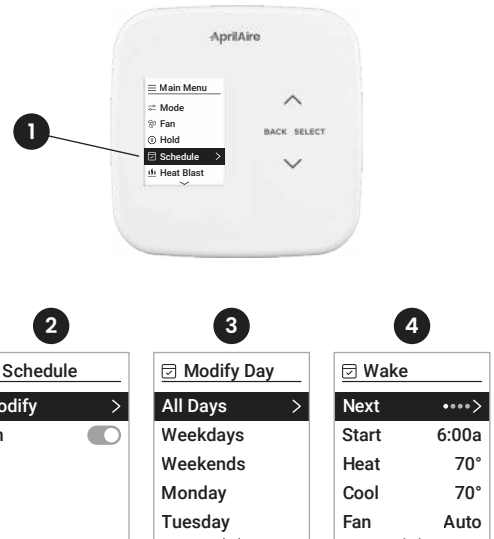
The Progressive Recovery feature allows Pre-Heating or Pre-Cooling PRIOR to a scheduled event in order to reach the desired temperature at the start of that scheduled event. **EXAMPLE:** According to **TABLE 2**, the **Wake** time is 6:00 am, the **Wake** heat set point is 70°F and the **Sleep** set point is 62°F. The heat will turn on prior to 6:00 am so that the temperature reaches 70°F by the time the **Wake** event begins.

HOW TO MODIFY PROGRAM SCHEDULES

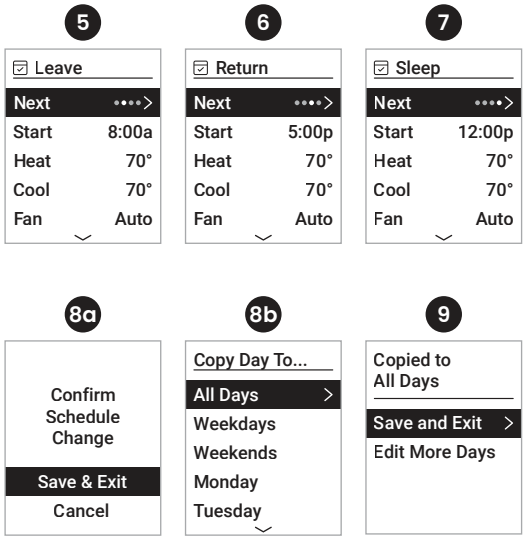
1. From the **Schedule** option in the **Main Menu**, you can turn the schedule **On** or **Off**, and make changes to the schedule.

   Modify: The event start time, temperature, fan mode, and controlling sensor (if installed) can be adjusted for each event of each day.

   On/Off: When the **Schedule** is turned **Off** the thermostat will continue to control at the current temperature setting until adjusted with ∧ and ∨.
2. Select **Modify** to change default schedule settings.
3. Select the group of days or day you would like to modify.
4. Adjust **Wake** details (**Start**, **Heat**, **Cool**, **Fan**, and/or select **Next** to proceed.



5. Adjust **Leave** details and/or select **Next** to proceed.
6. Adjust **Return** details and/or select **Next** to proceed.
7. Adjust **Sleep** details and/or select **Next** to proceed.
8. **a)** If you modified a group of days you can **Save & Exit** back to the **Home** screen.
   b) Or if you modified a single day you can copy the settings to another day or group of days.
9. If you choose to copy, you will see this confirmation message, then you can return to the **Modify** menu to make changes to another day by selecting **Edit More Days** or return to the **Home** screen by selecting **Save and Exit**.



HEAT BLAST® (IF INSTALLED)

Heat Blast® will raise the current room temperature 3°F to 5°F based on the installer set-up, and then resume normal operation.

To activate Heat Blast, select **Heat Blast** from the **Menu**, and use the **Select** button to set the toggle to **ON**.

NOTE: Heat Blast button is only available if it is enabled in the **Installer Setup** and the thermostat is in **Heat** or **Emergency Heat** mode.

To cancel Heat Blast, select **Heat Blast** from the **Menu**, and use the **Select** button to set the toggle to **OFF**.

PROGRAM SCHEDULE HOLDS

TEMPORARY HOLD



Press ∧ or ∨ to immediately adjust the temperature when the schedule is running. This will temporarily hold the temperature setting until the next scheduled event.

A temporary hold can also be set from the **Hold** option in the **Menu**. The end time of the hold can also be adjusted from here.

The temporary hold can be canceled from the **Hold** option in the **Menu**, or by adjusting the temperature back to the scheduled temperature.

VACATION

This energy saving feature allows you to suspend the programmed schedule for an extended period of time. The selected temperature and dehumidification setpoint (optional) will be maintained until the vacation hold end date and time. Once that date and time are met, the previously programmed schedule will resume. If you return earlier than expected, turn off the Vacation hold from the **Vacation** option in the **Menu** to resume the programmed schedule.

SETUP MENU

TABLE 3 – USER SYSTEM SETTINGS TABLE	
Clock	Set time.
Date	Set date.
Display	Display can be disabled during sleep for light sensitive locations.
Scale	Change temperature scale from Fahrenheit to Celsius.
About	Contains thermostat model number and software/hardware version.
Reset Reminder	Reset expired service reminders.
Lockout	Locks controls to prevent tampering. To temporarily override the lockout press and hold the **Select** button for 7 seconds.

LIMITED WARRANTY

Your Research Products Corporation AprilAire® Thermostat is expressly warranted for five (5) years from date of installation to be free from defects in materials or workmanship.

Research Products Corporation's exclusive obligation under this warranty shall be to supply, without charge, a replacement for any thermostat which is found to be defective within such five (5) year period and which is returned, together with the date of installation, no later than thirty (30) days after said five (5) year period by you to either your original supplier or to Research Products Corporation, Madison, Wisconsin 53701.

THIS WARRANTY SHALL NOT OBLIGATE RESEARCH PRODUCTS CORPORATION FOR ANY LABOR COSTS AND SHALL NOT APPLY TO DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY YOUR INSTALLER AS CONTRASTED TO DEFECTS IN THE THERMOSTAT ITSELF.

IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE AFORESAID FIVE YEAR PERIOD. RESEARCH PRODUCTS CORPORATION'S LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OTHER THAN DAMAGES FOR PERSONAL INJURIES, RESULTING FROM ANY BREACH OF THE AFORESAID IMPLIED WARRANTIES OR THE ABOVE LIMITED WARRANTY IS EXPRESSLY EXCLUDED. THIS LIMITED WARRANTY IS VOID IF DEFECT(S) RESULT FROM FAILURE TO HAVE THIS THERMOSTAT INSTALLED BY A QUALIFIED HEATING AND AIR CONDITIONING CONTRACTOR. IF THE LIMITED WARRANTY IS VOID DUE TO FAILURE TO USE A QUALIFIED CONTRACTOR, ALL DISCLAIMERS OF IMPLIED WARRANTIES HALL BE EFFECTIVE UPON INSTALLATION .

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above exclusions or limitations may not apply to you.

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

WARRANTY REGISTRATION

Visit us online at **www.aprilaire.com** to register your AprilAire product. If you do not have online access, please mail a postcard with your name, address, phone number, email address, product purchased, model number, date of purchase, and dealer name and address to: Research Products Corporation, P.O. Box 1467, Madison, WI 53701.

Your warranty registration information will not be sold or shared outside of this company.

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U.S. Patent Numbers 8,146,376, 8,596,078, 9,874,366 and other patents pending.

AprilAire reserves the right to change specifications without notice.