AprilAire S86W Room Thermostat Set Up and Navigation

Dehumidifier operation is controlled via room thermostat, based on set configurations, parameters and set points.

Current dehumidifier models use **AprilAire S86W Thermostat**.

Information presented below covers only basic navigation and set up, relevant to current application; for detailed information on this thermostat – refer to ***thermostat manufacturer documentation***.

- Thermostat placement, installation and wiring instructions and info are provided in **Installation – Outdoor Air Condenser** chapter of current manual and thermostat manual; refer as needed.

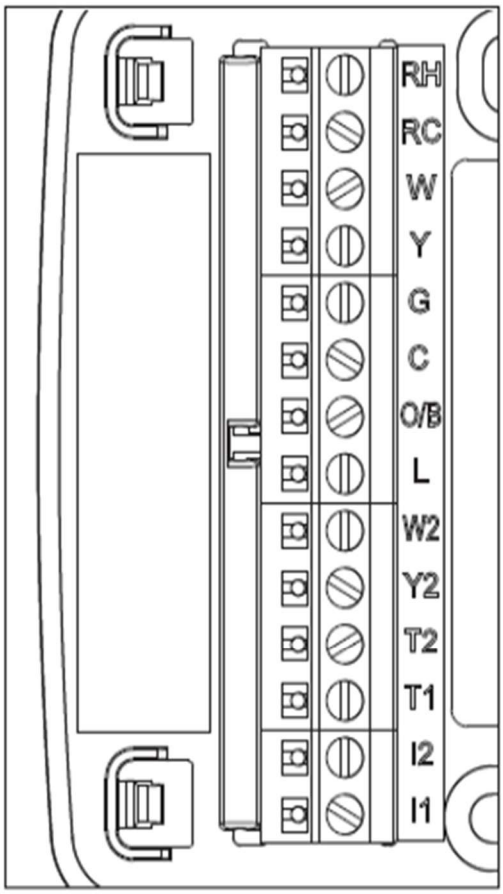
Note that thermostat, that is provided with the dehumidifier from the factory comes pre-configured; refer to following info as/when needed (to adjust setpoints etc.).

Thermostat Wiring Terminals

Thermostat wiring terminals are shown on Pic. V-1 as a reference only – for wiring details for current application refer to dehumidifier internal and field wiring diagrams **Installation – Outdoor Air Condenser** chapter of current manual.

RH	24VAC supply heating*
RC	24VAC supply cooling*
W	First stage heat (conventional) / First stage auxiliary (heat pump)
Y	First stage cooling (conventional) / First stage compressor (heat pump)
G	Fan
C	Common
O/B	Reversing valve
L	System fault indicator (optional) (heat pump only)
W2	Second stage heat (conventional) / Second stage auxiliary (heat pump)
Y2	Second stage cooling (conventional) / Second stage compressor (heat pump)
T1 & T2	Outdoor/remote temperature sensor
I1 & I2	Indoor Air Quality control output

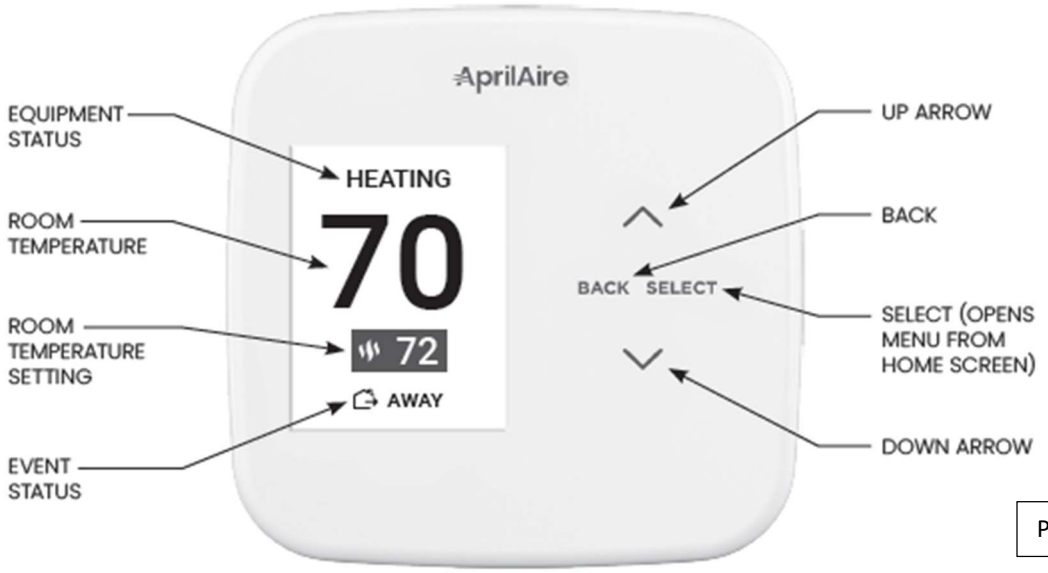
**Jumper between RC & RH is used in single transformer systems (see wiring diagrams).*



Pic. V-1

Thermostat Layout and Navigation

AprilAire thermostat, featuring **Home Display**, and navigation keys are shown on Pic. V-2.



Pic. V-2

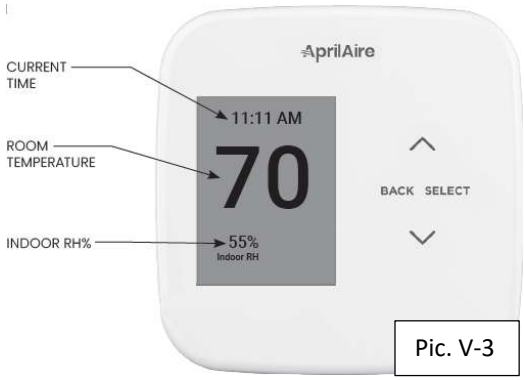
Status Indicators

Equipment Status – displays current/active operational mode/call (HEATING, COOLING etc.
Room Temerature – displays actual room air temperature
Room Temperature Setting – indicates set point for room temperature
if thermostat is set to Auto Mode (to control Cooling and Heating systems) - two respective set points displayed
Event Status – indicates additional/special current event

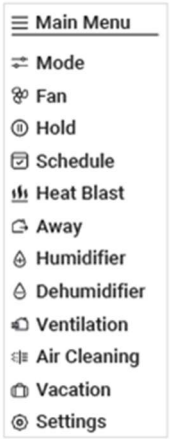
Navigation

Up/Down arrows – scroll up/down through the list of options and parameters
Back – prompt previous menu
Select – enables the selection; also opens Menu from the Home Display

Display **Screen Saver** mode (see Pic. V-3) displays current time and room air temperature and (if set respectively) humidity; it is activated if no navigation keys been pressed for more than 45 sec. (to activate Home Display – press any button).



Pic. V-3



Pic. V-4

Main Menu (Pic. V-4) could be accessed from the Home Screen by pressing Select button. It allows access to all settings and parameters.

Note that Main Menu items' availability depends on the thermostat configurations and settings.

Below are described only basic settings and parameters, relevant to current application; for detailed list of thermostat's parameters, options and configurations refer to thermostat manual

Thermostat Set Up

- ✓ *Note that thermostat has **Remote Access and Control** via WiFi ability. Refer to thermostat respective documentation to set up (if/as needed) AprilAire account and remote access.*
  - *Thermostats that are provided with the equipment from the factory, typically have latest firmware installed – consult thermostat manufacturer as needed.*

Below are some features/options, relevant to current application, are described.

Main Menu - Operational Modes

Mode menu allows to select systems that thermostat would control:

- **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*** (not applicable).
- **Off:** Heating and cooling systems are off.

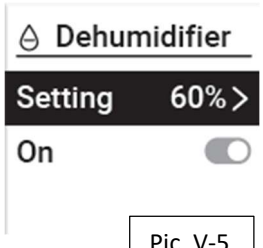
NOTE:

- Thermostat provided with the equipment is set to **Auto** Mode.
- Set your system **Mode** according to the installed equipment:
  - For dehumidifier NOT equipped with **OAC** and **Space Heater**, Mode could be set to **Heat** or **Off:**
    - *if **Auto** or **Cool** Mode are selected, on call for Cooling thermostat may show Cooling operation in progress, but no actual cooling would happen (only fan would continue to operate)*
    - *if **Auto** Mode is selected, on call for Heating thermostat may show Heating operation in progress, but no actual heating would happen (only fan would continue to operate)*
  - For dehumidifier equipped with **OAC** but NOT equipped with **Space Heater**, Mode could be set to **Cool** or **Off:**
    - *if **Auto** Mode is selected, on call for Heating thermostat may show Heating operation in progress, but no actual heating would happen (only fan would continue to operate)*
  - For dehumidifier equipped with **OAC** and **Space Heater**, recommended Mode setting is **Auto**.

Fan menu is not applicable to current configuration, as main fan operates constantly (non-stop, 24/7), and not controlled via thermostat.

Humidifier, Ventilation and **Air Cleaning** menus are not applicable to current configuration, and should not appear in Main Menu (once thermostat is configured respectively – see **System Configuration**, **Installer Menu** below).

Dehumidifier menu (once thermostat configured to control Dehumidifier – see **System Configuration** below), allows to activate or de-activate Dehumidifier control and set desired level of humidity (see Pic. V-5):



Pic. V-5

- Activate **Dehumidifer control** – select slider "ON" (should be green if active)
- Set the **humidity set point** – select "Settings" and adjust value as needed (with Up/Down arrows).
  - ✓ Ensure that selected value is within design brackets – refer to equipment submittal documentation and Main Label.
  - ✓ Thermostat manuals typically reference Indoor Relative Humidity recommended settings, based on outdoor temperature. These recommendations are not applicable for indoor pool room application – refer to design values in Main Lable.

Main Menu – System Configuration

- ✓ *Note that for thermostat, provided with the equipment from the factory, parameter settings described in this clause are typically pre-set from the factory, and given here just for a reference.*

1. **Access Installer Menu**. This menu, among other features, provides access to system control configuration
2. (HVAC Settings/Advanced, IAQ Settings etc.):
   - From **Main Menu** - use **Up** or **Down** arrows to navigate to **Settings**, then press **Select**.
   - Press and hold **Up** and **Down** arrows *together for 3 seconds* to unlock the **Installer** option.
   - Use **Up** or **Down** arrow to navigate to **Installer**, then press **Select** to enter **Installer Menu**.
3. **Set/configure the system**. Table V-1 below lists system settings, that are critical to system proper configuration – verify their values and adjust as needed (rest of the parameters are to be left at their default values) – refer to thermostat documentation for parameter detailed description and settings' options.

Table V-1.

HVAC Settings/HVAC Advanced			
System Setting	***Setting Value***	***System Setting***	***Setting Value***
Equipment Type	Heat/Cool *	Deadband	3°F (1.5°C) *
Control Setup	Heat&Cool*	Auto Changeover Time	4 minutes*
Fan Control in Heating	Electric Heat	Equipment Minimum On Time	3 minutes*
Number of Stages of Heat	Two	Heating Minimum Off Time	2 minutes*
Number of Stages of Cool	Two	Compressor Minimum Off Time	5 minutes*
Programmable	Non Programmable	Stage Rate	Enabled*
Wired Temp. Sensor Installed?	No*	Stage Rate Factor	2*
Outdoor Temp. Data Provided From?	None	First Stage Differential	1°F (0.5°C)*
Advanced HVAC Settings?	yes	Second Stage Differential	1°F (0.5°C)*
Connection Type	AprilAire Cloud*	Max Heat Setting	90°F (32°C)*
Progressive Recovery	Enabled*	Min Heat Setting	40°F (4.5°C)*
Display Heat Blast	No*	Max Cool Setting	90°F (32°C)*
Auto Changeover	Enabled	Min Cool Setting	70°F (21°C)*
Humidifier System Settings		**Dehumidifier System Settings**	
System Setting	***Setting Value***	***System Setting***	***Setting Value***
Humidifier Installed?	No*	Dehumidifier Type Installed?	Whole Home
Air Cleaning System Settings		Disable Dehum. During Cooling	No
System Setting	***Setting Value***	Dehumidifier Forces fan?	No
Air Cleaner Installed?	No*	Dehumidifier Reminder	Disabled*
Fresh Air Ventilation System Settings			
System Setting	***Setting Value***		
Fresh Air Vent Installed?	No*		

Note: settings' values, shown in the table with asterix (*), are default ones.

Set Points - Humidity and Temperature

Folowing describes how to adjust set points - desired value of the controlled parameters (air temperature and humidity):

- **Humidity** set point is adjusted in **Dehumidifier** menu (accessible from Main Menu – see above).
- **Temperature** set point is adjusted from the **Home** screen:
  - From the **Home** screen press **Up** or **Down** arrow to access current temperature setting.
    - The temperature setting will enlarge during adjustment.
    - If control mode is set to ***Auto***, two respective set points – *Heating* and *Cooling* – would be available for adjustment; press **Select** to switch between Heating and Cooling and set as needed.
  - With **Up** and **Down** arrows adjust the value as needed; the temperature setting will take effect 3 seconds after the last adjustment (alternatively - press **Select** to save and return to the home screen).