



Model 8620W Universal Touch Screen Wi-Fi Thermostat with Integrated Indoor Air Quality Solutions



Safety & Installation Instructions

READ AND SAVE THESE INSTRUCTIONS

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WI-FI SETUP

For detailed instructions for connecting the thermostat to a Wi-Fi network and registering it to an Aprilaire account, refer to the Wi-Fi Quick Start Guide included in the box.

INSTALLATION

INSTALLATION LOCATION RECOMMENDATIONS

Thermostat should be mounted:

- On an interior wall, in a frequently occupied space.
- Approximately 5' above floor.
- At least 18" from outside wall.
- Thermostat can be mounted to a vertical junction box.

Do not mount thermostat:

- Behind doors, in corners or other dead air spaces.
- In direct sunlight, near lighting fixtures, or other appliances that give off heat.
- On an outside or unconditioned area wall.
- In the flow of a supply register, in stairwells, or near outside doors.
- On a wall with concealed pipes or ductwork.

OUTDOOR TEMPERATURE SENSOR (INCLUDED)

Outdoor temperature can be measured by attaching the included 8052 sensor to the S1 and S2 terminals. The outdoor sensor must be enabled in the installer setup menu.

Heat pump models can use the outdoor temperature to effectively utilize the heat pump:

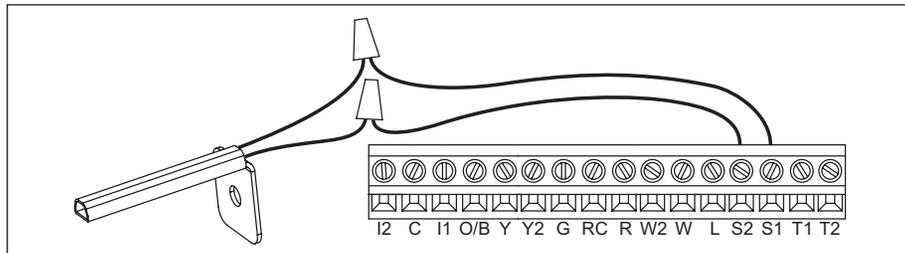
- When the outdoor temperature is less than the Low Balance Point, the heat pump will be locked out and only auxiliary heating will be used to provide heating.
- When the outdoor temperature is higher than the High Balance Point, the auxiliary heating will be locked out and only the heat pump will be used to provide heating.

Indoor Air Quality functions can use the outdoor temperature sensor to:

- Control humidification setpoint based on outdoor temperature to prevent condensation
- Lock out humidification for temperatures over 60°F or below -30°F.
- Lock out ventilation based on high and/or low outdoor temperatures.
- Display outdoor temperature on thermostat.

Outdoor temperature sensor should be mounted:

- On side of building out of direct sunlight (north side recommended).
- Above snow line.
- At least 3' away from exhaust vents and condensing lines.
- Using less than 300' of wire.
- Do not route wires along 120 VAC lines.



INSTALLATION

REMOTE TEMPERATURE SENSOR (OPTIONAL)

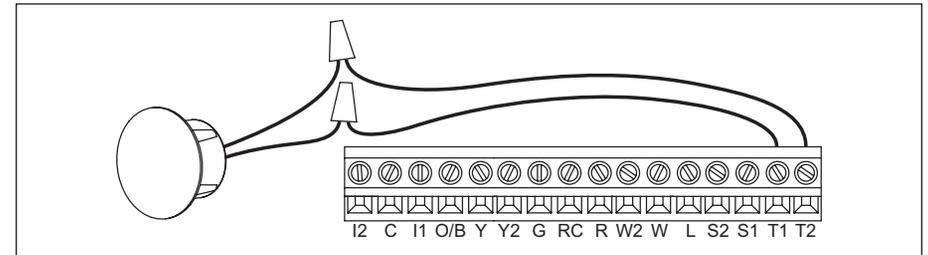
A remote temperature sensor can be used for control if the thermostat is to be mounted in a concealed location or a remote sensor can be averaged with the thermostat sensor to control a large space. An 8051 flush mount or 8053 surface mount remote temperature sensor can be attached to the T1 and T2 terminals and mounted in a recommended area. The remote sensor must be enabled in the installer set-up menu, and once enabled will override or be averaged with the thermostat's internal temperature sensor, based on the setting.

Remote temperature sensor should be mounted:

- On an interior wall, in a frequently occupied space.
- Approximately 5' above floor.
- At least 18" from outside wall.
- Using less than 300' of wire.

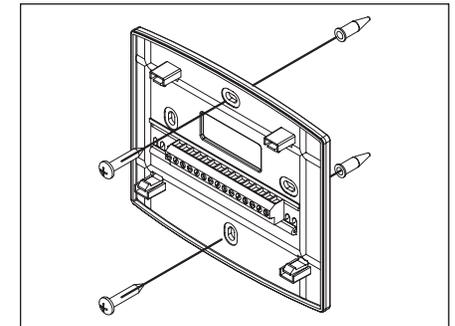
Do not mount remote sensor:

- Behind doors, in corners or other dead air spaces.
- In direct sunlight, near lighting fixtures, or other appliances that give off heat.
- On an outside or unconditioned area wall.
- In the flow of a supply register, in stairwells, or near outside doors.
- On a wall with concealed pipes or ductwork.
- Near 120 VAC lines.



THERMOSTAT MOUNTING

1. Remove the rear mounting plate from the thermostat.
2. Pull wires through the opening on the back of the rear mounting plate.
3. Position and level the mounting plate of the thermostat on wall and mark the hole locations with a pencil.
4. Drill 1/4" holes and insert supplied anchors (drywall only).
5. Place mounting plate over anchors, insert and tighten screws.
6. Seal wire entry holes to prevent drafts affecting temperature readings.

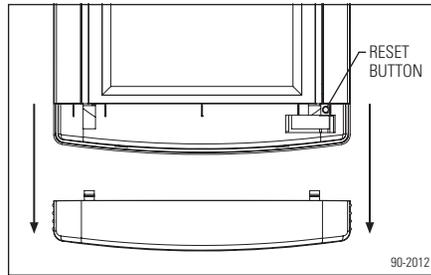


INSTALLATION

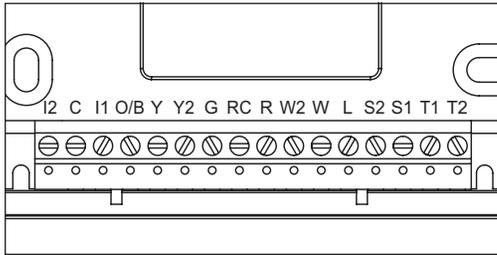
POWER & RESET OPTIONS

The thermostat is powered from 24VAC. In the case of power loss the thermostat will maintain the clock for 24 hours. The thermostat has a memory backup that saves the thermostat settings in case of power interruption.

The reset button located under the cover on the front of the thermostat can be used to reset the thermostat to factory defaults. The system settings will also be set to default.



WIRING TERMINAL



Wire specifications:

18-24 gauge thermostat wire

Installation notes:

- Ensure power at the HVAC equipment is off.
- Loosen screw terminals, insert stripped wire and re-tighten.
- Push the excess wire back into the opening and plug the wall opening to prevent drafts.

I1 & I2 – Indoor Air Quality control output

C – Common

O/B – Reversing valve

Y – First stage cooling (conventional) / First stage compressor (heat pump)

Y2 – Second stage cooling (conventional) / Second stage compressor (heat pump)

G – Fan

RC – 24VAC supply cooling¹

R – 24VAC supply heating¹

W2 – Second stage heat (conventional) / Second stage auxiliary (heat pump)

W – First stage heat (conventional) / First stage auxiliary (heat pump)

L – System fault indicator (optional) (heat pump only)

S1 & S2 – outdoor temperature sensor (included)

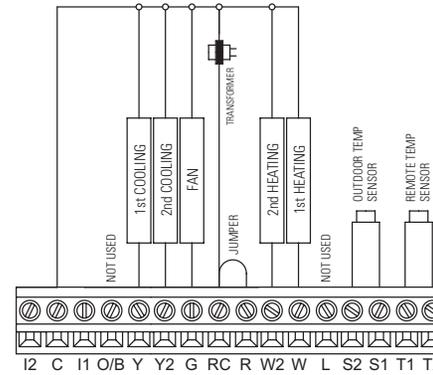
T1 & T2 – remote temperature sensor (optional)

¹Jumper between RC & R is used in single transformer systems (see wiring diagrams).

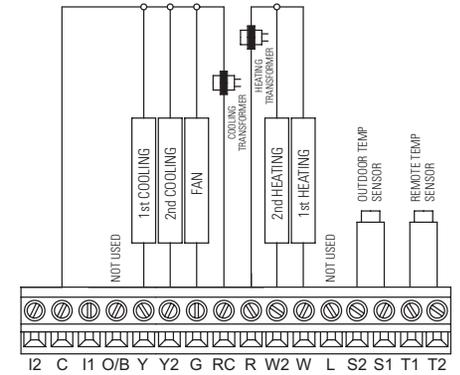
INSTALLATION

CONVENTIONAL HEAT/COOL WIRING DIAGRAMS

SINGLE TRANSFORMER (USE JUMPER WIRE)

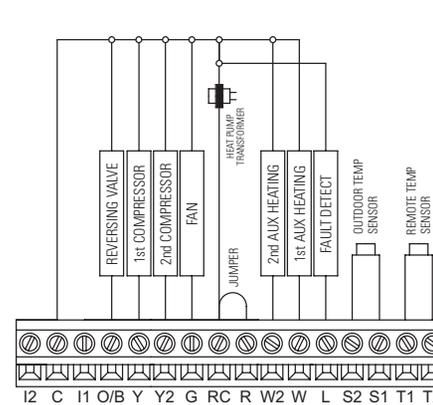


TWO TRANSFORMERS (REMOVE JUMPER WIRE)

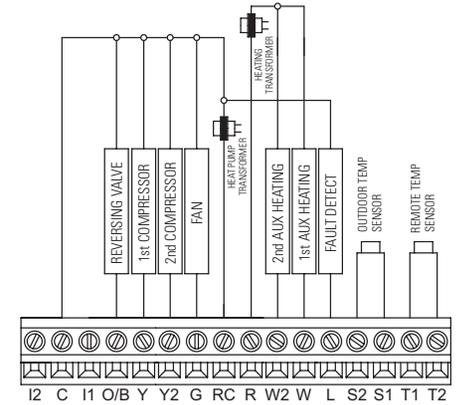


HEAT PUMP WIRING DIAGRAMS

SINGLE TRANSFORMER (USE JUMPER WIRE)



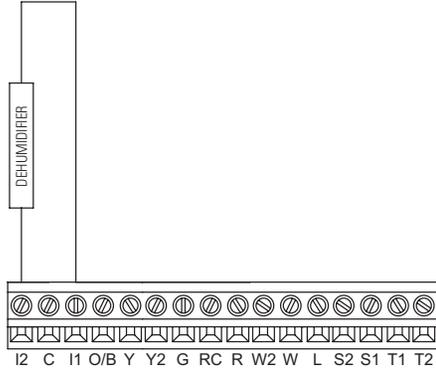
TWO TRANSFORMERS (REMOVE JUMPER WIRE)



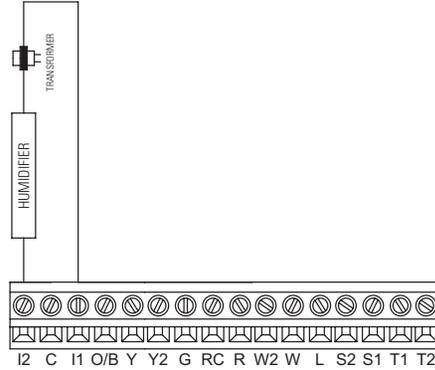
INSTALLATION

INDOOR AIR QUALITY EQUIPMENT WIRING DIAGRAMS

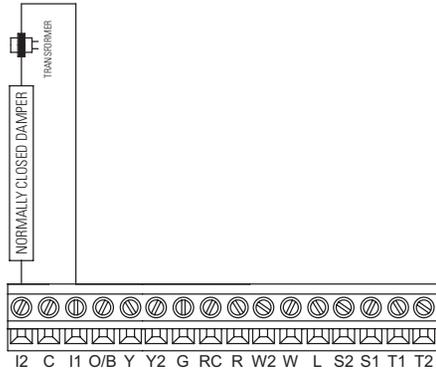
DEHUMIDIFIER WIRING



HUMIDIFIER WIRING



VENTILATION WIRING



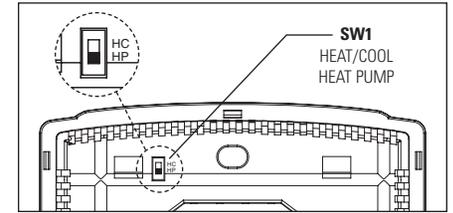
Note: The I1/I2 output is a dry contact closure. The humidifier wiring diagram assumes the control is powering a solenoid valve. The dehumidifier wiring diagram is for a normally open dry contact input. The ventilation diagram assumes the control is for a normally closed damper. Refer to the individual humidifier, dehumidifier or ventilation installation instructions for product specific wiring details.

SETUP & TESTING

EQUIPMENT TYPE SELECTION SWITCH (SW1)

This thermostat has the option of being used in heat pump or heat/cool systems. Switch SW1 located on the back of the thermostat's face is used to select this option. This setting is displayed in the Installer System Settings under Equipment Type.

Note: Thermostat reboots within 10 seconds after switch position is changed.



INSTALLER SETUP MENU

HOW TO ENTER THE INSTALLER SETUP MENU AND SELECT EQUIPMENT TO SETUP:

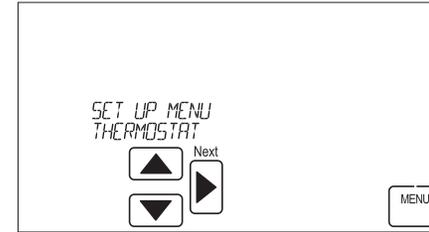
In the Installer Setup, HVAC or Indoor Air Quality setup can be selected. If Indoor Air Quality setup is selected, the user can then select to set up Air Cleaning, Humidification, Dehumidification or Ventilation.

Press **[MODE]** to set system to OFF.

Press **[MENU]** to enter main menu.

Press and hold **[SETUP]** for seven seconds, **[INSTALL SETUP]** appears.

Press **[INSTALL SETUP]** to enter installer setup menu.



Press **▲** or **▼** to adjust the option.

Press **[MENU]** to exit.

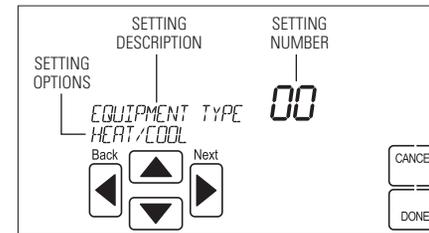
Press **[NEXT]** to select option.

If Indoor Air Quality was selected, Press **▲** or **▼** to adjust the Outdoor Sensor setting or Indoor Air Quality option.

Press **[NEXT]** to select Outdoor Sensor setting or Indoor Air Quality option.

System Settings can now be changed.

CHANGE SYSTEM SETTINGS



Press **[NEXT]** or **[BACK]** to page through the settings.

Press **▲** or **▼** to adjust the setting.

Press **[DONE]** to save and exit, or **[CANCEL]** to exit without saving.

The thermostat will discard changes and exit if nothing is pressed within 60 seconds.

To reset the installer settings to the default, reset the thermostat by pressing the **[RESET]** button for 5 seconds.

Note: The reset button is disabled when the thermostat is removed from the wall for programming.

SETUP & TESTING

HVAC INSTALLER SYSTEM SETTINGS TABLE

The following table contains the system settings and their details. Default settings are shown in **bold**. Some settings are only available dependent upon the value of other settings.

| System setting | Description | Factory default setting (bold) and setting range |
|--|---|--|
| 01. Equipment Type | Equipment type set by SW1. | Heat/Cool Heat Pump |
| 02. Temperature Scale | Set the thermostat to Fahrenheit or Celsius mode. | Fahrenheit Celsius |
| 03. Reversing Valve | Selects O or B operation. | O – On in cooling B – On in heating |
| 04. Control Setup | Used to lockout heating or cooling outputs. Note: Only available if Equipment Type is set to Heat/Cool. | Heat and Cool Heat Only Cool Only |
| 05. Heat/Cool: Cooling Stages Heat Pump: Compressor Stages | Heat/Cool: Number of Cooling Stages. Heat Pump: Number of Compressor Stages. | One Two |
| 06. Heat/Cool: Heating Stages Heat Pump: Aux Heat Stages | Heat/Cool: Number of Heat Stages. Heat Pump: Number of Auxiliary Heat Stages. | One Two |
| 07. Heat/Cool: Fan Control in Heating Heat Pump: Auxiliary Equipment Type | Heat/Cool: Determines if the thermostat or equipment controls the fan in heating. Heat Pump: Auxiliary Equipment type. | Gas/Oil Heat (equipment controls fan) Electric Heat (thermostat controls fan) |
| 08. Extended Fan – Heat | Extends fan operation after heat call ends. | Disable Enable (90 second extension) |
| 09. Extended Fan – Cool | Extends fan operation after cool call ends. | Disable Enable (90 second extension) |
| 10. Temperature Sensor Offset | Field adjustment of controlling temperature sensor(s). | 0° (no offset applied) -4°F to +4°F (-2°C to +2°C) |
| 11. Humidity Offset | Field adjustment of internal RH sensor. | 0 (no offset applied) -5% to +5% |
| 12. Auto Changeover | Enable or disable auto changeover mode. | Disable Enable |
| 13. Deadband | Auto Changeover mode deadband. | 3°F (1.5°C) 2°F to 9°F (1°C to 4.5°C) |
| 14. Remote Sensor | Select if remote sensor is attached, and if it is attached, if it is the primary control or averaged with the built-in sensor. If the remote sensor is the primary control it can be configured to use the built-in sensor as a back-up sensor. | Not installed Control no backup Control with built-in backup Average with thermostat built-in sensor |
| 15. Outdoor Sensor | Select if outdoor sensor is attached or not. | Not installed Installed |
| 18. Compressor Min Off Time | Minimum off time for compressor protection. | 5 minutes 1 to 5 minutes |
| 19. Heating Min Off Time | Minimum off time for heating. | 2 minutes 1 to 5 minutes |
| 20. Equipment Min On Time | Minimum on time for heating and cooling. | 2 minutes 1 to 5 minutes |

SETUP & TESTING

HVAC INSTALLER SYSTEM SETTINGS TABLE (CONTINUED)

| System setting | Description | Factory default setting (bold) and setting range |
|-------------------------------|--|---|
| 21. Auto Changeover Time | Minimum time between heating and cooling calls. | 4 minutes 1 to 5 minutes |
| 22. First Stage Differential | First differential. | 1°F (0.5°C) 1°F to 9°F (0.5°C to 4.5°C) |
| 23. Second Stage Differential | Second stage differential. | 1°F (0.5°C) 1°F to 9°F (0.5°C to 4.5°C) |
| 24. Third Stage Differential | Third stage differential. | 1°F (0.5°C) 1°F to 9°F (0.5°C to 4.5°C) |
| 25. Fourth Stage Differential | Fourth stage differential. | 1°F (0.5°C) 1°F to 9°F (0.5°C to 4.5°C) |
| 26. Away | Enables the Away feature. The Away feature allows the Aprilaire mobile and web apps to use a single button press to set the thermostat to a predefined setpoint(s). The thermostat will hold the setpoint(s) until Away is canceled with the app or at the thermostat. | Disable Enable |
| 27. Heat Blast | Enables the Heat Blast feature. | Disable Enable |
| 28. Blast Offset | Amount of heating when Heat Blast is initiated. | 3°F (1.5°C) 3°F to 5°F (1.5°C to 2.5°C) |
| 37. Stage Rate | Accumulation of equipment run time in equipment staging determination. 1 = more rapid staging of equipment (comfort). 5 = slower staging of equipment (economy). | 2 1 to 5 or "OFF" to ignore accumulated run time. |
| 38. Progressive Recovery | Enable or disable progressive recovery. | Disable Enable |
| 39. Low Balance Point | Outdoor temperature low balance point. Note: This option is only available if the outdoor sensor is enabled. | 20°F or -8°C 0°F to 60°F (-18°C to 12°C) or OFF to ignore LBP |
| 40. High Balance Point | Outdoor temperature high balance point. Note: This option is only available if the outdoor sensor is enabled. | 65°F or 14.5°C 0°F to 80°F (-18°C to 22°C) or OFF to ignore HBP |
| 41. Program Format | Enables the 7 day program. | 7-Day Non-Prog |
| 42. Reset Service Reminders | Clears the Change Air Filter and HVAC and Dehumidifier Service reminders if they are active and resets the start date to the current date. Clears the Change Water Panel reminder if it is active. If the reminder is set to Timed, the clock will be reset. | No Yes |
| 43. HVAC Service Reminder | The period for displaying the "HVAC Service Reminder" message. | Off 1 to 12 months or "Off" to disable |
| 44. Constant Backlight | Enable constant, low intensity backlight when 24VAC is present. | Disable Enable |
| 45. Backlight Intensity | Set the active backlight intensity. Note: The minimum setting is 40% when Constant Backlight is enabled. | 100 Percent 0 to 100 Percent |

SETUP & TESTING

INDOOR AIR QUALITY SYSTEM SETTINGS TABLES

The following tables contain the Indoor Air Quality system settings and their details. Default settings are shown in **bold**. Some settings are only present dependent upon the value of other settings.

The use of the included outdoor temperature sensor (recommended) enables additional Indoor Air Quality functionality. If the outdoor temperature sensor was not enabled in the HVAC system settings, HVAC system setting 15, outdoor sensor, will be presented prior to entering the Indoor Air Quality system settings.

Please refer to the Model 8620W Owner's Manual for further information about thermostat features.

Air Cleaning System Settings Table

| System setting | Description | Factory default setting (bold) and setting range |
|----------------------------|---|--|
| Air Cleaner Installed | Selects if an air cleaner is installed. (If set to no, no other air cleaning settings will be available.) | No Yes |
| Change Air Filter Reminder | The period for displaying the "Change Air Filter" message. | Off 1 to 12 months or "Off" to disable |

Humidifier System Settings Table

Note: A humidifier can only be installed if ventilation is not installed and dehumidifier control is not set to whole home.

| System setting | Description | Factory default setting (bold) and setting range |
|---|--|--|
| Humidifier Installed | Selects if a humidifier is installed. Yes/On HVAC is used for applications where the humidifier is installed on the HVAC duct. Yes/Standalone is used for application where the humidifier is independent of the HVAC system. (If set to no, no other humidifier settings will be available.) | No Yes/On HVAC Yes/Standalone |
| Humidifier Mode | Selects auto or manual mode. Auto mode controls humidity based on the humidity setting and outdoor temperature. Manual mode controls humidity based on the %RH setpoint. (Auto mode is only available if outdoor sensor is set to Installed.) | Auto Manual |
| Humidity Setpoint Deadband | Selects the minimum difference between the humidifier and dehumidifier setpoints. (Only available if a humidifier is installed and dehumidifier control is set to air conditioner. Available in both set-ups.) | 10 Percent RH 10 to 20 Percent RH |
| Humidifier Operation | Selects when humidification is allowed to occur relative to heating and fan operation. Without Fan allows humidification to occur without the HVAC fan. This option should only be used when the humidifier is independent of the HVAC system. Note: Without Fan is only available when Humidifier Installed is set to Yes/Standalone . | Heat Only Heat or Fan Forces Fan Without Fan |
| ▲ CAUTION: When Humidifier Operation is set to Without Fan the thermostat will turn on humidification without energizing the HVAC fan. Do not select this option when the humidifier is installed on the HVAC duct. Without airflow moisture can accumulate in the duct resulting in significant damage. | | |
| Change Water Panel Reminder | Selects the when the "Change Water Panel" message is displayed. | Off 1 Per Season 2 Per Season 300 Hours 600 Hours |

SETUP & TESTING

| System setting | Description | Factory default setting (bold) and setting range |
|--|---|---|
| Reminder Month (Change Water Panel Reminder set to 1 per Season) | Change Water Panel Reminder set to 1 per Season: Determines the month the "Change Water Panel" message is displayed. | October November December January February March April May June July August September |
| First Reminder Month (Change Water Panel Reminder set to 2 per Season) | Change Water Panel Reminder set to 2 per Season: Determines the first month the "Change Water Panel" message is displayed. | |
| Second Reminder Start Month | Determines the second month the "Change Water Panel" message is displayed. (Only available when Change Water Panel Reminder set to 2 per Season.) | October November December January February March April May June July August September |

Dehumidifier System Settings Table

Note: Dehumidifier control can only be set to whole home if ventilation and humidification are not installed.

| System setting | Description | Factory default setting (bold) and setting range |
|--------------------------------------|---|---|
| Dehumidifier Control | Selects method of dehumidification. (If set to none, no other dehumidifier settings will be available.) If dehumidification is done with the air conditioner, using the option of AC w/IAQ Output, it will cause the Indoor Air Quality output to be active when over cooling for dehumidification. This can be used if the HVAC equipment has a dedicated input to slow the fan during cooling to maximize dehumidification. | None (no dehumidification installed) Whole Home Air Conditioner AC w/IAQ Output |
| Humidity Setpoint Deadband | Select the minimum difference between the humidifier and dehumidifier setpoints. (Only available if a humidifier is installed and dehumidifier control is set to air conditioner.) Available in both set-ups. | 10 Percent RH 10 to 20 Percent RH |
| Lockout Dehumidifier During Cooling | Selects if dehumidification is disabled during a cooling call. (Only available if dehumidifier control is set to whole home.) | No Yes |
| Dehumidifier Forces Fan | Select if dehumidification can turn on the fan. (Only available if dehumidifier control is set to whole home.) | No Yes |
| Dehumidifier Service Reminder | The period for displaying the "Dehum Service Reminder" message. (Only available if dehumidifier control is set to whole home.) | Off 1 to 12 months or "Off" to disable |
| Dehumidifier Overcooling Limit | Selects the amount of overcooling that can occur for dehumidification. (Only available if dehumidifier control is set to air conditioner.) | 3°F (1.5°C) 1°F to 3°F (0.5°C to 1.5°C) |
| Dehumidify in Vacation Mode | Selects if dehumidification with the air conditioner is done in Vacation Mode. (Only available if dehumidifier control is set to air conditioner.) | No Yes |
| Vacation Dehumidifier Low Temp Limit | Sets the lowest temperature the air conditioner will cool to, to meet RH setpoint in Vacation Mode. (Only available if dehumidifier control is set to air conditioner.) | 75°F (23.5°C) 70°F to 85°F (21°C to 28.5°C) |

SETUP & TESTING

Ventilation System Settings Table

Note: Ventilation can only be installed if humidification is not installed and dehumidifier control is not set to whole home.

| System setting | Description | Factory default setting (bold) and setting range |
|------------------------------------|--|---|
| Fresh Air Vent Installed | Selects if ventilation is installed. (If set to No, no other ventilation settings will be available.) | No Yes |
| Fresh Air Setup Type | Selects if ventilation is configured through the Code setup or Comfort. Comfort setup has more lockout options. Code setting ensures missed lockout time is made up. | Comfort Code |
| Number of Bedrooms | Selects the number of bedrooms to be used for the Calculated Minutes per Hour. | 3 Bedrooms 1 to 10 Bedrooms |
| Home Size | Selects the size of the home to be used for the Calculated Minutes per Hour. | 2500 SQ FT 500 to 7500 SQ FT |
| Measured CFM | Selects the ventilation CFM to be used for the Calculated Minutes per Hour. | 110 CFM 30 to 250 CFM |
| Calculated Minutes per Hour | Displays the Fresh Air Time calculated. | None Range 6 to 60 Minutes |
| Override | Manual adjustment of Calculated Minutes per Hour. | (Calculated Minutes per Hour) Range 6 to 60 Minutes |
| Enable High Vent RH Limit | Selects if ventilation is disabled if the indoor RH exceeds the indoor RH limit. (Only available if Fresh Air Setup is set to Comfort.) | Yes No |
| High Vent RH Limit | Sets the ventilation indoor RH lockout limit. (Only available if Enable High Vent RH Limit is set to Yes.) | 55% 45% to 70% |
| Enable Low Vent RH Limit | Selects if ventilation is disabled if the indoor RH exceeds the indoor RH limit. (Only available if Fresh Air Setup is set to Comfort.) | No Yes |
| Low Vent RH Limit | Sets the ventilation indoor RH lockout limit. (Only available if Enable Low Vent RH Limit is set to Yes.) | 20% 10% to 30% |
| Enable High Vent Temperature Limit | Enables high ventilation temperature lockout limit. (Only available if Outdoor Sensor is set to Installed.) | No Yes |
| High Vent Temperature Limit | Sets high ventilation temperature lockout limit. (Only available if Enable High Vent Temperature Limit is set to Yes.) | 100°F (38°C) 85°F to 105°F (29°C to 41°C) |
| Enable Low Vent Temperature Limit | Enables low ventilation temperature lockout limit. (Only available if Outdoor Sensor is set to Installed.) | No Yes |
| Low Vent Temperature Limit | Sets low ventilation temperature lockout limit. (Only available if Enable Low Vent Temperature Limit is set to Yes.) | 10°F (-12°C) -10°F to 40°F (-24°C to 6°C) |
| HVAC Fan with Vent | Selects if ventilation forces the fan on. (Yes with high and low limits is only available if Outdoor Sensor is set to Installed.) | Yes Yes with high and low limits No |
| Enable High Mixing Temperature | Enables high mixing temperature. (Only available is HVAC Fan with Vent is set to Yes with high and low limits.) | No Yes |
| High Mixing Temperature | Sets the high mixing temperature. (Only available if Enable High Mixing Temperature is set to Yes.) | 80°F or (26°C) 60°F to 105°F (14°C to 41°C) |
| Enable Low Mixing Temperature | Enables low mixing temperature. (Only available is HVAC Fan with Vent is set to Yes with high and low limits.) | No Yes |
| Low Mixing Temperature | Sets the Low mixing temperature. (Only available if Enable Low Mixing Temperature is set to Yes.) | 40°F (6°C) 0°F to 50°F (-18°C to 12°C) |
| Fresh Air Service Reminder | The period for displaying the "SERVICE FRESH AIR" message. | OFF 1 to 12 months or "OFF" to disable |

Note: Refer to manuals for humidifier, dehumidifier, air cleaner, and ventilation products for recommended installation and operation.

SETUP & TESTING

REMOVAL OF INDOOR AIR QUALITY CONTROL BUTTONS

If any of the Indoor Air Quality control features are not installed, the corresponding button can be removed using the following procedure:

Step 1: Verify the specific Indoor Air Quality control feature is not installed in the installer set-up (see pages 10-12).

Step 2: From the home screen (see page 17), **press and hold** the Indoor Air Quality button you wish to remove for 7 seconds.

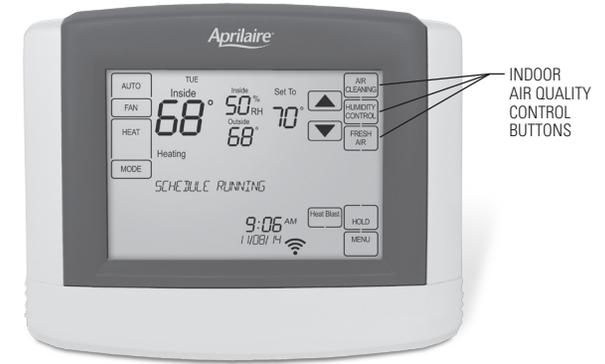
Step 3: The message center will display REMOVE BUTTON and the options of NO and YES (NO will be flashing).

Step 4: Press ▲ or ▼ to select YES.

Step 5: Press [DONE].

Step 6: The button is now removed.

Note: Once the button is removed it can be brought back by installing the corresponding Indoor Air Quality feature (see pages 10-12).



SYSTEM TEST MENU

The system test menu is used to test a system after installation. The outputs of the thermostat can be manually activated to test their function. The instructions below show how to enter the test mode and turn outputs on and off.

HOW TO ENTER THE SYSTEM TEST MENU:

Press [MODE] to set system to off.

Press and hold [FAN] and [MODE] for three seconds to enter system test mode.

The first screen of the installer test displays the equipment configuration.

Press [NEXT] to enter the first installation test or [CANCEL] to exit.

SYSTEM TEST STEPS

Heating equipment test

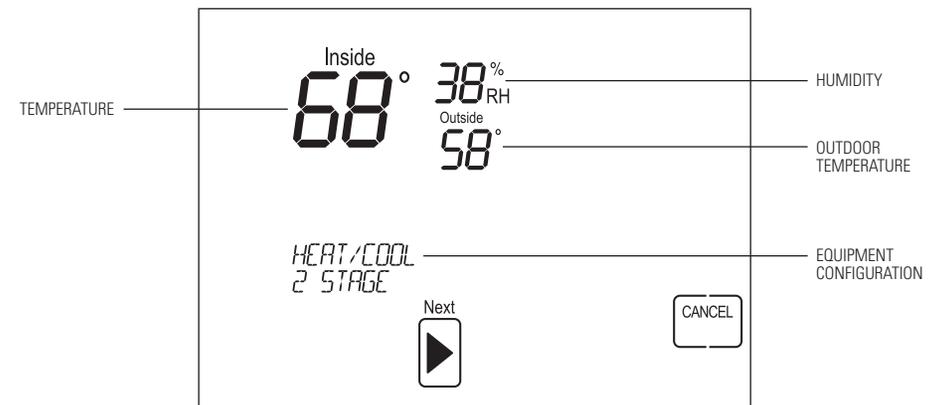
Cooling equipment test

Fan equipment test

Humidification equipment test

Dehumidification equipment test

Ventilation equipment test



SETUP & TESTING

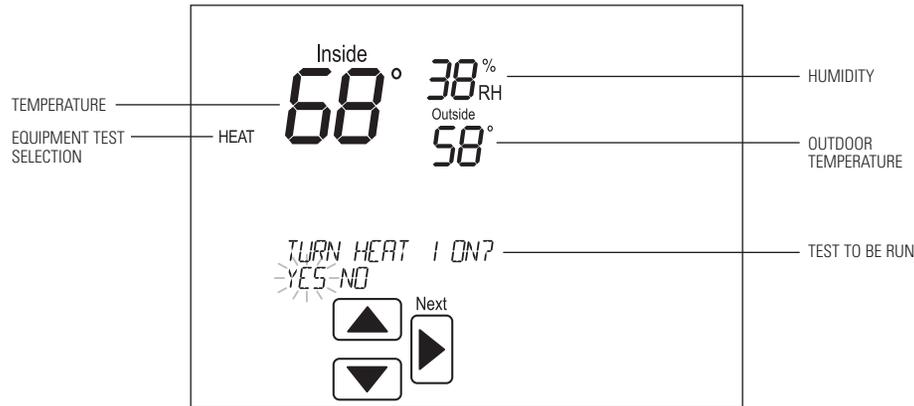
SYSTEM TEST MENU (CONTINUED)

Each equipment test will begin with the selection of turning on the output or stage as shown below.

Press ▲ or ▼ to change the selection.

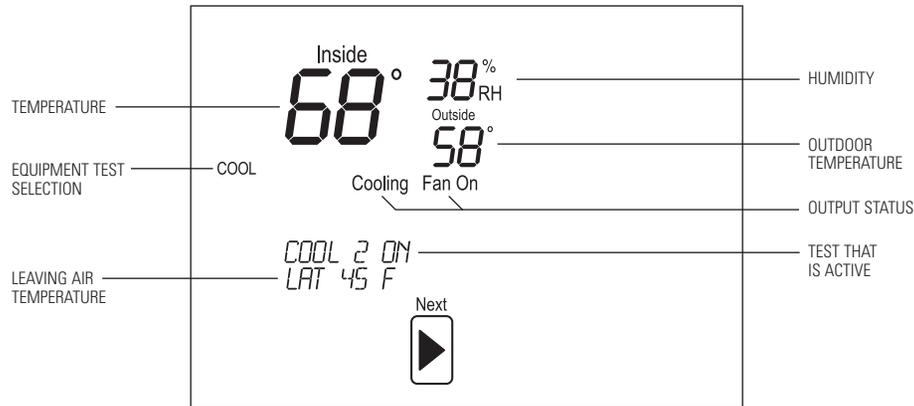
Press [NEXT] to accept the selection and proceed to the next step.

If **YES** is selected, the thermostat will test the corresponding output. If **NO** is selected, the thermostat will proceed to the next step.



While the equipment test is active the corresponding test information will be shown.

Press [NEXT] to accept the selection and proceed to the next test selection.



SETUP & TESTING

SYSTEM TEST TABLES

| Heat / Cool Heating Equipment Test | | | | | | |
|------------------------------------|----------------|----|----|---|----|----|
| Heat Type | | W | W2 | Y | Y2 | G |
| Gas | 1st Stage Test | ON | | | | |
| Gas | 2nd Stage Test | ON | ON | | | |
| Electric | 1st Stage Test | ON | | | | ON |
| Electric | 2nd Stage Test | ON | ON | | | ON |

| Heat Pump Heating Equipment Test (Electric Heat) | | | | | | | | | |
|--|------------|----------------|----|----|----|----|------------|----|----|
| Compressor Stages | Aux Stages | | W | W2 | Y | Y2 | O/B set to | | G |
| | | | | | | | O | B | |
| 1 | 1 | 1st Stage Test | | | ON | | | ON | ON |
| 1 | 1 | 2nd Stage Test | ON | | ON | | | ON | ON |
| 2 | 1 | 1st Stage Test | | | ON | | | ON | ON |
| 2 | 1 | 2nd Stage Test | | | ON | ON | | ON | ON |
| 2 | 1 | 3rd Stage Test | ON | | ON | ON | | ON | ON |
| 1 | 2 | 1st Stage Test | | | ON | | | ON | ON |
| 1 | 2 | 2nd Stage Test | ON | | ON | | | ON | ON |
| 1 | 2 | 3rd Stage Test | ON | ON | ON | | | ON | ON |
| 2 | 2 | 1st Stage Test | | | ON | | | ON | ON |
| 2 | 2 | 2nd Stage Test | | | ON | ON | | ON | ON |
| 2 | 2 | 3rd Stage Test | ON | | ON | ON | | ON | ON |
| 2 | 2 | 4th Stage Test | ON | ON | ON | ON | | ON | ON |

Note: System Variable 03, O/B operation selects O or B.

| Heat Pump Heating Equipment Test (Gas Heat) | | | | | | | | | |
|---|------------|----------------|----|----|----|----|------------|----|----|
| Compressor Stages | Aux Stages | | W | W2 | Y | Y2 | O/B set to | | G |
| | | | | | | | O | B | |
| 1 | 1 | 1st Stage Test | | | ON | | | ON | ON |
| 1 | 1 | 2nd Stage Test | ON | | | | | ON | |
| 2 | 1 | 1st Stage Test | | | ON | | | ON | ON |
| 2 | 1 | 2nd Stage Test | | | ON | ON | | ON | ON |
| 2 | 1 | 3rd Stage Test | ON | | | | | ON | |
| 1 | 2 | 1st Stage Test | | | ON | | | ON | ON |
| 1 | 2 | 2nd Stage Test | ON | | | | | ON | |
| 1 | 2 | 3rd Stage Test | ON | ON | | | | ON | |
| 2 | 2 | 1st Stage Test | | | ON | | | ON | ON |
| 2 | 2 | 2nd Stage Test | | | ON | ON | | ON | ON |
| 2 | 2 | 3rd Stage Test | ON | | | | | ON | |
| 2 | 2 | 4th Stage Test | ON | ON | | | | ON | |

Note: System Variable 03, O/B operation selects O or B.

SETUP & TESTING

SYSTEM TEST TABLES (CONTINUED)

| Heat / Cool Cooling Equipment Test | | | | | |
|------------------------------------|---|----|----|----|----|
| | W | W2 | Y | Y2 | G |
| 1st Stage Test | | | ON | | ON |
| 2nd Stage Test | | | ON | ON | ON |

| Heat Pump Cooling Equipment Test | | | | | | | |
|----------------------------------|---|----|----|----|------------|---|----|
| | W | W2 | Y | Y2 | O/B set to | | G |
| | | | | | O | B | |
| 1st Stage Test | | | ON | | ON | | ON |
| 2nd Stage Test | | | ON | ON | ON | | ON |

Note: System Variable 03, O/B operation selects O or B.

| Fan Equipment Test | | | | |
|--------------------|----|---|----|----|
| W | W2 | Y | Y2 | G |
| | | | | ON |

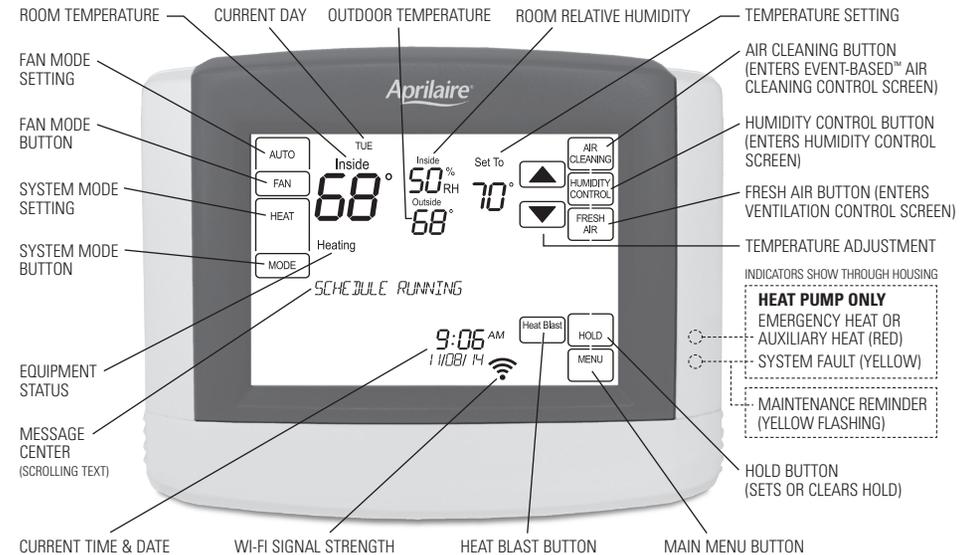
| Humidification Equipment Test | |
|-------------------------------|----|
| I1/I2 | G |
| ON | ON |

| Dehumidification Equipment Test | |
|---------------------------------|----|
| I1/I2 | G |
| ON | ON |

| Ventilation Equipment Test | |
|----------------------------|----|
| I1/I2 | G |
| ON | ON |

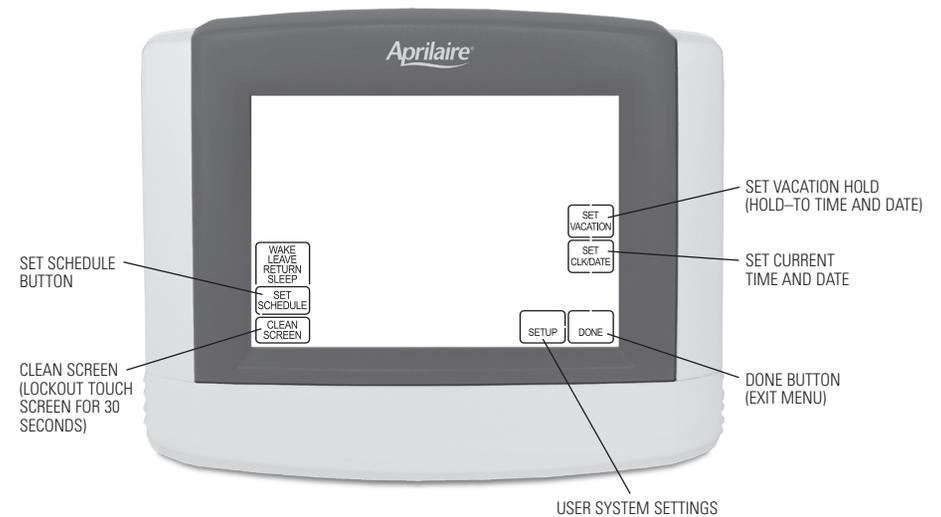
QUICK REFERENCE TO CONTROLS & DISPLAY

HOME SCREEN



NOTE: BACKLIGHT IS ACTIVATED WITH FIRST BUTTON PRESS AND AUTOMATICALLY TURNS OFF.

MAIN MENU



TROUBLESHOOTING

DISPLAY IS BLANK

- Check circuit breaker and reset if necessary.
- Make sure power switch at heating & cooling system is on.
- Make sure furnace door is closed securely.

TEMPERATURE SETTINGS DO NOT CHANGE

Make sure heating and cooling temperatures are set to acceptable ranges:

- Heat: 40° to 90°F (4° to 32°C).
- Cool: 50° to 99°F (10° to 37°C).

HEATING SYSTEM DOES NOT RESPOND (“HEATING” APPEARS ON SCREEN)

- Check for 24VAC at the equipment on the secondary side of the transformer between power and common. If voltage is not present, check the heating equipment to find the cause of the problem.
- Check for 24VAC between the heat terminal (W) and the transformer common. If 24VAC is present, the thermostat is functional. Check the heating equipment to find the cause of the problem.
- Check for loose or broken wires between the thermostat and the heating equipment.

COOLING SYSTEM DOES NOT RESPOND (“COOLING” APPEARS ON SCREEN)

- Check for 24VAC at the equipment on the secondary side of the transformer between power and common. If voltage is not present, check the cooling equipment to find the cause of the problem.
- Check for 24VAC between the cooling terminal (Y) and the transformer common. If 24VAC is present, the thermostat is functional. Check the cooling system to find the cause of the problem.
- Check for loose or broken wires between the thermostat and the cooling equipment.

FAN DOES NOT TURN ON IN A CALL FOR HEAT

- Check System Setting 07 (Fan Control), to make sure the fan control is properly set to match the type of system (see page 8).

HEAT PUMP ISSUES COOL AIR IN HEAT MODE, OR WARM AIR IN COOL MODE

- Check System Setting 03 (O/B Operation) to make sure the reversing valve operation matches the heat pump.

HEAT/COOL BOTH ON AT SAME TIME

- Check SW1 (Equipment Type), to make sure it is set to match the installed heating/cooling equipment (see page 8).
- Check to make sure heating and cooling wires are not shorted together.

HEATING EQUIPMENT IS RUNNING IN COOL MODE

- Check SW1 (Equipment Type), to make sure it is set to match the installed heating/cooling equipment (see page 8).

“HEATING” IS NOT DISPLAYED

- Check Installer System Setting number 04 (Control Setup) is set correctly.
- Change the System Mode to Heat, and set the temperature level above the current room temperature.

“COOLING” IS NOT DISPLAYED

- Check Installer System Setting number 04 (Control Setup) is set correctly.
- Change the System Mode to Cool, and set the temperature level below the current room temperature.

HUMIDIFIER DOES NOT OPERATE IN AUTO MODE

- Check Installer System Setting number 15 (Outdoor Sensor) is set to yes.
- Verify that the outdoor sensor is functioning correctly. If the sensor is functioning correctly the outdoor temperature will display in the outdoor temperature location (see Home Screen on page 17 for the location).

ERROR CODES

If the thermostat enters an error mode, all outputs are turned off. The thermostat attempts to recover every 10 minutes.

| Error code | Message | Error Description |
|------------|-----------------------|---|
| 01 | “SENSOR ERROR” | Open temperature sensor circuit |
| 02 | | Shorted temperature sensor circuit |
| 04 | “EEPROM ERROR” | Error in permanent memory |
| 06 | “REMOTE SENSOR ERROR” | Open remote temperature sensor circuit |
| 07 | | Shorted remote temperature sensor circuit |

THERMOSTAT FEATURES

- Remote access and control over Wi-Fi.
- Indoor air quality control.
 - Humidification automatic or manual control.
 - Dehumidification.
 - Event-Based™ air cleaning.
 - Ventilation with temperature and humidity limits.
- Temperature control.
- Heat Blast® raises the room temperature 3°F to 5°F.
- Large touch screen with adjustable backlight – constant backlight option available.
- Message center provides feedback and instructions.
- 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.
- Built in compressor protection prevents damage to your equipment.
- System test mode.

SPECIFICATIONS

| Environment | |
|-------------------|--|
| Temperature | Operating: 32° to 120°F (0° to 48.9°C) Shipping: -30° to 150°F (-34.4° to 65.5°C) |
| Relative humidity | Operating: 5% to 90% R.H. (non-condensing) |

| Electrical | |
|-------------------|--|
| Operating voltage | 24VAC (18 – 30VAC) |
| Current | Maximum: 2.5A (total), 1.0A (single output) Maximum surge current: 5A |

| Thermal | |
|-------------------------------------|--|
| Outdoor & Remote temperature sensor | Maximum distance: 300 feet |
| Room temperature measurement | Display range: 32° to 99°F (0° to 40°C) |
| Outdoor temperature measurement | Display range: -40° to 130°F (-40° to 55°C) |
| Setpoint temperature range | Heat: 40° to 90°F (4° to 32°C) Cool: 50° to 99°F (10° to 37°C) |
| Setpoint humidity range | Humidification: 10% to 50% R.H. Dehumidification: 40% to 90% R.H. |



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