



Model 8620 Thermostat with Event-Based™ Air Cleaning and Humidity or Ventilation Control



Safety & Installation Instructions

READ AND SAVE THESE INSTRUCTIONS

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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:

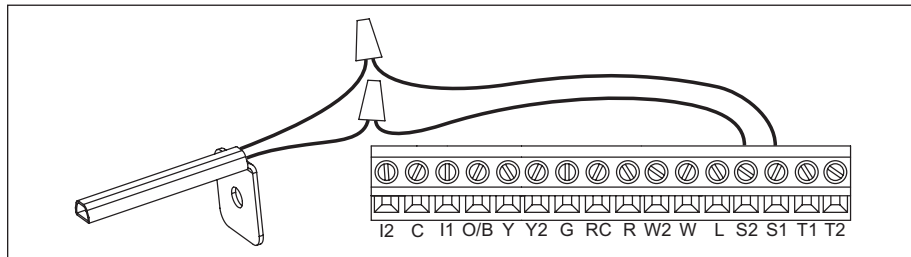
- When the outdoor temperature is less than the Low Balance Point, the heat pump will be locked out and only auxiliary heating will be used.
- When the outdoor temperature is higher than the High Balance Point, the auxiliary heating will be locked out and only the heat pump will be used to provide heating.

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)

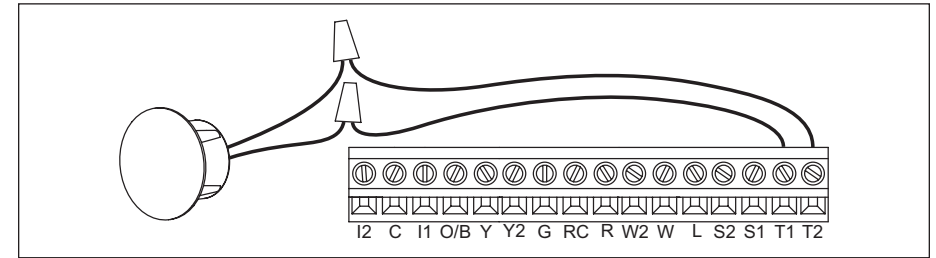
A remote temperature sensor can be used if the thermostat has to be mounted in a concealed location. A 8051 flush mount or 8053 surface mount remote temperature sensor can be attached to the T1 and T2 terminals and mounted in a recommended area. The remote sensor must be enabled in the installer setup menu. When the remote sensor is installed it overrides the internal sensor.

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.

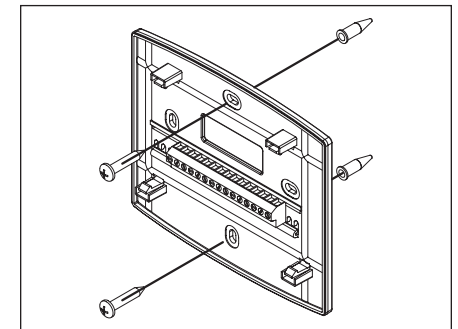
Do not mount remote sensor:

- 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 thermostat.
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

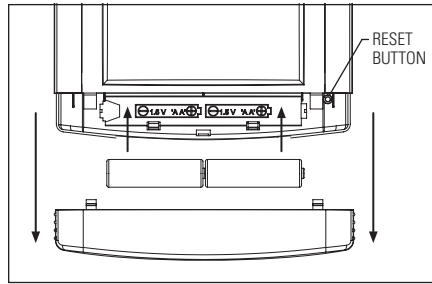
The thermostat is dual power. It can either be AC or battery powered, or both (to provide backup power for the clock). Batteries are optional if your thermostat was wired to run on AC power when installed.

For heat pump systems the C terminal must be connected to the common of the 24VAC transformer in order for the system fault and emergency heat indicators to operate.

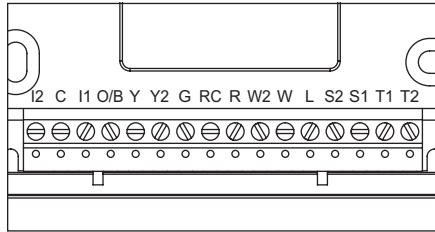
The thermostat has a memory backup that saves the thermostat settings in case of a power interruption. The system settings will be retained but the clock will reset after 90 seconds with no battery or AC power.

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

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



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.

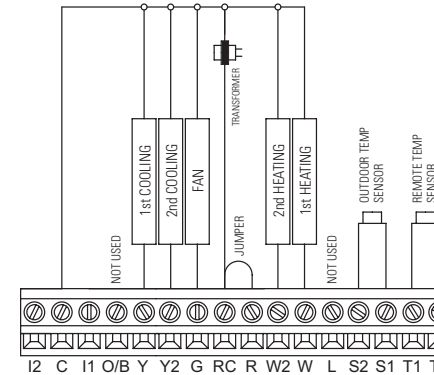
- I1 & I2** – Indoor Air Quality control output
- C** – Common (optional when powered by batteries)
- O/B** – Reversing valve
- Y** – 1st stage cooling / compressor
- Y2** – 2nd stage cooling / compressor
- G** – Fan
- RC** – 24VAC supply cooling¹
- R** – 24VAC supply heating¹
- W2** – 2nd stage heat / auxiliary
- W** – 1st stage heat / auxiliary
- 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).

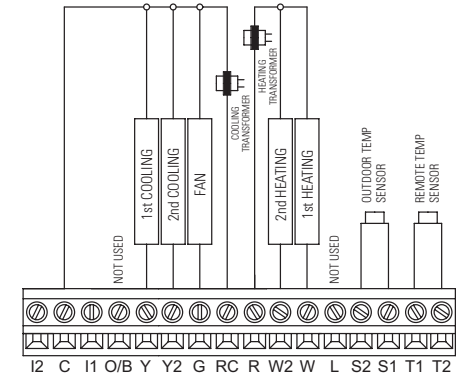
INSTALLATION

CONVENTIONAL HEAT/COOL WIRING DIAGRAMS

SINGLE TRANSFORMER (USE JUMPER WIRE)

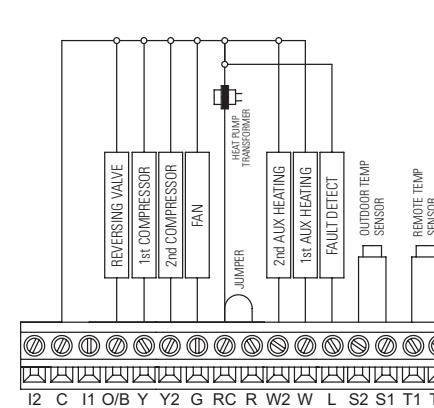


TWO TRANSFORMERS (REMOVE JUMPER WIRE)

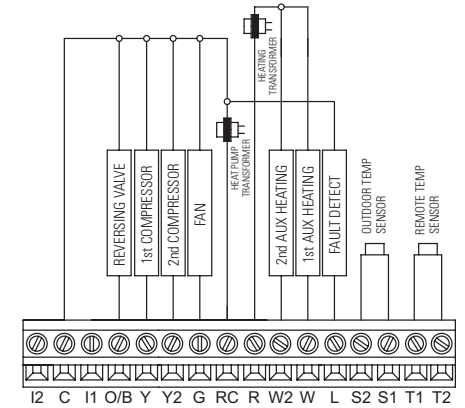


HEAT PUMP WIRING DIAGRAMS

SINGLE TRANSFORMER (USE JUMPER WIRE)



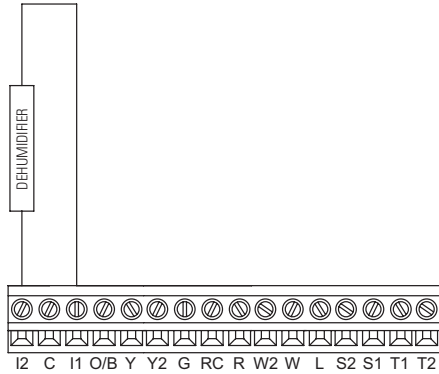
TWO TRANSFORMERS (REMOVE JUMPER WIRE)



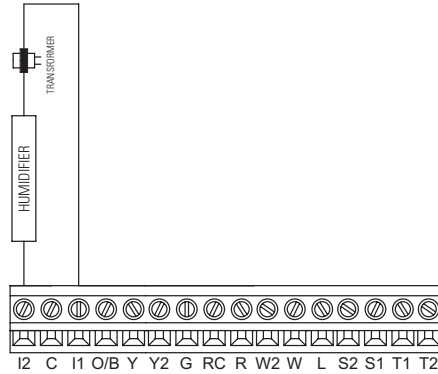
INSTALLATION

INDOOR AIR QUALITY EQUIPMENT WIRING DIAGRAMS

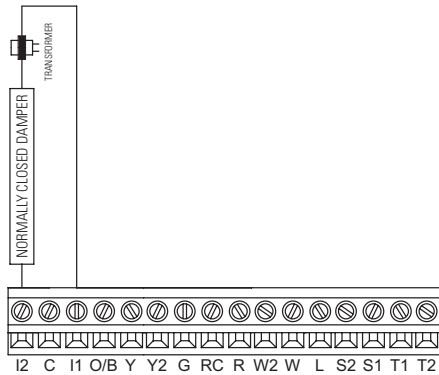
DEHUMIDIFIER WIRING



HUMIDIFIER WIRING



VENTILATION WIRING



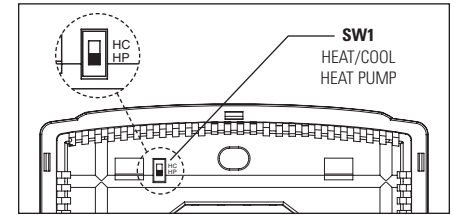
Note: The I1/I2 output is a dry contact closure. The humidifier wiring diagram assumes the control is powering a solenoid valve. The dehumidifier wiring diagram is for a normally open dry contact input. The ventilation diagram assumes the control is for a normally closed damper. Please see the individual 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:

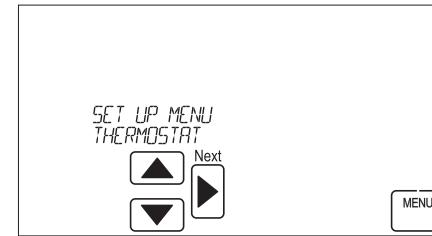
In the Installer Setup, HVAC or Indoor Air Quality setup can be selected. If Indoor Air Quality setup is selected, the user can then select to set up Air Cleaning, Humidification, Dehumidification or Ventilation.

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.

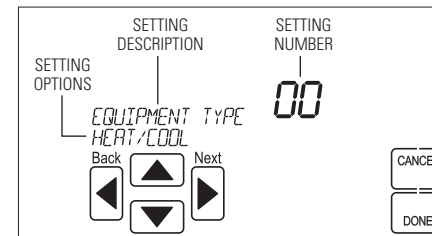
Press **[NEXT]** to select option.

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

Press **[NEXT]** to select Outdoor Sensor setting or IAQ (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.

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
00. Equipment Type	Equipment type set by SW1.	Heat /Cool Heat Pump
31. Reversing Valve	Selects O or B operation.	O – On in cooling B – On in heating
01. Control Setup	Used to lockout heating or cooling outputs. (Only available in Heat/Cool mode.)	Heat and Cool Heat Only Cool Only
02. Number of Stages	Number of equipment stages.	One Two
03. Aux Heat Stages	Number of auxiliary heat equipment stages.	One Two
04. Temperature Scale	Set the thermostat to Fahrenheit or Celsius mode.	Fahrenheit Celsius
05. 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)
06. Extended Fan – Heat	Extends fan operation after heat call ends.	Disable Enable (90 second extension)
07. Extended Fan – Cool	Extends fan operation after cool call ends.	Disable Enable (90 second extension)
08. Internal Temp Sensor Offset	Field adjustment of internal temperature sensor.	0° (no offset applied) -4°F to +4°F (-2°C to +2°C)
35. Internal RH Sensor Offset	Field adjustment of internal RH sensor.	0 (no offset applied) -5% to +5%
09. Auto Changeover	Enable or disable auto changeover mode.	Disable Enable
26. Deadband	Auto Changeover mode deadband.	3°F (2°C) 2°F to 9°F (1°C to 5°C)
10. Remote Sensor	Select if remote sensor is attached.	No Yes
11. Outdoor Sensor	Select if outdoor sensor is attached or not.	No Yes
12. Compressor Min Off Time	Minimum off time for compressor protection.	5 minutes 1 to 5 minutes
13. Heating Min Off Time	Minimum off time for heating.	2 minutes 1 to 5 minutes
14. Equipment Min On Time	Minimum on time for heating and cooling.	2 minutes 1 to 5 minutes
15. Auto Changeover Time	Minimum time between heating and cooling calls.	4 minutes 1 to 5 minutes
16. First Stage Differential	1st stage differential.	1°F (0.5°C) 1°F to 9°F (0.5°C to 4.5°C)
17. Second Stage Differential	2nd stage differential.	1°F (0.5°C) 1°F to 9°F (0.5°C to 4.5°C)
18. Third Stage Differential	3rd stage differential.	1°F (0.5°C) 1°F to 9°F (0.5°C to 4.5°C)

SETUP & TESTING

HVAC INSTALLER SYSTEM SETTINGS TABLE (CONTINUED)

System setting	Description	Factory default setting (bold) and setting range
19. Fourth Stage Differential	4th stage differential.	1°F (0.5°C) 1°F to 9°F (0.5°C to 4.5°C)
20. Heat Blast	Enables the Heat Blast feature.	Disable Enable
21. Blast Offset	Amount of heating when Heat Blast is initiated.	3°F (2°C) 3°F to 5°F (2°C to 3°C)
22. Screen Lockout	Screen lockout level. (Override lockout by holding [MENU] for 7 seconds.)	Off Part Full
23. Partial Lockout Type	Select lockout type. (Only available when screen lockout is set to partial.)	Fan/Mode/Setpt Fan/Setpoints Setpoints Only
24. Max Temp Setpoint Change In Lockout	Select temperature setpoint limits. (Only available when screen lockout is set to partial.)	3 degrees 0 to 20 degrees
41. Max Dehum Setpoint Change In Lockout	Select dehumidification setpoint limits. (Only available when screen lockout is set to partial.)	5 Percent RH 0 to 15 Percent RH
25. 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.
27. Progressive Recovery	Enable or disable progressive recovery.	Disable Enable
28. Low Balance Point	Outdoor temperature low balance point. (This option is only displayed if the outdoor sensor is enabled.)	20°F (-6°C) 10°F to 50°F (-12°C to 9°C) or OFF to ignore
29. High Balance Point	Outdoor temperature high balance point. (This option is only displayed if the outdoor sensor is enabled.)	65°F (18°C) 40°F to 85°F (3°C to 18°C) or OFF to ignore
30. Program Format	Select weekly program format.	7-Day (Mon, Tue, Wed, Thu, Fri, Sat, Sun) 5/1/1 (weekdays, Saturday and Sunday) 5/2 Weekdays (weekdays and weekends) Non-Prog
32. Events Per Day	Number of program events per day.	Four Two
33. 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
37. HVAC Service Reminder	The period for displaying the "HVAC Service Reminder" message.	Off 1 to 12 months or "Off" to disable
38. Constant Backlight	Enable constant, low intensity backlight when 24VAC is present.	Disable Enable
39. Backlight Intensity	Backlight intensity as a percentage of full on.	100 Percent 0 to 100 Percent
40. Auto Daylight Savings	Enable or disable auto daylight savings.	Off March (second Sunday in March to the first Sunday in November) April (first Sunday in April to the last Sunday in October)

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 11, outdoor sensor, will be presented prior to entering the Indoor Air Quality system settings.

Please refer to the Model 8620 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. (If set to no, no other humidifier settings will be available.)	No Yes
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 yes.)	Auto Manual
Humidity Setpoint Deadband	Select the minimum difference between the humidifier and dehumidifier setpoints. (Only available if humidifier mode is set to manual 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.	Heat Only Heat or Fan Forces Fan
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
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
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.	February March April May June July August September
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

SETUP & TESTING

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.)	None (no dehumidification installed) Whole Home Air Conditioner
Humidity Setpoint Deadband	Select the minimum difference between the humidifier and dehumidifier setpoints. (Only available if humidifier mode is set to manual 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 meet RH setpoint in Vacation Mode. (Only available if dehumidifier control is set to air conditioner.)	75°F (24°C) 70°F to 85°F (21°C to 29°C)

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 Forces Fan	Selects if ventilation forces the fan on.	No Yes
Fresh Air Setup	Selects if ventilation is configured through the ASHRAE setup or Timed. If ASHRAE setup is selected, the hourly ventilation time will be calculated using the ASHRAE recommendations. If Timed set-up is selected, the hourly ventilation time will be determined based on the Fresh Air Time value.	Timed ASHRAE
Fresh Air Time	Selects how many minutes per hour that ventilation will be active. (Only available if fresh air setup is set to timed.)	30 MIN/HR 0 to 60 MIN/HR
High Limit Outdoor Temp	Selects if ventilation is disabled if the outdoor temperature exceeds the outdoor high limit. (Only available if fresh air setup is set to timed and an outdoor temperature sensor is installed.)	No Yes
Outdoor High Limit	Sets the high temperature limit for ventilation. (Only available if high limit outdoor temp set to yes.)	100°F (38°C) 90°F to 100°F (32°C to 38°C)
Low Limit Outdoor Temp	Selects if ventilation is disabled if the outdoor temperature exceeds the outdoor low limit. (Only available if fresh air setup is set to timed and an outdoor temperature sensor is installed.)	No Yes
Outdoor Low Limit	Sets the low temperature limit for ventilation. (Only available if low limit outdoor temp set to yes.)	10°F (-11°C) -10°F to 30°F (-23°C to -1°C)
High Limit Indoor RH	Selects if ventilation is disabled if the indoor RH exceeds the indoor RH limit. (Only available if fresh air setup is set to timed.)	No Yes
Indoor RH Limit	Sets the high indoor RH limit for ventilation. (Only available if high limit indoor RH is set to yes.)	60% 50% to 70%

SETUP & TESTING

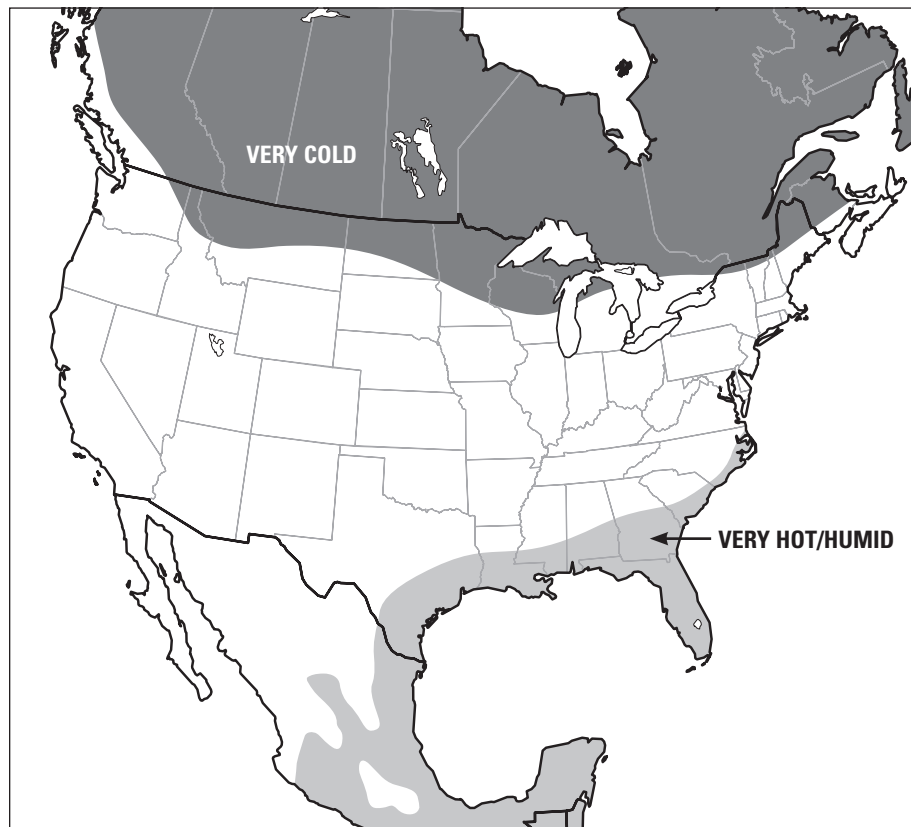
Ventilation System Settings Table (continued)

System setting	Description	Factory default setting (bold) and setting range
Number of Bedrooms	Selects the number of bedrooms to be used for the ASHRAE calculation. (Only available if fresh air setup is set to ASHRAE.)	3 Bedrooms 1 to 6 Bedrooms
Number of Occupants	Selects the number of occupants to be used for the ASHRAE calculation. (Only available if fresh air setup is set to ASHRAE.)	4 Occupants 1 to 10 Occupants
Home Size	Selects the home size to be used for the ASHRAE calculation. (Only available if fresh air setup is set to ASHRAE.)	2500 SQ FT 1000 to 5000 SQ FT
Fresh Air CFM	Selects the ventilation CFM to be used for the ASHRAE calculation. (Only available if fresh air setup is set to ASHRAE.)	60 CFM 30 to 200 CFM
Select Climate	Selects the climate to be used for the ASHRAE calculation. (Only available if fresh air setup is set to ASHRAE.) To determine what region you are in, refer to the map below.	Normal Very Hot/Humid Very Cold
ASHRAE Cycle Time	Displays the Fresh Air Time calculated by the ASHRAE standard. (Only displayed if fresh air setup is set to ASHRAE.)	Minutes/Hour

Note: In ASHRAE set-up temperature and humidity limits are disabled.

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

CLIMATE MAP FOR ASHRAE FRESH AIR SETUP



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 **IAQ** button 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

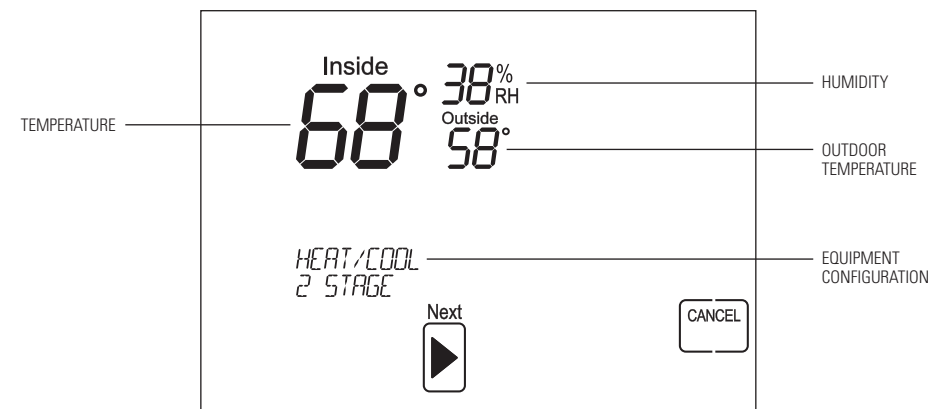
Cooling equipment test

Fan equipment test

Humidification equipment test

Dehumidification equipment test

Ventilation equipment test



SETUP & TESTING

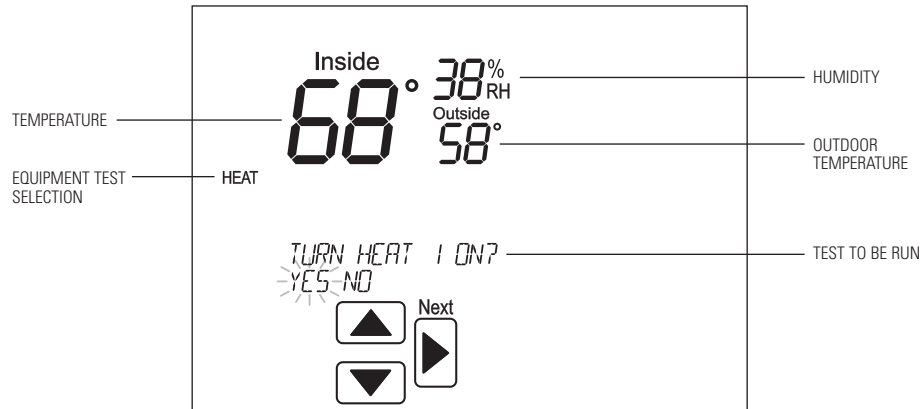
SYSTEM TEST MENU (CONTINUED)

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

Press ▲ or ▼ to change the selection.

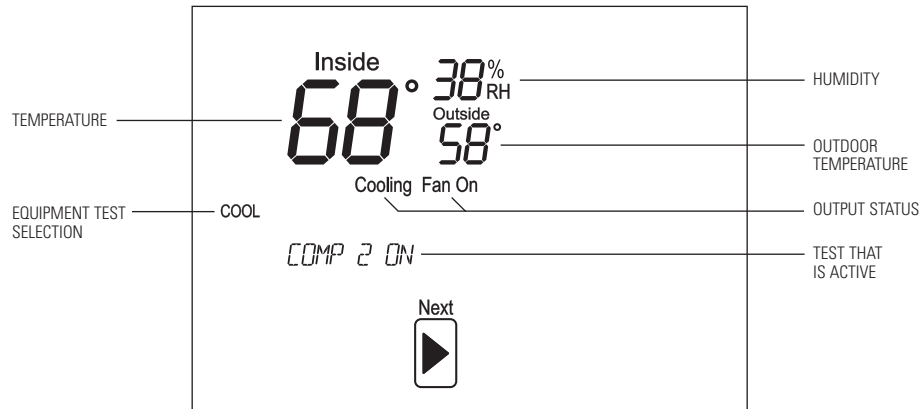
Press [NEXT] to accept the selection and proceed to the next step.

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 31, 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 31, 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 31, O/B operation selects O or B.

Fan Equipment Test				
W	W2	Y	Y2	G
				ON

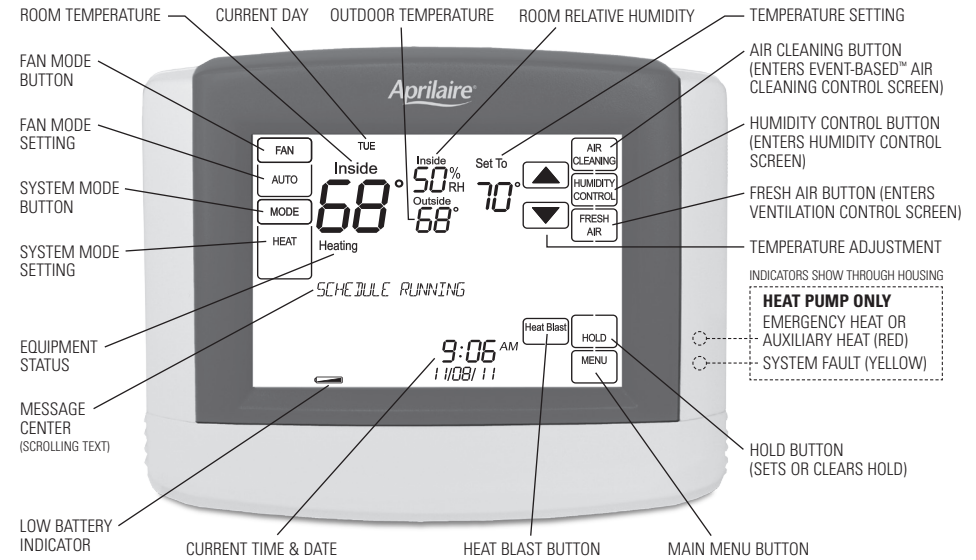
Humidification Equipment Test	
I1/I2	G
ON	ON

Dehumidification Equipment Test	
I1/I2	G
ON	ON

Ventilation Equipment Test	
I1/I2	G
ON	ON

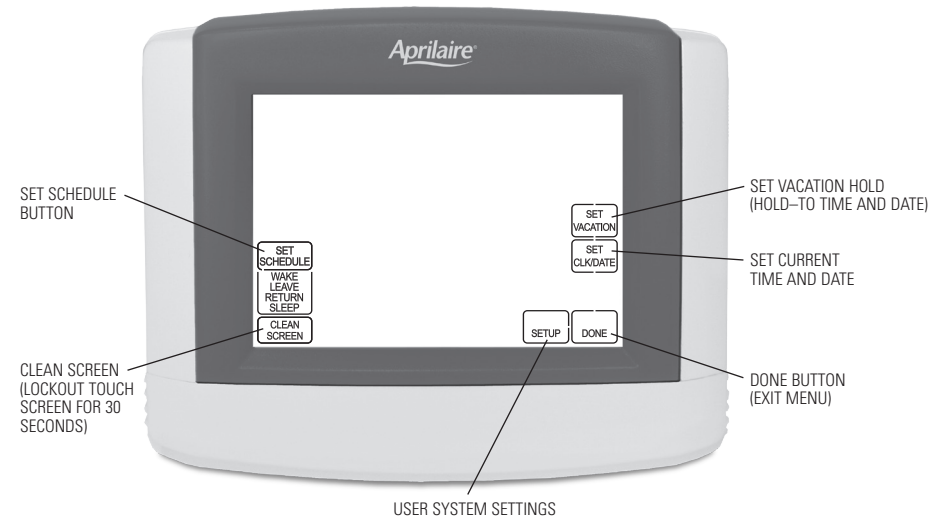
QUICK REFERENCE TO CONTROLS & DISPLAY

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.
- If thermostat is battery powered, make sure fresh AA alkaline batteries are correctly installed.

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 05 (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 31 (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 01 (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 01 (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 11 (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. If the error does not clear, use the reset button. This will return all settings back to factory default.

Error code	Message	Error Description
01	"SENSOR ERROR"	Open temperature sensor circuit
02		Shorted temperature sensor circuit
04	"EEPROM ERROR"	Error in permanent memory

THERMOSTAT FEATURES

- 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 or separately programmable weekday/weekend schedules.
- Thermostat can be removed from the wall for easy programming (batteries must be installed).
- Dual power option (24VAC or battery).
- Front battery door access for fast, easy replacement.
- 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
Power supply	Dual power. Can be battery or 24VAC powered. When both the sources are available, battery will be used as back up power.
Battery power	Battery power: AA size alkaline battery x 2 Battery life: Approximately 1 year

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: -20° to 130°F (-30° 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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