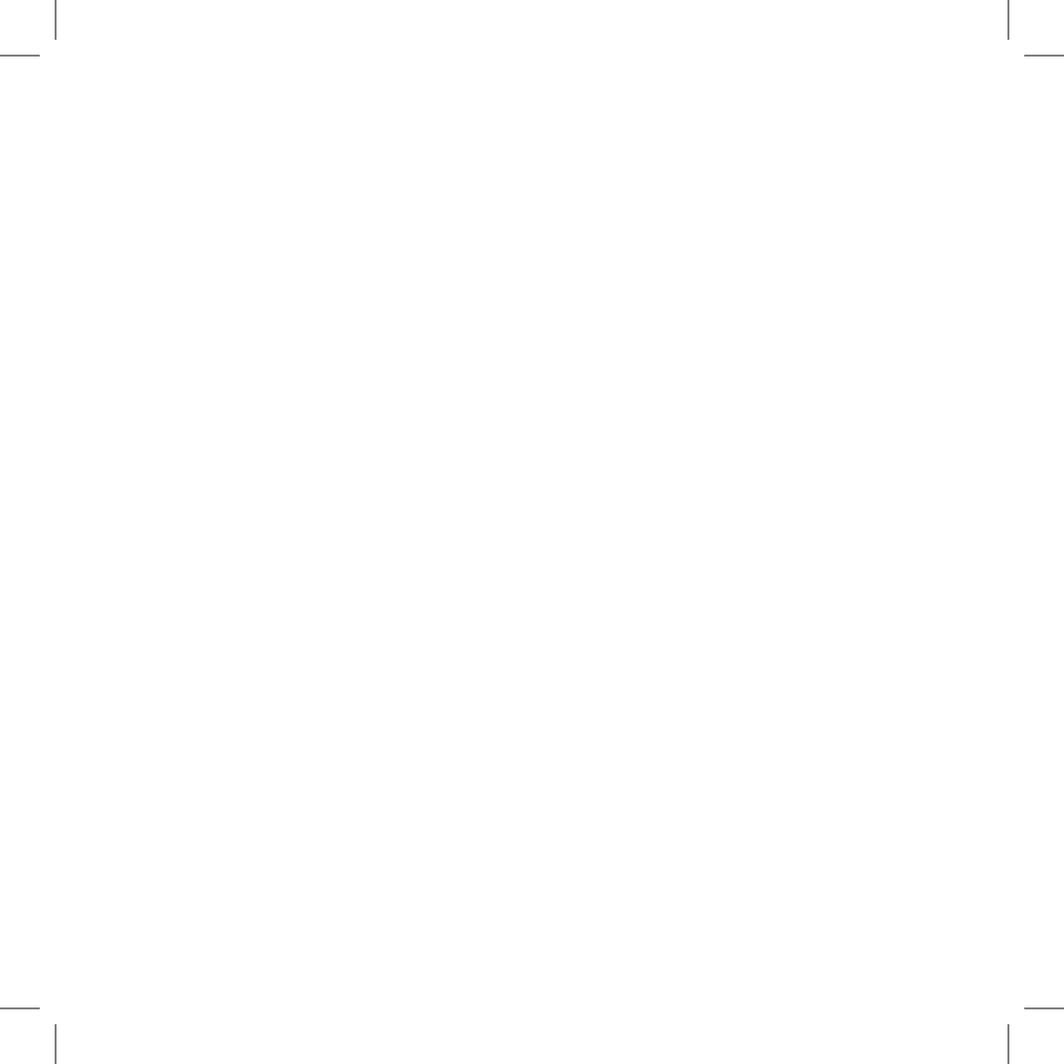


Two-Stage

Thermostat Set-Up Guidelines for All-Electric Heat Pumps: Supplement to ecobee₃ Installation Materials

from the North Carolina Electric Cooperatives



The following Advanced Energy recommendations are based on the existence of a Heat Pump system and thermostat operating per manufacturers' instructions prior to the ecobee₃ thermostat installation.

Advanced Energy considers a Two-Stage heat pump to have two outdoor compressor stages (speeds). This is more common on newer, high-efficiency equipment.

As noted in the ecobee₃ installation guide, the installation and set-up of this thermostat should be performed by a licensed HVAC contractor who is knowledgeable in the operations of your HVAC system.

Step 1

When starting up the ecobee₃, this should be the first prompt you see. ✓ Select Rh Only and ✓ select Next.



Select RH Only when your HVAC system has only one transformer to control it.
If your system has two transformers installed, you should select Rc and Rh

Step 2

Make sure the following icons are highlighted on the screen: G Y1 W1 O/B Y2 then ✓select Continue.



Verify that your system is wired to maximize its capabilities and work best with the new thermostat.

Step 3

You will be prompted with the question: *“Do you have one of these accessories installed?”* If none are present, ✓select No and then ✓select Next to choose your temperature preference setting.



Verify that your system is wired to maximize its capabilities and work best with the new thermostat. If accessories are installed, identify what is installed and reference the ecobee₃ installation documents to promote optimal performance.

Step 4

After selecting your temperature preference, you will be directed to the Equipment configuration screen.

✓ **Select** 2 stage heat pump.



These are the recommended settings for a two-stage all electric heat pump. If you have a single-stage all electric heat pump present, see that guidebook.

Step 5

✓ Select Air to Air then ✓ select Next.



These are the recommended settings for a two-stage all electric air to air heat pump. See ecobee₃ installation documents if any other source of heating (e.g. water, propane, natural gas, etc.) is present.

Step 6

For O/B Reversing Valve:
for Rheem and Ruud Equipment Only,
✓Select On Heat
-or-
for all other Equipment,
✓Select On Cool then ✓select Next.



This will maximize your system's capabilities with the new thermostat.

Step 7

✓ Select 1 stage auxiliary heating.



Auxiliary heating is a less efficient heating mode your air source heat pump may use at lower outdoor temperatures.

Step 8

✓ Select Furnace then ✓ select Next.



This is to tell the thermostat that the heat source for your home also comes from the same components as your cooling.

Step 9

- ✓ Select Fan Thermostat (default).
- ✓ Select Thermostat then ✓ select Next.



Verify that your system is wired to maximize its capabilities and work best with the new thermostat.

Step 10

Your new ecobee₃ thermostat has been configured to work with your unique HVAC system. Select the following settings for maximum comfort and efficiency. Then once you are back on the home screen, ✓select ☰ to be directed to the main menu. Scroll down to Settings and ✓select Installation settings.



Step 11

✓ Select Equipment then ✓ select Next.



The following recommended installation settings will help optimize the comfort and efficiency from your equipment

Step 12

- ✓ Select Heat Pump.
- ✓ Select Aux Heat Simultaneous Operation; ✓select Enable.



This is the recommended setting to maximize efficiency of your air source heat pump before less efficient strip heat comes on to maintain comfort at lower temps.

Step 13

- ✓ Select the back arrow “<” two times to get back to the Installation setting screen.
- ✓ Select Thresholds.



✓ **Select** Auto Heat/Cool.

If you would like your HVAC system to **automatically** switch between heating and cooling, ✓ **select** Enable.

-or-

If you would like to **manually** change the system from heating to cooling, ✓ **select** Disable.



Step 15

- ✓ Select Compressor Min Cycle Off Time.
- ✓ Select 900.



This is a recommended setting to save energy and increase equipment durability. After the unit cycles off, it will not come back on for 15 minutes.

Step 16

- ✓ Select Compressor Min Outdoor Temperature.
- ✓ Select Disabled.



To maximize efficiency of your air source heat pump before less efficient strip heat comes on to maintain comfort at lower temperatures.

Step 17

- ✓ Select Aux Heat Max Outdoor Temperature.
- ✓ Select between 32-40 then ✓ select Save.



This temperature range is recommended to maximize efficiency of air source heat pump before less efficient strip heat comes on to maintain comfort at lower temperatures

- ✓ Select Heat Differential Temperature.
- ✓ Select 1.0°F.



A 71°F set point will turn the heat on at 70°F. Selecting 0.5°F may increase energy usage and reduce durability of system through more frequent on-off cycles, as compared to 1.0°F or higher.

Step 19

- ✓ Select Heat Dissipation Time.
- ✓ Select 60.



Sixty seconds will maximize the distribution of remaining heat in the system, but not circulate cool air if set for longer.

- ✓ Select Aux Min On Time.
- ✓ Select 1 min.



This setting regulates the electric heat run time which maximizes energy savings and increases durability of the system.

Step 21

- ✓ Select Cool Differential Temperature.
- ✓ Select 1.0°F.



A 74°F set point will turn the cooling on at 75°F.
Selecting 0.5°F may increase energy usage and reduce durability of system through more frequent on-off cycles, as compared to 1.0°F or higher.

- ✓ Select Cool Dissipation Time.
- ✓ Select 0.



This maximizes the amount of humidity removed during cooling mode.

Step 23

- ✓ Select Compressor Min On Time.
- ✓ Select 3 min.



This maximize energy savings and increases durability of the system.

- ✓ Select Compressor Reverse Staging.
- ✓ Select On.



Step 25

- ✓ Select Compressor Stage 2 Temperature Delta.
- ✓ Select 3°F.



- ✓ Select Compressor to Aux Temperature Delta.
- ✓ Select 6°F.



This is to maximize efficiency of your air source heat pump before less efficient strip heat comes on to maintain comfort at lower temps.

Step 27

- ✓ Select Aux Reverse Staging.
- ✓ Select Off.



This is to maximize efficiency of your air source heat pump when less efficient strip heat comes on to maintain comfort at lower temps.

- ✓ Select Temperature Correction.
- ✓ Select +0°F.



Leaving this setting at 0°F does not adjust what temperature the thermostat displays versus what it actually is. If you want to adjust the temperature displayed, you can do so with this setting.

Step 29

- ✓ Select Humidity Correction.
- ✓ Select +0%.



Leaving this setting at 0% does not adjust what humidity the thermostat displays versus what it actually is.

- ✓ Select Thermal Protect.
- ✓ Select 10°F.



This maximizes system efficiency and minimizes a situation where a poorly located sensor may throw off thermostat functionality.

Step 31

When complete, ✓select the “<” symbol in the upper left corner at which time you will get a Warning message that states, “*Compressor min Outdoor Temperature for air to air Heat Pumps should not be disabled. ecobee₃ recommends 35°F.*” The manufacturer of your HVAC equipment does not recommend disabling the outdoor compressor nor does ACCA Manual H. ✓Select Cancel to acknowledge this warning, save your settings and get back to the installation setting menu.



This maximizes system efficiency and minimizes a situation where a poorly located sensor may throw off thermostat functionality.

