

# Single-Stage

## Thermostat Set-Up Guidelines for All-Electric Heat Pumps: Supplement to ecobee<sub>3</sub> 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 ecobee<sub>3</sub> thermostat installation.

Advanced Energy considers a Single-Stage heat pump to have only one outdoor compressor stage (speed ). This is more common on older equipment.

As noted in the ecobee<sub>3</sub> 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 ecobee<sub>3</sub>, 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 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 ecobee<sub>3</sub> installation documents to promote optimal performance.

## Step 4

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

✓ **Select** 1 stage heat pump.



These are the recommended settings for a single-stage all electric heat pump.  
If you have a two-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 single-stage all electric air to air heat pump. See ecobee<sub>3</sub> 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.



To maximize your systems 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.
- ✓ 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 ecobee<sub>3</sub> 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 settings 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 Heat/Cool Min Delta.
- ✓ Select 5°F.



This promotes a long-lasting system and minimizes times when the system could bounce back and forth between cooling and heating, consuming more energy than desired.

## Step 16

- ✓ 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 17

- ✓ Select Compressor Min Outdoor Temperature.
- ✓ Select 0 not disabled. Disabled will cause a error to show.



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

- ✓ Select AC Overcool Max.
- ✓ Select Disabled.



This is recommended to avoid an indoor environment that feels cool and clammy.

## Step 19

- ✓ 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 21

- ✓ 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 23

- ✓ 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 25

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



This maximizes energy savings and increases durability of the system.

- ✓ Select Compressor to Aux Temperature Delta.
- ✓ Select 3°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 Compressor to Aux Runtime.
- ✓ Select 30 min.



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

- ✓ 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.

## Step 29

- ✓ 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.

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



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

## Step 31

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



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

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. ecobee<sub>3</sub> 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.

