



# TSS Associates, Inc.



For further assistance, please contact  
Ecobee directly for Tech Support

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1-877-932-6233

## Threshold settings for ecobee thermostats

***This article applies to the following ecobee models:***

*ecobee Smart Thermostat with voice control, ecobee4, ecobee3 Lite, ecobee3*

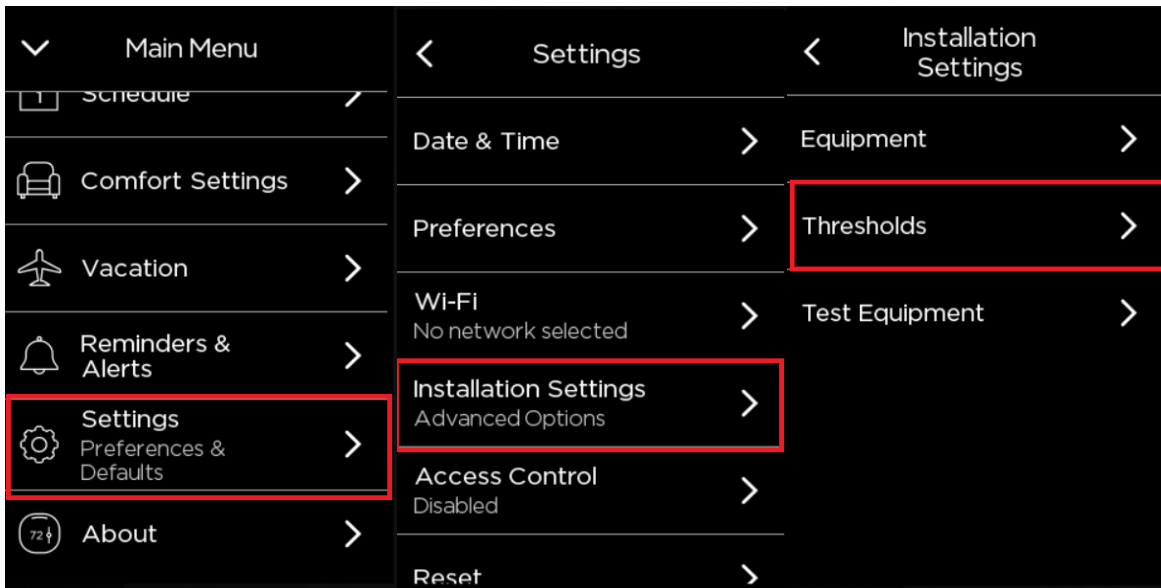
Threshold settings allow you to configure your HVAC equipment for greater efficiency and prevent damage to your equipment by controlling how the *ecobee* engages it.

These adjustments can only be made on the *ecobee* itself, not through the Web Portal or mobile app.

If you're unfamiliar with the capabilities of your HVAC equipment, we recommend reaching out to ecobee Support before making any adjustments to these settings.

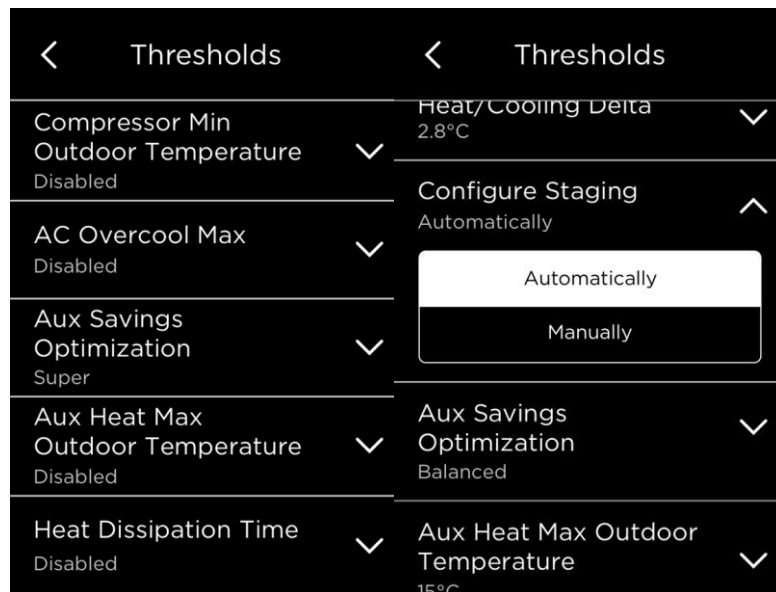
To access the **THRESHOLDS** menu on the thermostat:

### MAIN MENU > SETTINGS > INSTALLATION SETTINGS > THRESHOLDS



### Automatic and Manual Threshold Staging

With the latest firmware upgrade, you may notice your thresholds page looks a little different now. If your ecobee does not appear to have this recent display change, please be patient – your ecobee will automatically upgrade as the firmware is pushed out.



## Threshold settings for ecobee thermostats (cont'd.)

This firmware version makes minor adjustments to the thresholds menu. There is now the option to have the staging configured as Automatic or Manual. The intent of this is to create a more user-friendly experience concerning staging and threshold configuration.

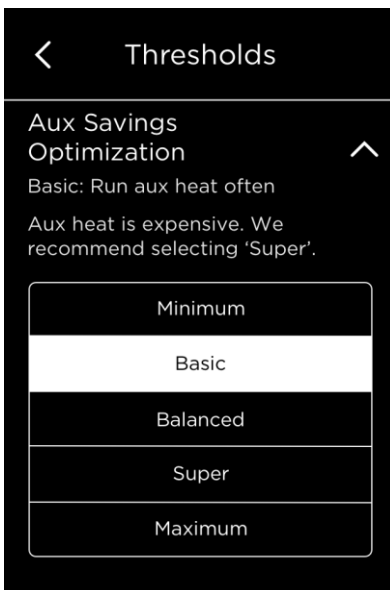
(Note: it will be set to automatic by default on new installs.)

If you choose to configure staging manually, you will be able to select and customize values such as dissipation time, temperature deltas, and runtimes for both your heating and cooling equipment. Manually managing these settings is a more advanced way to optimize and tailor your equipment to any specific requirements.

However, if you are unsure of the best configurations for your equipment, automatic staging allows your thermostat to decide how best to optimize it. Your ecobee will look at your 'Savings vs Comfort' setting to control your equipment staging.

### Automatic Staging with a Heat Pump system

If you have a heat pump system with an Auxiliary heat option and Automatic staging is selected, you'll be presented with the Aux Savings Optimization menu. This will present you with the following options:



- **Minimum (0.5°F)** - sacrifice savings for comfort
- **Basic (1°F)** - sacrifice a bit of savings for comfort
- **Balanced (1.5°F)** - optimize for savings and comfort
- **Super (2°F)** - sacrifice a bit of comfort for savings (recommended setting, default value)
- **Maximum (2.5°F)** - sacrifice comfort for savings

If you have previously changed any threshold settings on your thermostat – there's no need to worry. You can also test out the automatic staging function without losing any previous configurations.

NOTE: During "Away" periods or Custom Comfort Settings set to "I'm Usually Away", an additional 1°F degree differential will be added to your set temperature when deciding to call for heating or cooling.

## Threshold settings for ecobee thermostats (cont'd.)

### Common Settings for all Systems

**Auto Heat/Cool:** This setting allows you to set your system mode to "Auto." This is enabled by default. In Auto mode, the thermostat will engage both your heating or cooling as necessary. This mode is most useful if you live in a region where the temperature fluctuates regularly or you're in the middle of a season change and you may need both heating and cooling at different times during the day.

**Heat/Cool Minimum Delta:** The minimum temperature difference between the desired Heat and Cool set points in Auto mode. You will not be able to adjust the temperature range in Auto mode below this value. This is set to 5°F by default, meaning the shortest range you can maintain in Auto mode is 5°F (70°–75°, for example). The lowest possible range in Auto mode the ecobee can maintain is 2°F. This setting prevents your equipment from short cycling.

**Heat Dissipation Time:** The amount of time the fan will continue to run once the heat is turned off. This is set to auto by default. Running the fan after a call for heat will expel any heated air remaining in the ducts and circulate it through your home. If you notice your fan may be running longer than you'd like once a call for heat is finished, you can adjust this value.

**Cool Dissipation Time:** The amount of time the fan will continue to run once the cooling is turned off. This is set to auto by default. Running the fan after a call for cooling will expel any cool air remaining in the ducts and circulate it through your home. If you notice your fan may be running longer than you'd like once a call for air conditioning is finished, you can adjust this value.

**Heat Differential Temperature:** The minimum temperature differential before engaging heat. This is set to 0.5°F by default. This setting will wait for the temperature in your home to drop by this value (0.5°F in the default scenario) below your set point before engaging your heat. For example, if your Heat set point is 72°F, the ecobee will wait until the temperature in your home drops below 71.5°F before engaging your heat. This setting prevents your equipment from short cycling and helps to conserve energy.

**NOTE:** During "Away" periods or Custom Comfort Settings set to "I'm Usually Away", an additional 1°F degree differential will be added to your set temperature when deciding to call for heating.

**Cool Differential Temp:** The minimum temperature differential before engaging cooling. This is set to 0.5°F by default. This setting will wait for the temperature in your home to rise by this value (0.5°F in the default scenario) above your set point before engaging your air conditioning. For example, if your Cool set point is 72°F, the ecobee will engage your air conditioning when the temperature in your home reaches above 72.5°F. This setting prevents your equipment from short cycling and helps to conserve energy.

**NOTE:** During "Away" periods or Custom Comfort Settings set to "I'm Usually Away", an additional 1°F degree differential will be added to your set temperature when deciding to call for heating.

**Heat Minimum On Time:** The minimum amount of time your furnace/boiler will stay on during a call for heat. This is set to 300 seconds (5 minutes) by default. If your furnace/boiler is engaged and then the call for heat is immediately cancelled, the furnace will continue running for this set value (5 minutes) before turning off. This setting prevents your furnace/boiler from short cycling, so we recommend leaving this at 300 seconds to prevent any potential damage to your equipment.

**AC Overcool Max:** This setting will allow the air conditioner to overcool (run past your Cool set point) by this value to decrease humidity. This setting is useful if you live in a humid climate/have issues with high humidity levels in your home.

## Threshold settings for ecobee thermostats (cont'd.)

**Temperature Correction:** If you notice that the ecobee's temperature sensor may be slightly off, you can adjust this + or - 10 degrees for a more accurate reading.

**Humidity Correction:** If you notice that the ecobee's humidity sensor may be slightly off, you can adjust this + or - 10% for a more accurate reading.

**Thermal Protect:** The minimum temperature reading difference between sensors that will trigger the algorithm to ignore the inaccurate sensor reading. This range tells your thermostat the maximum difference allowed between the thermostat and hottest or coldest rooms in your home. If a sensor measures a temperature that is significantly outside of this range, it probably means the reading is inaccurate. Your ecobee will ignore this inaccurate reading to prevent your heating or cooling from running excessively.

### Compressor Settings

**Compressor Minimum Cycle Off Time:** The amount of time the compressor remains off between cycles. This is set to 300 seconds (5 minutes) by default. Once your compressor has finished running a cycle, it will remain off for at least 5 minutes before engaging again even if there is an immediate call for it. This setting prevents your compressor from short cycling, so we recommend leaving this at 300 seconds to prevent any potential damage to your compressor.

**Compressor Minimum On Time:** The minimum amount of time the compressor will stay on. This is set to 300 seconds (5 minutes) by default. If your compressor is engaged and then the call is immediately cancelled, the compressor will continue running for this set value (5 minutes) before turning off. This setting prevents your compressor from short cycling, so we recommend leaving this at 300 seconds to prevent any potential damage to your compressor.

**Compressor Minimum Outdoor Temperature:** The compressor will not run below this outdoor temperature. This is set to 35°F by default. Before adjusting this setting, we recommend reaching out to the manufacturer of your heat pump/compressor to inquire about the safest setting. Running your compressor at a temperature below what it can handle can damage the equipment and is ill-advised.

If you have a heat pump with auxiliary heating, when the outdoor temperature drops below this value, the ecobee will engage your aux heat and rely on aux heat to heat your home. If you're receiving many "Aux heat running" alerts, you may want to adjust this setting (after confirming with your heat pump manufacturer the lowest temperature your heat pump can safely function at). If it's particularly cold where you live, the heat pump may not be able to sufficiently heat your home and the ecobee will instead rely on your aux heat in these cases.

**Compressor Stage 2 Temperature Delta:** The minimum number of degrees from the desired temperature (set point) before engaging the second stage of the compressor. This is set to auto by default.

- *You will only see this option if you have a two stage compressor (wires in both Y1 and Y2)*

**Compressor Reverse Staging:** With this setting enabled, you will also need to enable the Compressor Stage 2 Temperature Delta threshold setting listed above and set a temperature value. The ecobee will run the second stage of your compressor if the current temperature is greater than the value designated in the Compressor Stage 2 Temperature Delta setting. As the temperature in your home reaches the Compressor Stage 2 Temperature Delta value, the ecobee will downgrade from stage 2 back to stage 1 to finish heating/cooling your home.

- *You will only see this option if you have a two stage compressor (wires in both Y1 and Y2)*

- *If enabled, this setting will cancel out Compressor Stage 1 Max Runtime*

**Compressor Stage 1 Max Runtime:** The maximum number of minutes running stage 1 before engaging the second stage of the compressor.

- *You will only see this option if you have a two stage compressor (wires in both Y1 and Y2)*

## Threshold settings for ecobee thermostats (cont'd.)

### Two Stage Furnace Settings

**Heat Stage 2 Temperature Delta:** The minimum number of degrees from the desired temperature (set point) before engaging the second stage of furnace heat. This is set to auto by default.

- *You will only see this option if you have a two stage furnace (wires in both W1 and W2)*

**Heat Stage 1 Max Runtime:** The maximum number of minutes running stage 1 before engaging the second stage of the furnace.

- *You will only see this option if you have a two stage furnace (wires in both W1 and W2)*

### Aux Heat Settings (Heat Pumps with Aux Heat)

**Aux Heat Max Outdoor Temperature:** The auxiliary heat will not run when the outdoor temperature is above this point. If you're receiving many "Aux heat running alerts," you may want to lower this setting—this will maximize the use of your heat pump while limiting the use your aux heat.

**Aux Heat Minimum On Time:** The minimum amount of time your auxiliary heat will stay on during a call for aux heat. This is set to 300 seconds (5 minutes) by default. If your aux heat is engaged and then the call for heat is immediately cancelled, the aux heat will continue running for this set value (5 minutes) before turning off. This setting prevents your aux heat from short cycling, so we recommend leaving this at 300 seconds to prevent any potential damage to your equipment.

**Compressor to Aux Temperature Delta:** The minimum number of degrees from the current temperature in your home and your desired temperature (set point) before engaging the auxiliary heat. This is set to auto by default. If you're receiving many "Aux heat running" alerts, you may want to adjust this setting.

**Compressor to Aux Runtime:** The minimum number of minutes the compressor will run for before switching to auxiliary heat. This is set to auto by default. If you're receiving many "Aux heat running" alerts, you may want to adjust this setting.

NOTE: Compressor to Aux Temperature Delta takes precedence over Compressor to Aux Runtime.

**Aux Stage 2 Temperature Delta:** The minimum number of degrees from the desired temperature before engaging the second stage of aux heat.

- *You will only see this option if you have two stages of auxiliary heat (wires in W1 and W2)*

**Aux Reverse Staging:** With this setting enabled, you will also need to enable the Aux Heat Stage 2 Temperature Delta threshold setting listed above and set a temperature value. The ecobee will run the second stage of your aux heat if the current temperature is greater than the value designated in the Aux Heat Stage 2 Temperature Delta setting. As the temperature in your home reaches the Aux Heat Stage 2 Temperature Delta value, the ecobee will downgrade from stage 2 back to stage 1 to finish heating your home.

- *You will only see this option if you have two stages of auxiliary heat (wires in W1 and W2)*

- *If enabled, this setting will cancel out Aux Heat Stage 1 Max Runtime*

**Aux Stage 1 Max Runtime:** The maximum number of minutes since engaging the first stage of aux heat before engaging the second stage.

- *You will only see this option if you have two stages of auxiliary heat (wires in W1 and W2)*