

Thermostat Setup Guidelines for Heat Pumps with Gas Furnace Backup (Dual Fuel Heat Pumps)

from the

Heat Pumps with Gas Furnace Backup (Dual Fuel Heat Pumps)



The ecobee3 lite is a powerful tool that can help save energy and money while managing energy resources to best serve all cooperative members. To make sure you are getting the most out of your ecobee3 lite, Advanced Energy offers the following recommendations, based on the presence of a heat pump with gas furnace backup system (dual fuel heat pump) and thermostat operating per manufacturers' instructions prior to the ecobee3 lite installation.

Advanced Energy considers a heat pump with gas furnace backup to run on electricity and gas. The outdoor fan runs when in cooling mode and in heating mode during mild outdoor temperatures. When outdoor temperatures drop below 35°F or so, the outdoor fan stops running and the gas furnace backup takes over and heats the home.

Read the ecobee installation materials carefully and only install the thermostat yourself if you are comfortable with electrical wiring and device setup. If you are not, seek a qualified HVAC contractor to complete installation and setup.

DANGER: Incorrect wiring can cause damage and expensive equipment repairs.

Part One

Step 1



When starting up the ecobee3 lite, this should be the first prompt you see. Select Yes, I only have Rc connected for one transformer (most HVAC systems); select Next.

We have de connected	etected a wire to the Rc termina	al.	
Yes, I only	y have Rc connec	cted	
No,mave			
Back		Next	
	ecobee		

If your HVAC system has two transformers installed, select No, I have Rc and Rh connected.



Make sure the following icons are highlighted on the screen: G Y1 W1 O/B; select Next.

Manual Co Tap on a te disconnec G Y1 Y2 O/B	nfiguration: erminal to connect t the wire.	t or W1 W2	
Back	ecobee	Next	

It is important to follow the ecobee3 lite installation documents to ensure your HVAC system is wired to maximize the thermostat's capabilities.





What kin have in ye	d of heat pump do our home?	o you	
	Air to Air		
	Geothermal		
lf you hav you have	ve a condenser ou e an air to air heat p	utside, pump.	
lf you ha compres going thr a geothe	ve pipes connectin sor to the ground rough the walls, yc ermal heat pump.	ng your I, or ou have	
Back		Next	
	ecobee		

These are the recommended settings for an all-electric air to air heat pump. See the ecobee3 lite installation documents if any other source of heating (geothermal, furnace, etc.) is present.



For Rheem and Ruud branded equipment only, select On Heat; select Next. For all other equipment brands, select On Cool; select Next.

How is your O/BReversing energized?	Valve
On Cool	
OnHeat	
Refer to your Heat Pump's Owner's Manual.	
If you are still not sure, choo Cool. After installation, turn the equipment. If cool air co on when you turn on the hea change this setting to On H Settings > Installation Settin Equipment > Heat Pump.	ose On n on omes at, leat in ngs >
This will not damage your equipment.	
Back	Next
ecobee	

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



Select Disable Aux Heat Simultaneous Operation; select Next.

Allow the Heat Pump and A Heat to run simultaneously?	iux ?
Enable	
Warning: Set this to Disable natural gas or oil is the Aux fuel, other wise Heat Pump may occur.	e if Heat failure
Back	Next
ecobee	ПСА

This is the recommended setting to keep your heat pump from running at the same time as your gas furnace backup heat to maintain comfort at lower temperatures.



Select between 25 and 40 degrees (and note selection for Part 2, Step 6); select Next.



This is the outdoor temperature at which your dual fuel heat pump switches over to your gas furnace backup heat to maintain comfort at lower temperatures.



Select Furnace; select Next.

What kin in your ho	d of heating do you have ome?	
	Furnace	
	Boiler	
lf you hav ceiling, yo furnace.	ve vents in the floor or ou most likely have a	
lf you hav in-floor h have a bo	ve radiators and/or neating, you most likely oiler.	
Back	Next	
	ecobee	

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



Select By thermostat (recommended); select Next.



It is important to follow the ecobee3 lite installation documents to ensure your HVAC system is wired to maximize the thermostat's capabilities.

The next series of questions will allow you to customize the thermostat settings based on your preferences and location. Part 1 is complete.

Part Two

Your new ecobee3 lite has been configured to work with your HVAC system. Select the following settings to maximize comfort and efficiency.



Once you are back on the home screen, select the Main Menu icon.







Step 2





Select Installation settings.

Settings		
Preferences	>	
Wi-Fi No Network Selected	>	
Installation settings Advanced Options	>	
Access control Disabled	>	
Reset	>	
ecobee		

Select Thresholds.

<pre>Installation settings</pre>	
Equipment	>
Thresholds	
Test equipment	>
ecobee	

Step 5

Select Compressor Min Cycle Off Time; select 600 seconds.



This is a recommended setting to save energy and increase equipment durability. After the unit cycles off, it will not come back on for 10 minutes.



Select Aux Heat Max Outdoor Temperature; select between 30 and 45 degrees; select Save. *This must be at least 5 degrees higher than your selection in Part 1, Step 6.



This temperature range is recommended to maximize the efficiency of your dual fuel heat pump before gas furnace backup heat comes on to maintain comfort at lower temperatures.



Select Heat Differential Temperature; select 1.0°F.



A 1°F heat differential temperature will turn the heat on after the indoor temperature drops 1°F below setpoint. This setting should decrease energy usage and increase system durability through longer runtimes.



Select Heat Dissipation Time; select 60 seconds.



60 seconds will maximize the distribution of remaining heat in the system but not circulate cool air.





This setting regulates the backup heat runtime, which maximizes energy savings and increases system durability.



Select Cool Differential Temperature; select 1.0°F.



A 1°F cool differential temperature will turn the cooling on after the indoor temperature is 1°F above setpoint. This setting should decrease energy usage and increase system durability through longer runtimes.



Select Cool Dissipation Time; select 0 seconds.



This maximizes the amount of humidity removed during cooling mode.



Select Compressor to Aux Temperature Delta; select 3°F.

C Three	sholds	
Compressor I Time 5 min (default)	Min On	~
Compressor in Temperature 3°F The minimum num from the desired before engaging	O Aux Delta ber of degree temperature the auxiliary	∧ ∋s
°F 2°F 3	°F 4°F	5°F
Compressor f	to Aux	~

This is to maximize the efficiency of your dual fuel heat pump before gas furnace backup heat comes on to maintain comfort at lower temperatures.



Select Compressor to Aux Runtime; select Disabled.



This is to maximize the efficiency of your dual fuel heat pump before gas furnace backup heat comes on to maintain comfort at lower temperatures.

When complete, select the arrow symbol in the upper left corner to return to the main screen.

Congratulations, your new ecobee3 lite thermostat should now be setup to maximize your HVAC system efficiency and home comfort.





Thermostat Setup Guidelines for All-Electric Heat Pumps

from the

Single-Stage Heat Pumps



The ecobee3 lite is a powerful tool that can help save energy and money while managing energy resources to best serve all cooperative members. To make sure you're getting the most out of your ecobee3 lite, Advanced Energy offers the following recommendations, based on the presence of an all-electric heat pump system and thermostat operating per manufacturers' instructions prior to the ecobee3 lite installation.

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

Read the ecobee installation materials carefully and only install the thermostat yourself if you are comfortable with electrical wiring and device setup. If you are not, seek a qualified HVAC contractor to complete installation and setup.

DANGER: Incorrect wiring can cause damage and expensive equipment repairs.

Part One

Step 1



When starting up the ecobee3 lite, this should be the first prompt you see. Select Yes, I only have Rc connected for one transformer (most HVAC systems); select Next.

We have connect	e detected a wire ed to the Rc term	inal.	
Yes, I o No, I ha	only have Rc conr	nected	
Back		Next	
	ecobee		

If your HVAC system has two transformers installed, select No, I have Rc and Rh connected.



Make sure the following icons are highlighted on the screen: G Y1 W1 O/B; select Next.



It is important to follow the ecobee3 lite installation documents to ensure your HVAC system is wired to maximize the thermostat's capabilities.





What kind have in yo	d of heat pump do our home?	you	
	Air to Air		
	Geothermal		
lf you hav you have	ve a condenser ou an air to air heatr	itside, bump.	
If you hav compres going thr a geothe	ve pipes connectir sor to the ground ough the walls, yc ermal heat pump.	ng your , or pu have	
Back		Next	
	ecobee		•

These are the recommended settings for an all-electric air to air heat pump. See the ecobee3 lite installation documents if any other source of heating (geothermal, furnace, etc.) is present.



For Rheem and Ruud branded equipment only, select On Heat; select Next. For all other equipment brands, select On Cool; select Next.

How is your O/BReversing ` energized?	Valve
On Cool	
OnHeat	
Refer to your Heat Pump's Owner's Manual.	
If you are still not sure, choo Cool. After installation, turn the equipment. If cool air co on when you turn on the hea change this setting to On He Settings > Installation Settin Equipment > Heat Pump.	se On non omes at, eat in ngs >
This will not damage your equipment.	
Back	Next
ecobee	

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



Select Enable Aux Heat Simultaneous Operation; select Next.

Allow the Heat to r	Heat Pump and A un simultaneously	.ux ?	
	Enable		
	Disable		
Warning: natural ga fuel, othe may occl	Set this to Disabl as or oil is the Aux erwise Heat Pump ur.	le if Heat failure	
Back		Next	
	ecobee		F

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



Select Disabled for Compressor Minimum Outdoor Temperature; select Next.

Configure minimum of The comp this outdo ecobeer air-to-air Warning, may caus failure. C pump mai setting	e the compresso outdoor temperators pressor will not re- bor temperature Disabled Disabled recommends 350 heat pump. setting it to Disa se premature eq onsult with the h nufacturer for op	or ature. un below e. O°F °F for an abled uipment neat ptimum	
Back		⊃ Next	
	ecobee		-

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



Select Furnace; select Next.

What kin in your ho	d of heating do yo ome?	ouhave	
	Furnace		
	Boiler		
lf you hav ceiling, yo furnace.	ve vents in the flo ou most likely hav	oor or e a	
lf you ha in-floor h have a be	ve radiators and/ neating, you most oiler.	'or likely	
Back		Next	
	ecobee		

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


Select By thermostat (recommended); select Next.



It is important to follow the ecobee3 lite installation documents to ensure your HVAC system is wired to maximize the thermostat's capabilities.

The next series of questions will allow you to customize the thermostat settings based on your preferences and location. Part 1 is complete.

Part Two

Your new ecobee3 lite has been configured to work with your HVAC system. Select the following settings to maximize comfort and efficiency.



Once you are back on the home screen, select the Main Menu icon.





Scroll down, select Settings.







Select Installation settings.

Settings		
Preferences	>	
Wi-Fi No Network Selected	>	
Installation settings AdvancedOptions	>	
Access control Disabled	>	
Reset	>	
ecobee		

Select Thresholds.

<pre>Installation settings</pre>		
Equipment	>	
Thresholds	>	
Test equipment	>	
ecobee		

Step 5

Select Compressor Min Cycle Off Time; select 600 seconds.



This is a recommended setting to save energy and increase equipment durability. After the unit cycles off, it will not come back on for 10 minutes.



Select Aux Heat Max Outdoor Temperature; select between 30 and 45 degrees; select Save.



This temperature range is recommended to maximize the efficiency of your 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 1°F heat differential temperature will turn the heat on after the indoor temperature drops 1°F below setpoint. This setting should decrease energy usage and increase system durability through longer runtimes.



Select Heat Dissipation Time; select 60 seconds.



60 seconds will maximize the distribution of remaining heat in the system but not circulate cool air.





This setting regulates the electric heat runtime, which maximizes energy savings and increases system durability.



Select Cool Differential Temperature; select 1.0°F.



A 1°F cool differential temperature will turn the cooling on after the indoor temperature is 1°F above setpoint. This setting should decrease energy usage and increase system durability through longer runtimes.



Select Cool Dissipation Time; select 0 seconds.



This maximizes the amount of humidity removed during cooling mode.



Select Compressor to Aux Temperature Delta; select 3°F.

Th	resho	lds		
oresso (defau	or Min (On	~	
oresso eratur	or to A re Delt	ux a	^	
nimum r he desii e engag	number redter ingthe	of degre perature auxiliary	es	
2°F	3°F	4°F	5°F	
presso me	or to A	ux	~	
	2°F	oressor Min (default) oressor to A erature Delt nimum numb er he desired tem engaging the 2°F 3°F oressor to A me	Inresnoids pressor Min On (default) pressor to Aux erature Delta nimum number of degre he desired temperature engaging the auxiliary 2°F 3°F 4°F pressor to Aux me	Inresnolds pressor Min On (default) pressor to Aux erature Delta ^ nimum number of degrees he desired temperature engaging the auxiliary 2°F 3°F 4°F 5°F pressor to Aux me ^



Select Compressor to Aux Runtime; select 30 min.

〈 Thresholds	
Compressor to Aux Temperature Delta 3°F	\sim
Compressor to Aux Runtime 30 min	^
The maximum number of minu running the compressor befor engaging the auxiliary heat.	re
in 20 min 30 min 40 mi	in 50
Aux Reverse Staging Off	~
Temperature	
ecobee	

When complete, select the arrow symbol in the upper left corner.

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



ecobee recommends turning off the compressor when outdoor temperatures drop below 35°F; however, this setting is not ideal for energy efficiency and costs. HVAC equipment manufacturers and the Air Conditioning Contractors of America (ACCA) do not recommend turning off the compressor at all.

You will receive a warning message that states: "Compressor Min Outdoor Temperature for air-to-air Heat Pump should not be disabled. ecobee recommends 35°F."

Select Cancel to acknowledge this warning.



When complete, select the arrow symbol in the upper left corner to return to the main screen.

Congratulations, your new ecobee3 lite thermostat should now be setup to maximize your HVAC system efficiency and home comfort.





Thermostat Setup Guidelines for All-Electric Heat Pumps

from the

Two-Stage Heat Pumps



The ecobee3 lite is a powerful tool that can help save energy and money while managing energy resources to best serve all cooperative members. To make sure you are getting the most out of your ecobee3 lite, Advanced Energy offers the following recommendations, based on the presence of a heat pump system and thermostat operating per manufacturers' instructions prior to the ecobee3 lite 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.

Read the ecobee installation materials carefully and only install the thermostat yourself if you are comfortable with electrical wiring and device setup. If you are not, seek a qualified HVAC contractor to complete installation and setup.

DANGER: Incorrect wiring can cause damage and expensive equipment repairs.

Part One

Step 1



When starting up the ecobee3 lite, this should be the first prompt you see. Select Yes, I only have Rc connected for one transformer (most HVAC systems); select Next.

We have de connected	etected a wire to the Rc termina	al.	
Yes, I only	y have Rc connec	cted	
No,mave			
Back		Next	
	ecobee		

If your HVAC system has two transformers installed, select No, I have Rc and Rh connected.



Make sure the following icons are highlighted on the screen: G Y1 Y2 W1 O/B; select Next.



It is important to follow the ecobee3 lite installation documents to ensure your HVAC system is wired to maximize the thermostat's capabilities.





What kin have in ye	d of heat pump do our home?	o you	
	Air to Air		
	Geothermal		
lf you hav you have	ve a condenser ou e an air to air heat p	utside, pump.	
lf you ha compres going thr a geothe	ve pipes connectin sor to the ground rough the walls, yc ermal heat pump.	ng your I, or ou have	
Back		Next	
	ecobee		

These are the recommended settings for an all-electric air to air heat pump. See the ecobee3 lite installation documents if any other source of heating (geothermal, furnace, etc.) is present.



For Rheem and Ruud branded equipment only, select On Heat; select Next. For all other equipment brands, select On Cool; select Next.

How is your O/BReversing energized?	Valve
On Cool	
OnHeat	
Refer to your Heat Pump's Owner's Manual.	
If you are still not sure, choo Cool. After installation, turn the equipment. If cool air co on when you turn on the hea change this setting to On H Settings > Installation Settin Equipment > Heat Pump.	ose On n on omes at, leat in ngs >
This will not damage your equipment.	
Back	Next
ecobee	

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



Select Enable Aux Heat Simultaneous Operation; select Next.

Allow the Heat Pump and . Heat to run simultaneously	ł Aux ly?	
Enable		
Disable		
Warning: Set this to Disab natural gas or oil is the Aux fuel, otherwise Heat Pum may occur.	able if ux Heat np failure	
Back	Next	
ecobee		

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



Select Disabled for Compressor Minimum Outdoor Temperature; select Next.

Configure minimum of The comp this outdo ecobeer air-to-air Warning, may caus failure. C pump mat setting	e the compresso butdoor temperatore for temperature Disabled ecommends 35° heat pump. setting it to Disa se premature equ onsult with the h hufacturer for op	r ature. In below O°F F for an Ibled Lipment eat otimum	
Back		Next	
	ecobee		

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



Select Furnace; select Next.

What kind in your ho	d of heating do yo me?	ouhave	
	Furnace		
	Boiler		
lf you hav ceiling, yo furnace.	ve vents in the flo bumost likely hav	or or e a	
lf you hav in-floor h have abo	veradiators and/ leating, you most biler.	or likely	
Back		Next	
	ecobee		

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



Select By thermostat (recommended); select Next.



It is important to follow the ecobee3 lite installation documents to ensure your HVAC system is wired to maximize the thermostat's capabilities.

The next series of questions will allow you to customize the thermostat settings based on your preferences and location. Part 1 is complete.

Part Two

Your new ecobee3 lite has been configured to work with your HVAC system. Select the following settings to maximize comfort and efficiency.



Once you are back on the home screen, select the Main Menu icon.







Step 2





Select Installation settings.

Settings		
Preferences	>	
Wi-Fi No Network Selected	>	
Installation settings Advanced Options	>	
Access control Disabled	>	
Reset	>	
ecobee		

Select Thresholds.

<pre>Installation settings</pre>	
Equipment	>
Thresholds	
Test equipment	>
ecobee	

Step 5

Select Compressor Min Cycle Off Time; select 600 seconds.



This is a recommended setting to save energy and increase equipment durability. After the unit cycles off, it will not come back on for 10 minutes.



Select Aux Heat Max Outdoor Temperature; select between 30 and 45 degrees; select Save.



This temperature range is recommended to maximize the efficiency of your 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 1°F heat differential temperature will turn the heat on after the indoor temperature drops 1°F below setpoint. This setting should decrease energy usage and increase system durability through longer runtimes.



Select Heat Dissipation Time; select 60 seconds.



60 seconds will maximize the distribution of remaining heat in the system but not circulate cool air.







This setting regulates the electric heat runtime, which maximizes energy savings and increases system durability.


Select Cool Differential Temperature; select 1.0°F.



A 1°F cool differential temperature will turn the cooling on after the indoor temperature is 1°F above setpoint. This setting should decrease energy usage and increase system durability through longer runtimes.



Select Cool Dissipation Time; select 0 seconds.



This maximizes the amount of humidity removed during cooling mode.



Select Compressor Reverse Staging; select On.





Select Compressor Stage 2 Temperature Delta; select 3°F.





Select Compressor to Aux Temperature Delta; select 6°F.



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



ecobee recommends turning off the compressor when outdoor temperatures drop below 35°F; however, this setting is not ideal for energy efficiency and costs. HVAC equipment manufacturers and the Air Conditioning Contractors of America (ACCA) do not recommend turning off the compressor at all.

You will receive a warning message that states: "Compressor Min Outdoor Temperature for air-to-air Heat Pump should not be disabled. ecobee recommends 35°F."

Select Cancel to acknowledge this warning.



When complete, select the arrow symbol in the upper left corner to return to the main screen.

Congratulations, your new ecobee3 lite thermostat should now be setup to maximize your HVAC system efficiency and home comfort.



ecobee3 lite

Introduction

The ecobee3 lite is a powerful tool that can help save energy and money while managing energy resources to best serve all cooperative members. To make sure you're getting the most out of your ecobee3 lite, Advanced Energy offers the following recommendations for thermostat setup specific to your heat pump.

Please note: This information is only for heat pumps with auxiliary electric strip heat. If your heat pump has gas backup, this information does not apply. Please instead follow the ecobee3 lite Thermostat Setup Guidelines for Heat Pumps with Gas Furnace Backup (Dual Fuel Heat Pumps).

Heating 101

When it starts to get cold outside, your heat pump works like an air conditioner in reverse — it pulls any warmth out of the outside air, puts it through a compressor to heat it further and blows it throughout your home.

Your compressor is the most efficient way to heat your home, but it alone does not always keep your home at a desired temperature. When outdoor temperatures drop, auxiliary heat from the heat pump kicks in to maintain your comfort and thermostat settings, but this uses more energy. To maximize your home's comfort and efficiency, you can set your ecobee3 lite to perform best in all circumstances.

Suggested Settings to Maximize Energy Savings

The following settings can help you achieve your desired indoor temperature and save energy during the winter. These settings can be accessed with a few steps from your ecobee3 lite.





Navigate back to the Installation settings menu by pressing C twice Select Thresholds.



Aux Heat Max Outdoor Temperature Choose between 30 and 45 Push Save



Compressor to Aux Runtime - 30 min



Outdoor Temperature -Disabled



Compressor to Aux Temperature Delta - 3°F



Select Cancel to finalize settings and return to Installation settings menu

Series of Guides

This guide is part of a series providing settings recommendations for using the ecobee3, ecobee3 lite and ecobee SmartThermostat with voice control thermostats with different heat pump systems.

Installation Precautions

These recommendations are based on the presence of a heat pump system and thermostat operating per manufacturers' instructions prior to the ecobee3 lite installation.

Read the ecobee installation materials carefully and only install the thermostat yourself if you are comfortable with electrical wiring and device setup. If you are not, seek a qualified HVAC contractor to complete installation and setup.

Save Energy, Save Money

As a member-owned electric cooperative, we are committed to member comfort and satisfaction. With the right settings, the ecobee3 lite can help get the job done.

If you need more information or have questions about the settings on your ecobee3 lite, call ecobee customer support at 877-932-6233.

Congratulations, your new ecobee3 lite should now be setup to maximize your HVAC system efficiency and home comfort.



Connect with Advanced Energy

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