



# USER'S GUIDE

## CERV2 Touchscreen Interface

### Integrated & Remote Controller



Build Equinox  
support@buildequinox.com  
(773)-492-1893

Rev 1.2 - 03/12/2024

© Build Equinox 2024

# Contents

Controller Overview .....	3
Connecting The Wireless Controller .....	<b>Error! Bookmark not defined.</b>
Home Screen.....	7
Heating and Cooling Setpoints .....	8
CO2/VOC and Ventilation Setpoints .....	9
Recirculation .....	10
Trigger Ventilation .....	10
Wireless Device Setup .....	12
Wired Auxiliary Outputs .....	15
Wired Auxiliary Inputs .....	18
CERV Operation Mode .....	21
ECM Fan Settings.....	22
CERV Assessment Interval .....	25
Display Settings .....	25
Status & Alerts .....	29

## **Controller Overview**

The CERV's integrated touchscreen interface and optional wireless touchscreen controller puts control of your indoor air quality literally into your hands, providing a gateway to the most advanced air quality management system available today. While the CERV uses complex algorithms and computations to optimize your indoor air quality, the touchscreen interface was built to be simple, easy to read, and intuitive. From the controller, you can easily view real time air quality and comfort conditions in your home and configure the CERV's settings or auxiliary devices. This guide serves as a reference to allow you to maximize your understanding of how to configure the CERV to serve you best. Refer to the CERV Operation Manual for more information on the CERV's system components, modes of operation, and recommended settings.

Air quality, temperature, and relative humidity are measured directly at the CERV, and then displayed on the integrated touchscreen. Checking CERV status or making any changes will require use of either the touchscreen controller or the CERV-ICE internet gateway, which allows online control and monitoring as well as other features.

## CERV2 Option – Wireless Remote Touchscreen Controller

In addition to the built-in touchscreen controller, the Wireless Remote Touchscreen Controller allows flexibility to locate the controller wherever convenient. The wireless controller can be placed on a flat surface or mounted to a wall using the bracket attached to the back of the controller enclosure. A wall outlet is all that is needed to plug in the power supply. CERV setpoints and configurations are stored locally on the CERV's control board memory, so powering the touchscreen is not necessary for the CERV to operate.

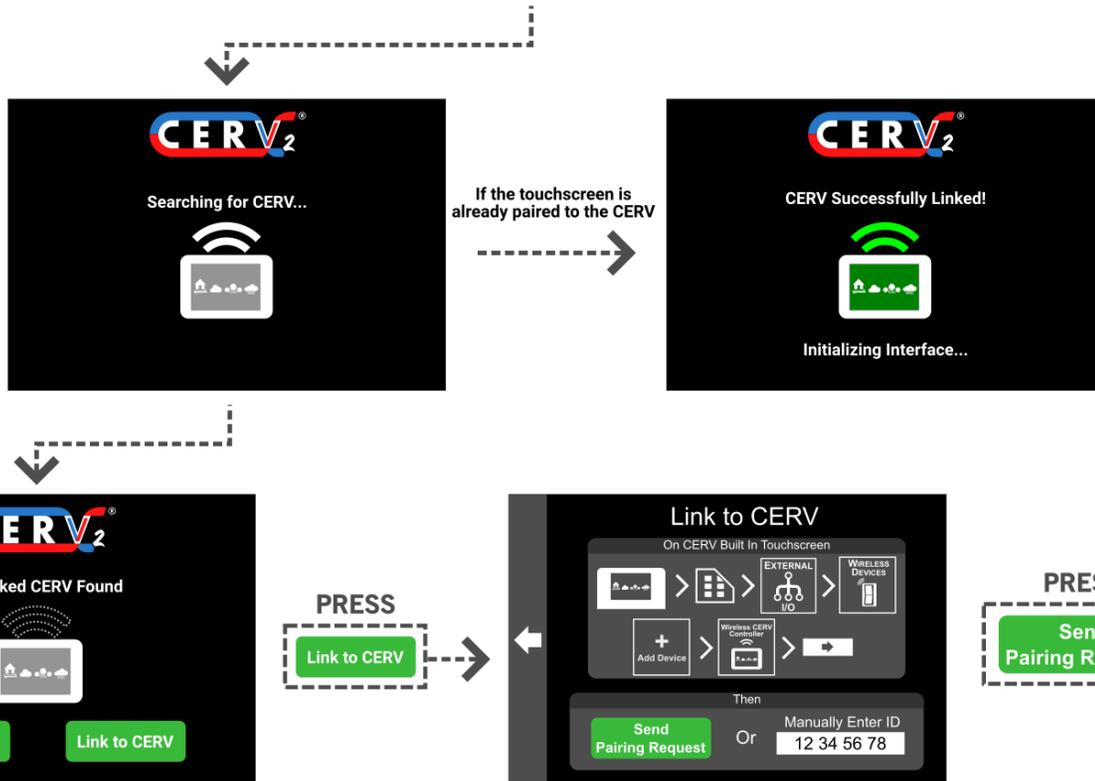
To pair the wireless touchscreen controller with the CERV, make sure that both the touchscreen and CERV are powered. While the wireless network used is often robust enough to allow access throughout the entire home, in some cases the touchscreen may be out of range and need to be moved closer to the CERV. To simplify the process, perform the pairing with the wireless touchscreen and CERV in the same room. Follow the diagrams on the next two pages.



Wireless Remote Touchscreen Controller and Included Power Supply

## On Wireless Touchscreen

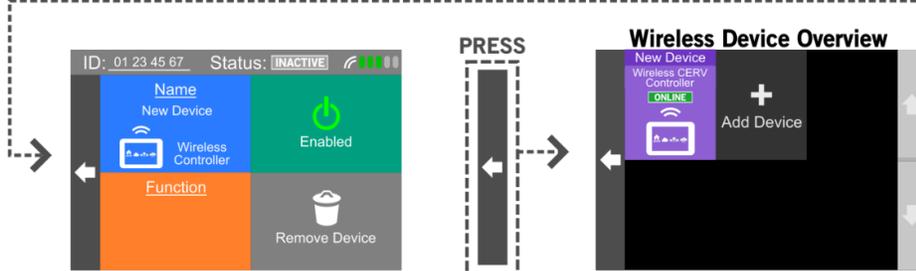
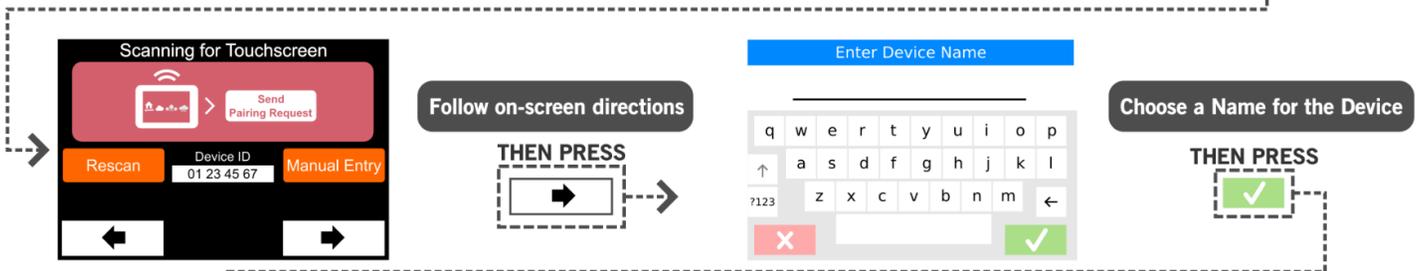
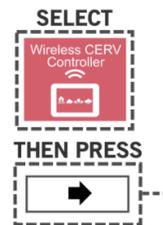
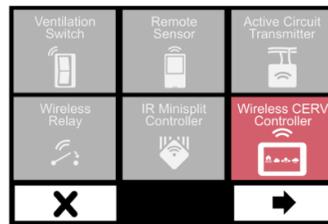
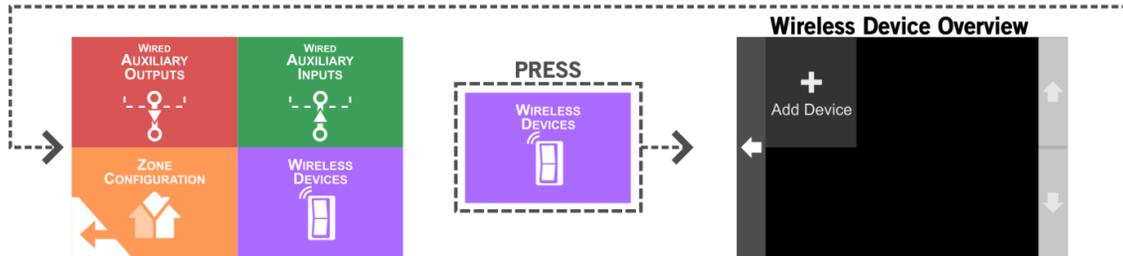
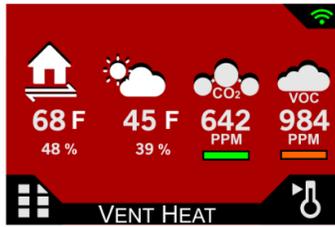
Plug in Power to Touchscreen



After reaching the Link to CERV screen, the base CERV must be put into pairing mode so the two can be linked together. Follow the instructions on the next screen to navigate to the correct screen on the base CERV. The touchscreen may be paired by either pressing the green Send Pairing Request button, or manually entering the wireless touchscreen's wireless touchscreen ID.

If multiple wireless touchscreens are being used with one CERV, a previously paired touchscreen may be used to enter pairing mode instead of the base CERV.

**On Base CERV Touchscreen  
Or previously paired Wireless Touchscreen**



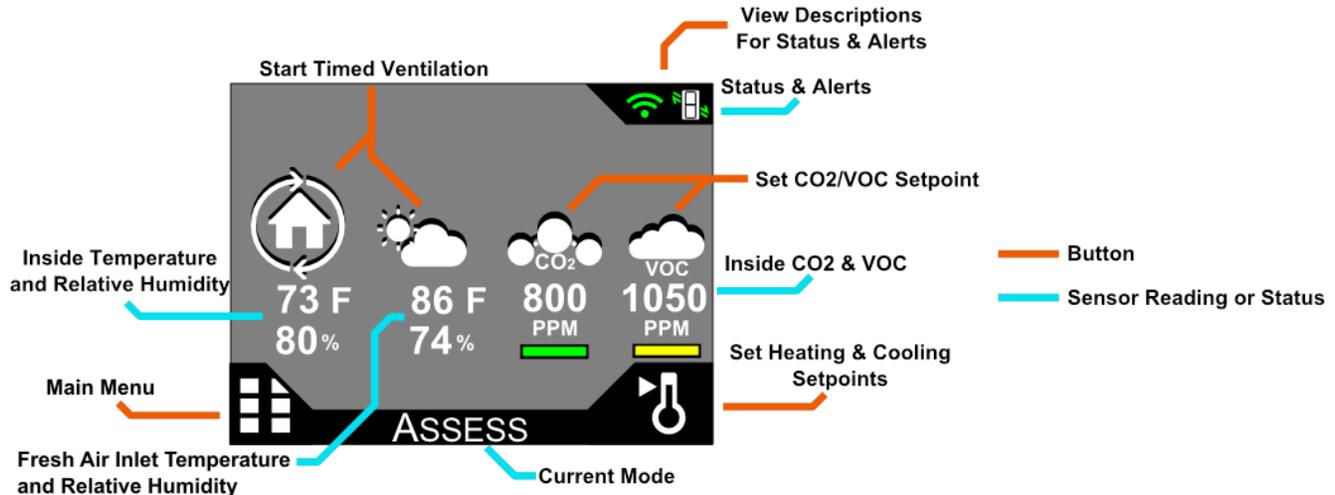
Once the wireless touchscreen is paired, it will start receiving data from the CERV and configuration screens will be active. On the home screen of the wireless touchscreen controller, the “connected” icon will change show the following icon:



## Home Screen

### Overview:

The Home Screen displays the current temperature, relative humidity, CO<sub>2</sub>, VOC, and status of the CERV. It additionally provides quick access to other screens, such as heating and cooling setpoints, timed ventilation, status and alerts, and the Main Menu.



The background color of the screen, along with some of the icons will change depending on the CERV's current operating mode. The possible modes are:

- **Assess** – The CERV is recirculating air throughout the house in order to obtain current readings of the home's overall health and comfort. If the CERV is within all setpoints and does not need to ventilate, heat, or cool, it will revert to its standby "Energy Saver" mode. Assessment is 2 minutes in duration and time between assessments depends on the Assessment Interval (section below).
- **Vent (Heat/Cool/Setpt)** – The CERV will ventilate the home for various reasons. The CO<sub>2</sub>/VOC levels may have gone above setpoint, a wireless ventilation switch was triggered, a timed ventilation event may have been started, or the CERV may be using outside air to heat or cool the home. If the home is within the heating and cooling setpoints, but the CERV is ventilating, the screen will be green and the current Mode will show Vent Setpt. A red or blue screen will appear if the CERV is heating or cooling while in ventilation mode.
- **Recirc (Heat/Cool)** – If ventilation is not needed, but the inside temperature is outside the bounds of your heating or cooling setpoint, the CERV will go into a recirculation heating or cooling mode. The screen will be red or blue depending on heating or cooling mode.
- **Off** – The CERV has determined that your air quality is acceptable and your inside temperature is satisfactory. It will conserve energy by turning itself off. The screen will be gray while in this standby mode. The CERV fans will come on periodically for the assessment period.

### Other Notes:

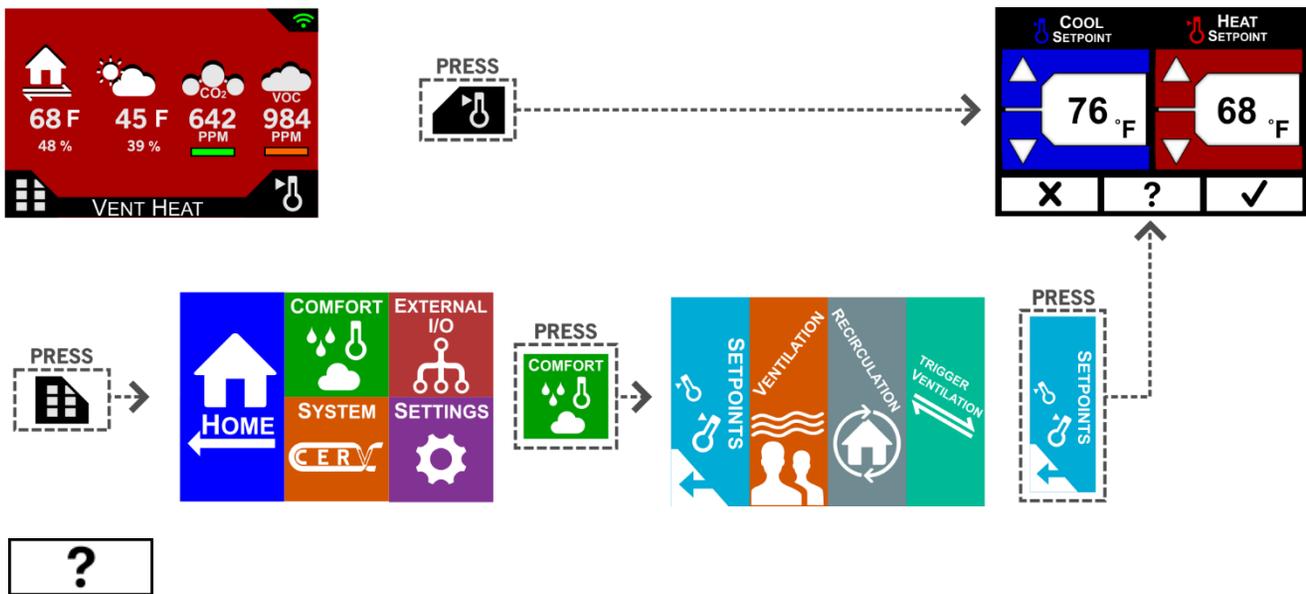
The colored bars below the CO<sub>2</sub>/VOC readings indicate how the current air quality levels compare to the setpoint. Green indicates that your air quality is acceptable, yellow indicates that the pollutant level is nearing the ventilation setpoint, and orange indicates that the pollutant level is above the setpoint and the CERV is ventilating or will start doing so shortly.

# Heating and Cooling Setpoints

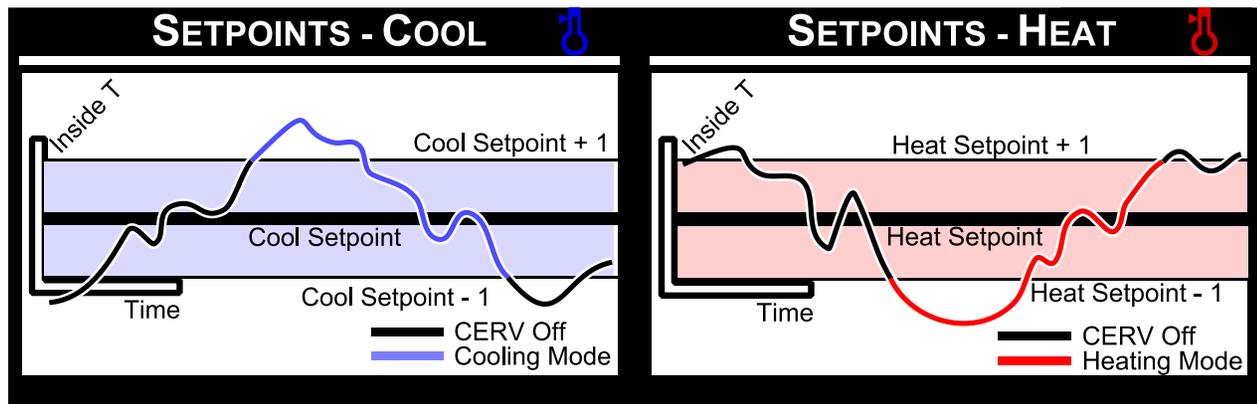
## Overview:

On this screen, you may configure your heating and cooling setpoints for the CERV. There are two paths to get to the heating and cooling setpoint screen. From the Home Screen simply press the thermometer icon or go through the Main Menu. On the temperature setpoints screen you may change either setpoint and then press the checkmark  to accept the change. To reject the changes or make no change, press the . After pressing either the checkmark or the X you will be taken to the previous screen.

Note: The lower bound of the cooling setpoint is two degrees F above the current heating setpoint. Likewise, the highest the heating setpoint can be set is 2 degrees below the current cooling setpoint. It may be necessary to move one setting first in order to move the other.



On many screens you will notice a “?” button. Pressing this button will take you to a Help Screen for the screen you are currently on. The Help Screen provides detailed information on the current screen including what settings can be changed and how these settings relate to the CERV’s operation. Below is the help screen for the Temperature Setpoint screen. This demonstrates how the CERV operates in heating or cooling mode in relation to the setpoints. Data shown on the help screen is only representative.

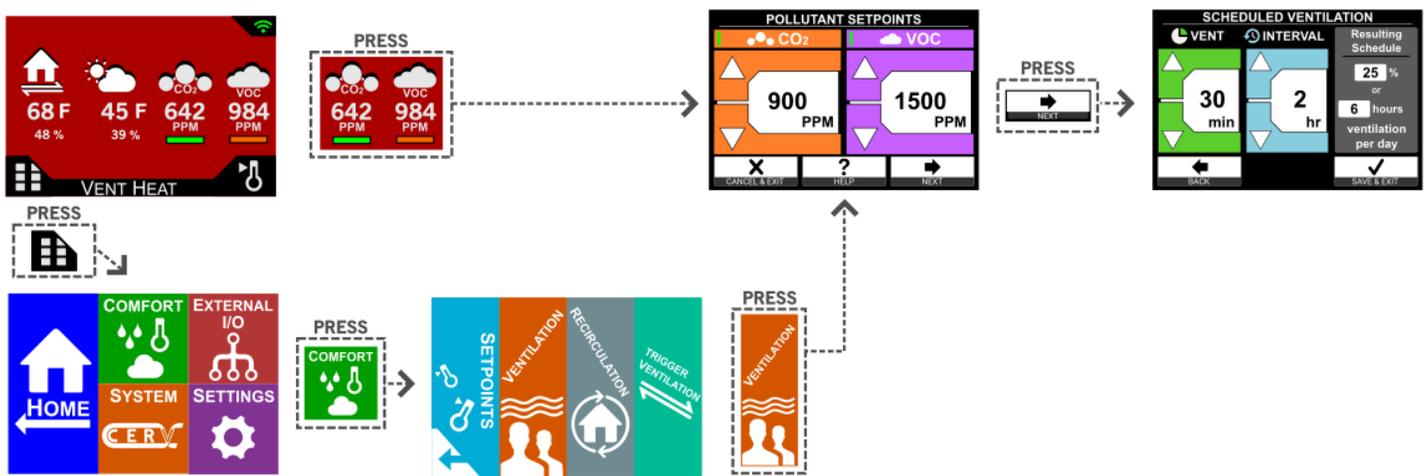


# CO2/VOC and Ventilation Setpoints

## Overview:

On this screen, you may configure your ventilation setpoints for the CERV. Like the Temperature Setpoint screen, there are two paths that take you to the Ventilation Setpoints. The CERV is a demand-controlled ventilation (DCV) system and has independent CO2 and VOC sensors. If the CO2 or VOC sensors read above their PPM (parts per million) setpoint, the CERV will go into fresh air ventilation mode to bring the air quality back to an acceptable level. Clicking on the CO2 or VOC buttons at the top will disable or re-enable either sensor for ventilation control. A solid background color on the button indicates the sensor is enabled, while gray indicates the sensor is disabled.

The following screen lets you set scheduled ventilation where the CERV will ventilate for a fixed schedule regardless of CO2 and VOC sensor readings. This can be used in addition to the demand-controlled ventilation (DCV) or in place of DCV if the pollutant sensors are turned off.



## Recommendations:

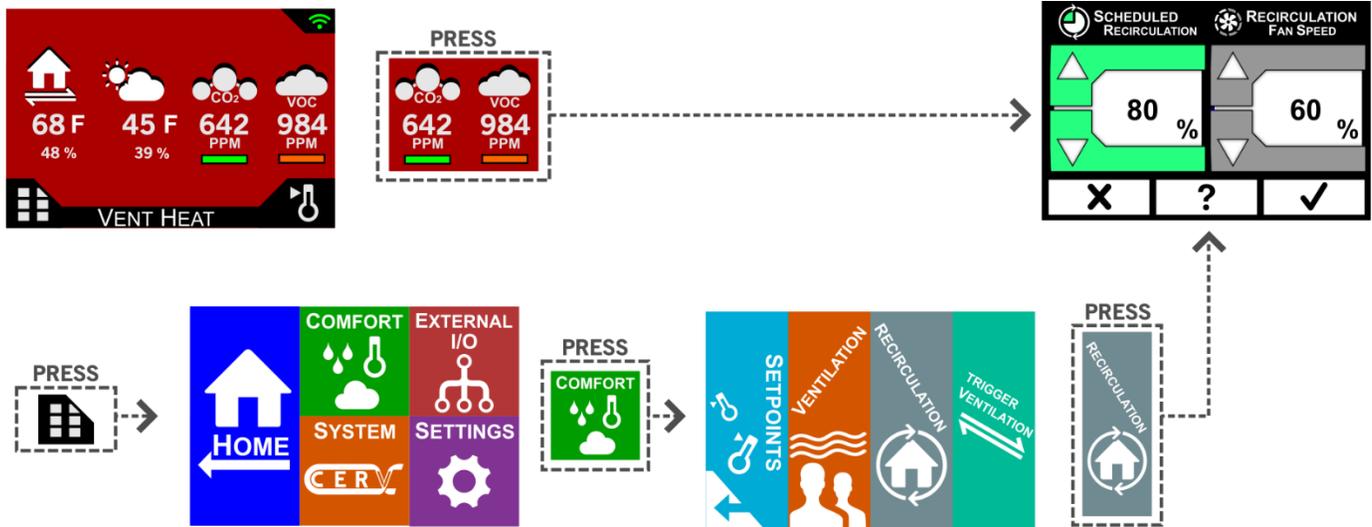
Recommend Ventilation Setpoint is 900 to 1100PPM. Studies have shown that levels above 1000PPM can indicate that a home may have detectable odors as well as negative effects on productivity, alertness, and general comfort. In some rare cases, outside air may actually be more polluted than the air inside your home. In this case bringing in outside air will increase the pollution level inside, rather than decrease it. This could be due to neighbors burning leaves, wood burning stoves, etc. In this type of situation, you may choose to disable the CERV’s affected CO2 or VOC sensor until the situation is resolved.

While the CO2 and VOC sensors in the CERV generally detect most air quality issues, in some cases occupants may detect odors that the system may not. As a supplement to the normal on-demand ventilation using the internal sensors, Scheduled Ventilation can be set to provide a fixed amount of fresh air regardless of the IAQ levels detected by the CERV.

# Recirculation

## Overview:

Scheduled Recirculation can be used to move air throughout the home during times when the CERV would otherwise be off because no heating, cooling, or ventilation is needed. This Scheduled Recirculation setting is reached through the Comfort Menu. By setting the Scheduled Recirculation setpoint, the CERV will spend the set % of the Assessment Interval time in Recirculation Mode. For example, if the Assessment Interval is set to 10 minutes and the Scheduled Recirculation set to 10%, the CERV will recirculate for 1 minute out of the 10 minute interval. During recirculation, only the inside supply fan is powered. See pg 17 for information on the Assessment Interval.



## Recommendations:

The time available for scheduled recirculation will depend on time needed for ventilation, heating, or cooling because this recirculation is only possible at times when all setpoints are satisfied. Setting to 100% will ensure constant movement of air throughout the home. Initially leaving it at 0% will allow user to evaluate CERV’s time spent in off mode and if an increase in Recirculation % is desired to move air during down time.



**HELP SCHEDULED RECIRCULATION**

**Scheduled Recirculation Level**

This is the percentage of time that the CERV will recirculate when no other ventilation or conditioning is needed (i.e. the unit would normally be off). Setting this value may help encourage air mixing between floors and rooms of the building, providing a more uniform and comfortable living environment.

**HELP SCHEDULED RECIRCULATION**

**Recirculation Fan Speed**

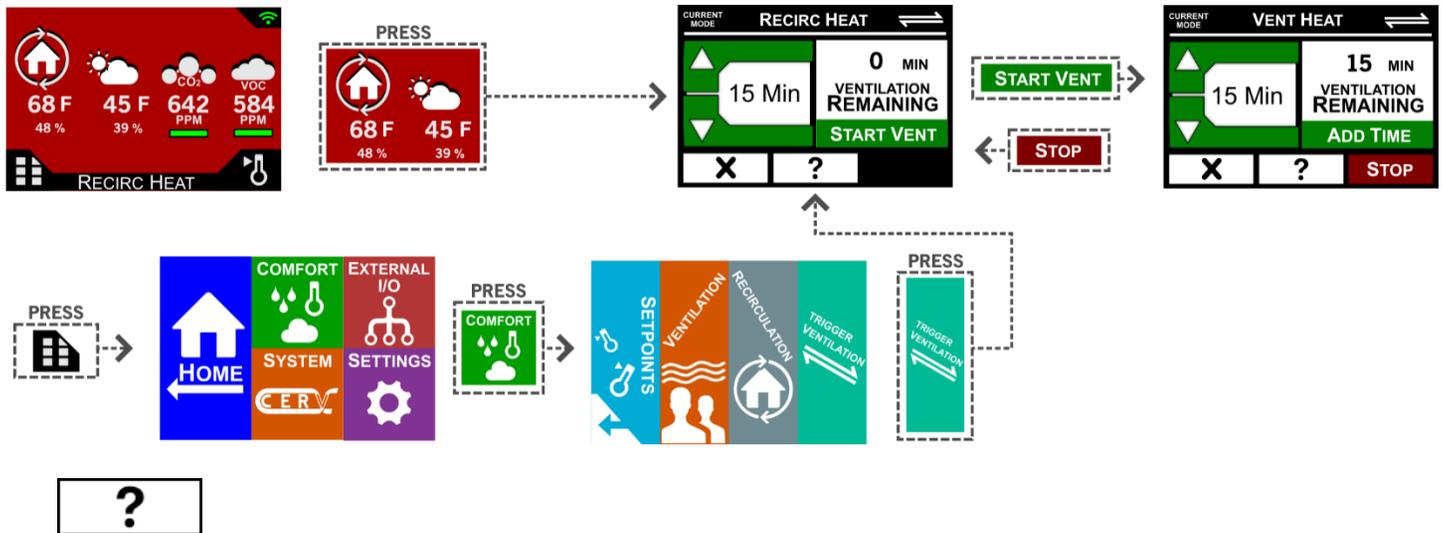
When the CERV is running in the Scheduled Recirculation period, the indoor fan speed can be set to the desired level. This may be above or below the normal operation fan speed setting.

## Trigger Ventilation

## Overview:

From the Home Screen or through the Comfort Menu you can trigger a timed ventilation event. Trigger Ventilation lets you force the CERV into ventilation mode for a specified amount of time. If you are cooking or have another event that may produce moisture or odors for which you require ventilation, this function can be used. Even though the CERV will detect pollution and ventilate automatically, there can be a delay between the production of the pollution and when the CERV detects it. Proactively ventilating can help mitigate propagation of pollution in the home.

To use the function, change the time to the desired length and then press Start Vent. The CERV will switch into vent mode and the time remaining will begin counting down. If you would like to cancel the ventilation at anytime, press the stop button. On the home screen an hourglass icon will appear in the status bar while the ventilation event is occurring.



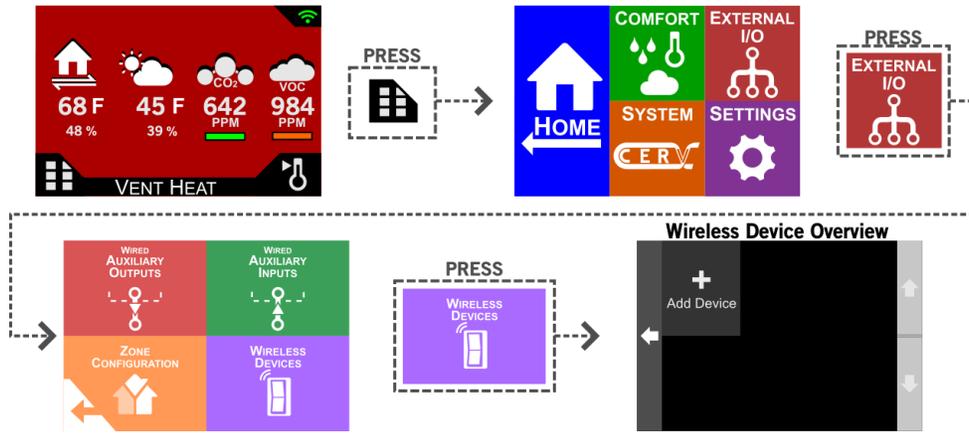
## TIMED VENTILATION

- START VENT** Start a timed ventilation event with the specified amount of time.
- ADD TIME** Add the specified amount of time to the timed ventilation event.
- STOP** Stop the current timed ventilation event.  
This will not stop ventilation due to VOC/CO2 setpoints, minimum ventilation setting, or wireless ventilation switches.

# Wireless Device Setup

If you purchased the CERV with a wireless switch, active circuit transmitter, wireless touchscreen, etc., you will need to pair the device to the CERV then, if applicable, configure the functionality of the device. When pairing a device to the CERV, it is often helpful to have the wireless device located close to the CERV to ensure good communication.

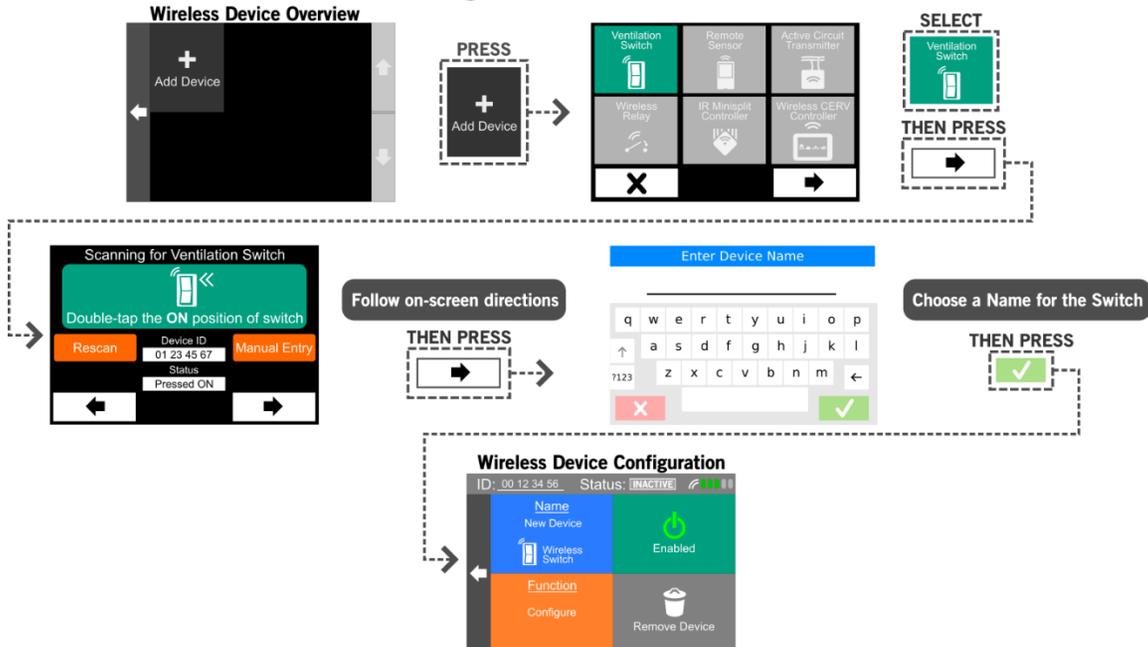
## Wireless Device Setup



From the Wireless Device Overview screen, adding a new wireless device is simple. For all wireless devices, you may either “actively” pair the device (pressing a button on the device when prompted), or “manually” pair the device (typing in the address of the device). There is additionally often a “Status” box which allows you to test operation of the wireless switch, active circuit transmitter, etc. Lastly, you will input a name for the device (maximum 8 characters).

Shown below is an example of pairing a new wireless ventilation switch.

## Adding a New Wireless Switch



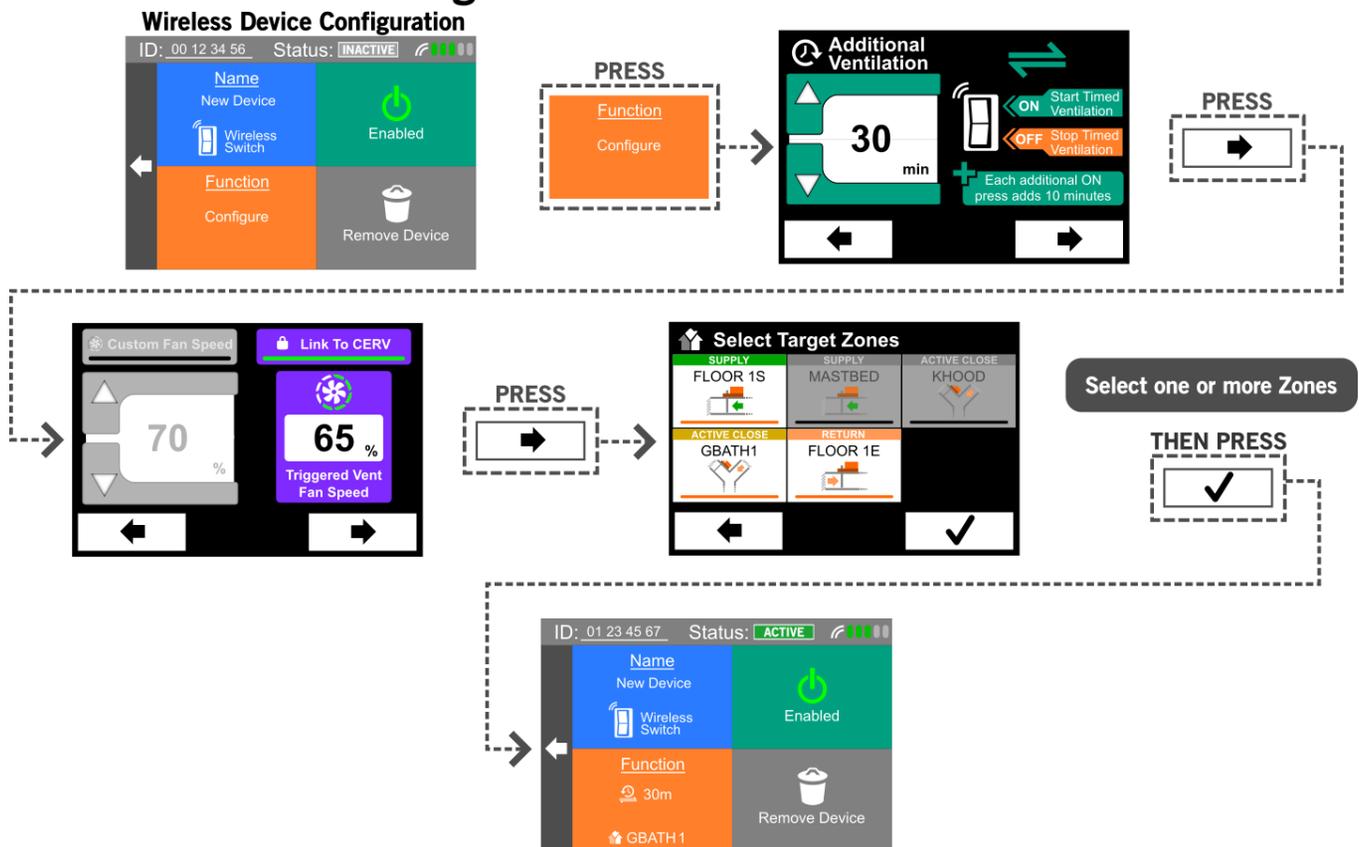
After the name is entered and the green checkbox pressed, you will be taken to the Device Configuration Screen. This is where you can rename, enable/disable the device, setup functionality, or delete the device.

# Wireless Device Configuration – Wireless Switch

With wireless ventilation switches, there are several options to configure:

- Ventilation Length: once the wireless ventilation switch is triggered, the CERV will ventilate for the specified period of time.
- Configure Fan Speed/Link to CERV:
  - Configure Fan Speed: if this option is selected, a specific fan speed will be selected for this particular ventilation switch. Multiple ventilation switches in a home may have different fan speeds depending on location.
  - Link to CERV: if this option is selected, the switch will use the CERV’s configured Triggered Ventilation Fan Speed. This fan speed setting may be configured in the ECM Fan Settings screen.
- Target Zones: in the scenario where one or more Zone Dampers are used with the CERV, the homeowner may wish to pair a ventilation switch to activate one or more zones. For example, if there were exhaust zones for the master bathroom, guest bathroom, and kitchen, and a wireless switch is “linked” to the master bathroom zone, triggering the switch would close down the guest bathroom and kitchen zones to favor the master bathroom.

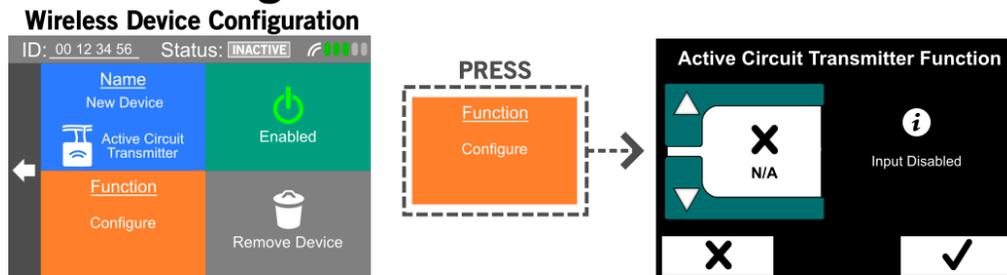
## Configure Wireless Ventilation Switch



## Wireless Device Configuration – Active Circuit Transmitter

The Active Circuit Transmitter (ACT) option allows a remote circuit to influence the function of the CERV, much like the hardwired Auxiliary Input(s). The ACT can be installed along with a load, such as a light switch or kitchen vent hood, or even used with a separate system as a fan interlock or system shutoff. Once the ACT is installed, powered, and paired with the CERV, its functionality can be programmed.

### Configure Active Circuit Transmitter



#### Available Active Circuit Transmitter Functions



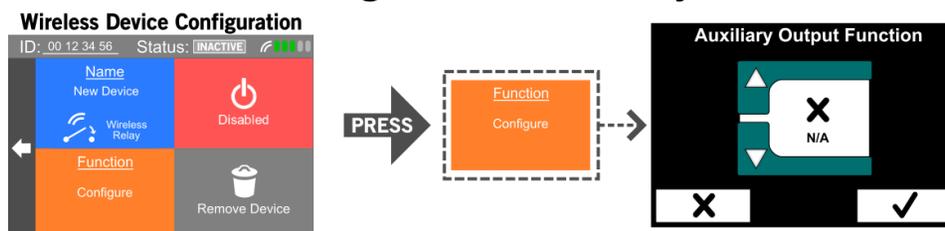
When the circuit is “active”, the ACT will periodically send a signal to the CERV indicating that the circuit is on. In most cases, this will cause the CERV to suspend its current activity based on internal sensors, and instead enter the mode specified by the device’s configuration. If the ACT is activated, the CERV will perform the configured function for 5 additional minutes after the circuit is turned off.

See [Wired Auxiliary Inputs – Configuration](#) for more information about configuration.

## Wireless Device Configuration – Wireless Relay

Wireless Relays allow the CERV to control on/off functionality of a remote device, much like an extension of the CERV’s built in Auxiliary Output(s). Configuration of the wireless relay, therefore, is identical to configuration of the wired auxiliary outputs.

### Configure Wireless Relay



#### Available Wireless Relay Functions



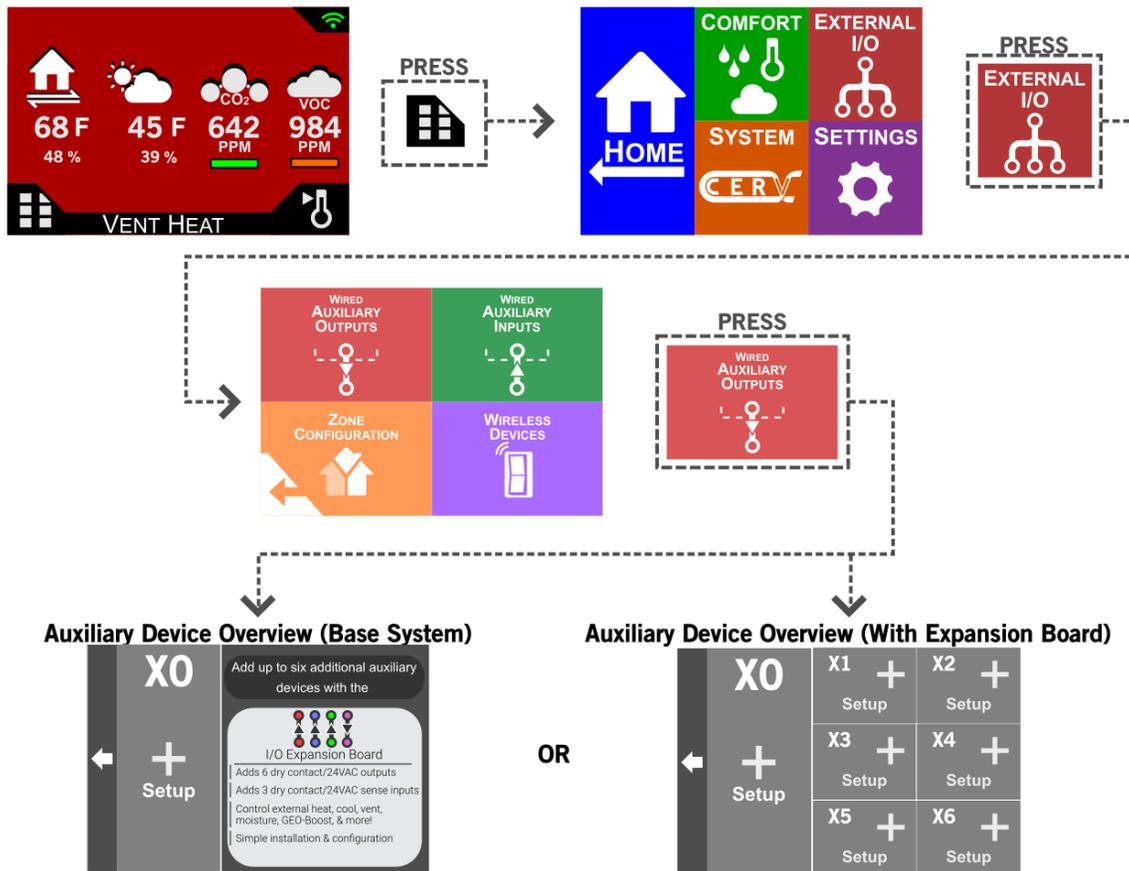
See [Wired Auxiliary Outputs – Configuration](#) for more information about configuration.

# Wired Auxiliary Outputs

## Overview:

The CERV can control external auxiliary devices with different functions through its built in Auxiliary Relay, or optional Expansion Board. The following graphic shows the path to reach the Auxiliary Output Overview screen. The base system's Auxiliary Relay is identified as X0, while the optional expansion board (if applicable) identifies as X1-X6.

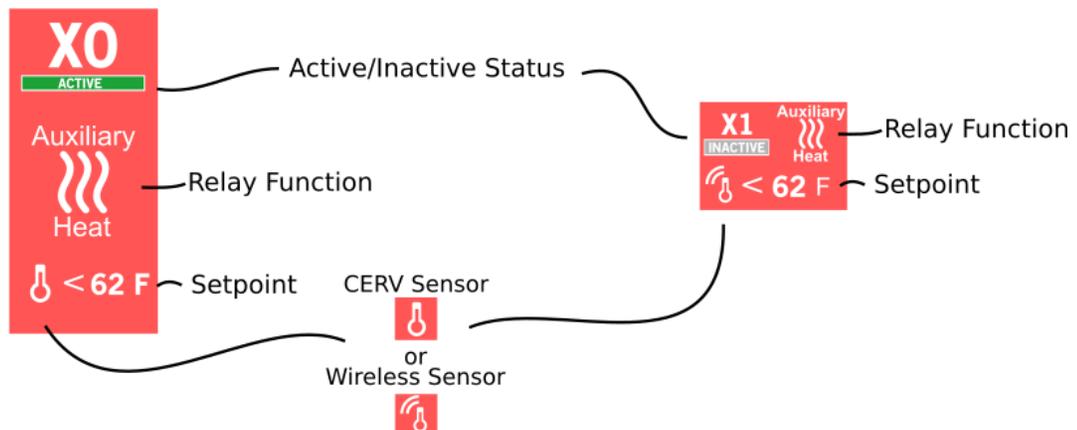
## Wired Auxiliary Output Setup



Once an output is configured, the Auxiliary Output Overview will display the current configuration and status of any configured auxiliary outputs. The diagram below details the information shown for each device.

### Base System Relay

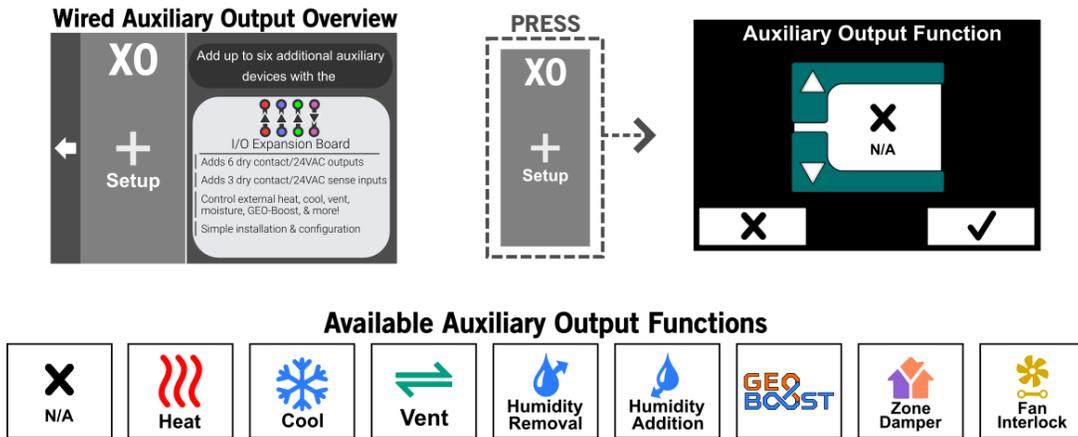
### Expansion Board Relay



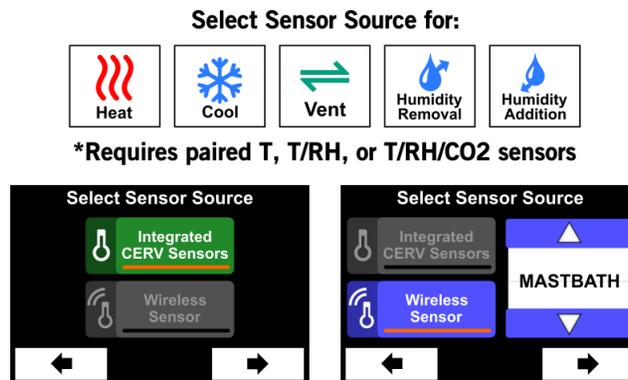
## Configuration:

To set up a new auxiliary output, simply tap on the button corresponding to the desired device. Similarly, if you wish to change the configuration of an existing device, just tap the device.

## Configure Auxiliary Output



For some of the auxiliary output functions, you may wish to link the device to a wireless temperature, temperature/RH, or temperature/RH/CO2 sensor instead of the CERV's built in sensors. If there are no wireless sensors paired with the CERV, the wireless relay will automatically be configured to use the CERV's built in sensors.

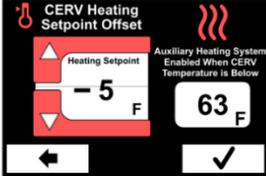
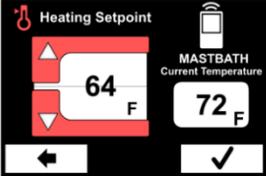
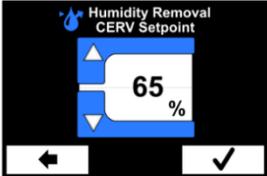
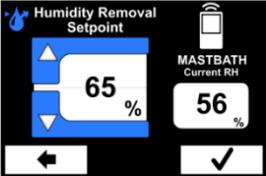
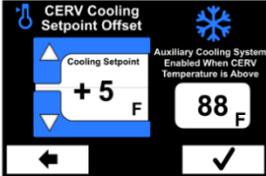
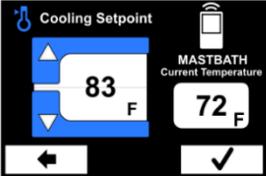
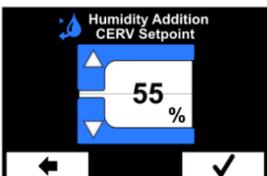
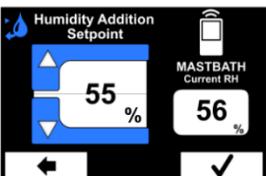
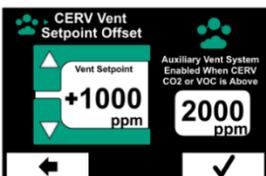
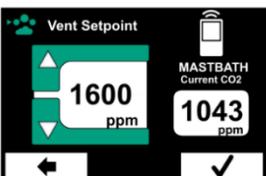
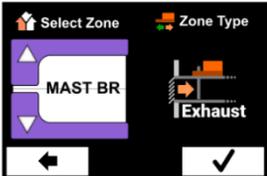


When the Integrated CERV Sensors option is chosen for heating, cooling, or ventilation, the "activation" setpoint for the device is chosen as an offset from the CERV's current heating, cooling, or ventilation setpoint. Consider the following example: Your CERV is configured with a heating setpoint of 65, cooling setpoint of 75, and ventilation setpoint of 1000ppm.

- A **heating device** with offset of -2 would activate when the CERV is heating and the indoor temperature drops below 63
- A **heating device** with offset of 0 would activate whenever the CERV is heating
- A **cooling device** with offset of +2 would activate when the CERV is cooling and the indoor temperature rises above 77
- A **cooling device** with offset of 0 would activate whenever the CERV is cooling
- A **ventilation device** with offset of +100 would activate when the CERV is ventilating and the CO2/VOCs rise above 1100
- A **ventilation device** with offset of 0 would activate whenever the CERV is ventilating

Alternately, if the Wireless Sensor option is chosen, the “activation” setpoint for the device will be a distinct value, independent of the CERV’s current mode and setpoints. Care should be taken, therefore, to ensure that setpoints are chosen in a way that does not result in conflicts between the CERV’s heating/cooling/ventilation operation and the external devices (i.e. CERV is heating, while a remote device is cooling). When the Wireless Sensor option is used, the sensor’s name and current reading will appear to the right of the setpoint selection area.

### Auxiliary Output Configuration Settings

	CERV Sensors	Wireless Sensor		CERV Sensors	Wireless Sensor
					
					
					

No Configuration Needed For:



The Zone Damper configuration consists of selecting the zone you would like to control with this device. If no zones have been configured yet, a button will appear which will take you to the Zone Configuration screen.

When the Geo Boost and Fan Interlock options are chosen, no setpoint configuration is needed. The Geo Boost uses the CERV’s internal temperature sensors to determine the most beneficial conditions to enable or disable the glycol pump. The Fan Interlock option simply enables the relay whenever the fans of the CERV are operating.

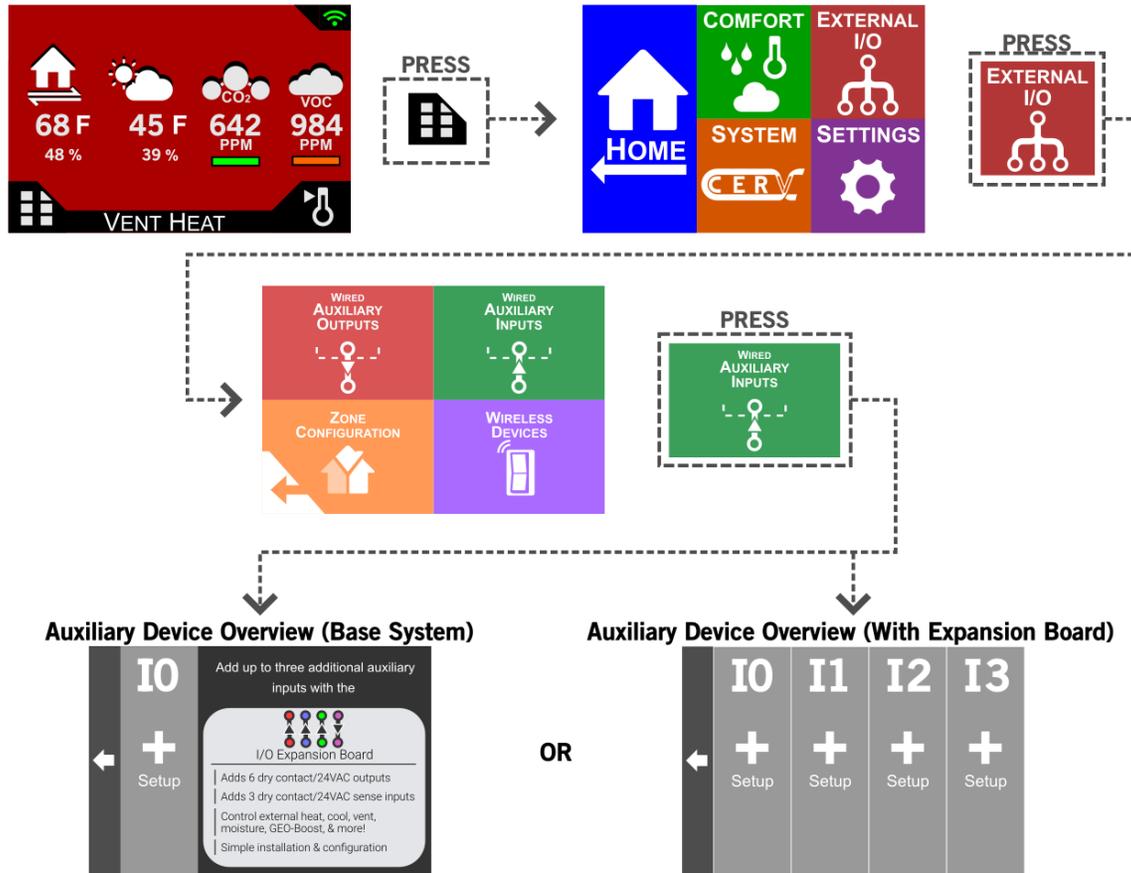
Unless otherwise stated, the CERV Installation Manual should be used for installing any auxiliary device.

# Wired Auxiliary Inputs

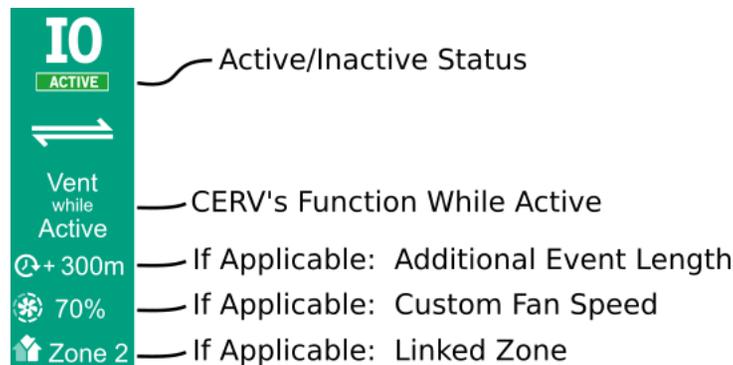
## Overview:

The Wired Auxiliary Input option allows an external device to influence the function of the CERV through either a 24VAC input or dry contact. **NOTE: 24VAC/DRY CONTACT selection is configured with the small slide switch on the left side of the control board under the front plastic cover. All wiring should be done with the CERV's power cord disconnected from mains.** Once the control wiring is complete, the input can be configured as follows.

## Wired Auxiliary Input Setup



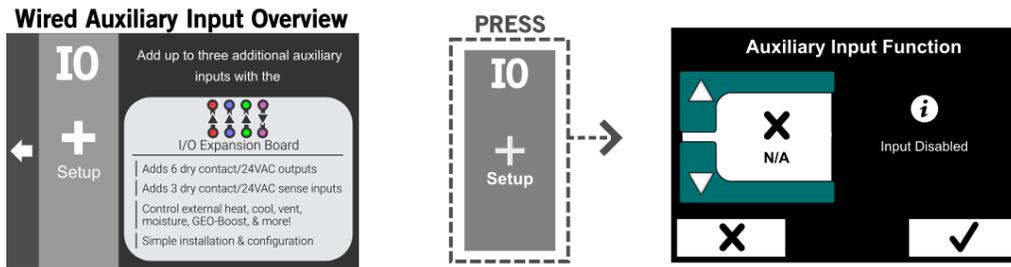
Once an input is configured, the Auxiliary Input Overview will display the current configuration and status of any configured auxiliary inputs. The diagram below details the information shown for each device.



## Configuration:

To set up a new auxiliary input, simply tap on the button corresponding to the desired device. Similarly, if you wish to change the configuration of an existing device, just tap the device.

## Configure Auxiliary Input



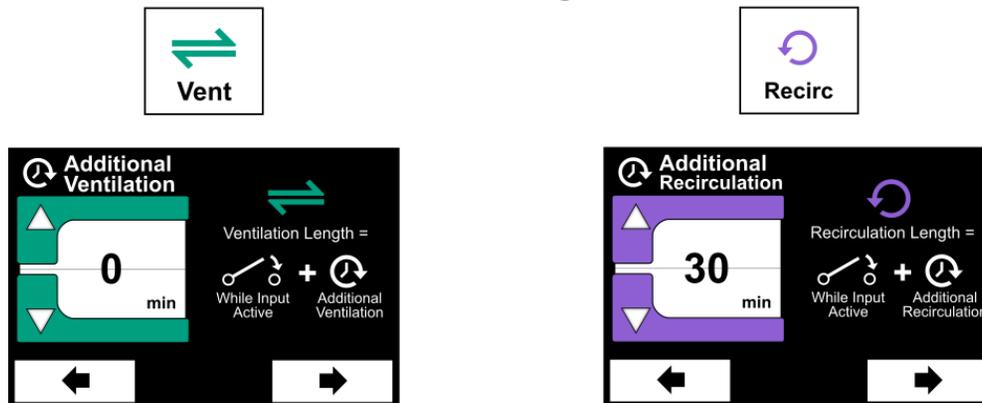
### Available Auxiliary Input Functions



Once the wired auxiliary input is active (sensing either 24VAC at the terminals, or sensing a dry contact closure), the CERV will immediately enter the configured mode. Unlike the wireless Active Circuit Transmitter, an inactive circuit will immediately cause the CERV to exit the input's configured mode (as opposed to the ACT's 5-minute timer).

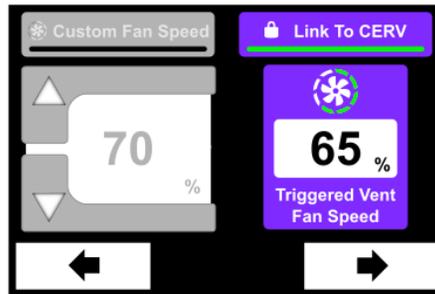
For Vent and Recirc configurations, you may select Additional Ventilation time. This means once the circuit is turned off, the CERV will continue to ventilate or recirculate for the specified time. For example, you could have a dry contact kitchen wall switch wired to the CERV, set to 30 minutes additional ventilation. After you finish cooking and turn off the switch, the CERV would continue to ventilate for 30 extra minutes to help clear out pollutants. 30 minutes after the switch is turned off, the CERV would then return to the mode it was in previously.

### Select Event Length Time



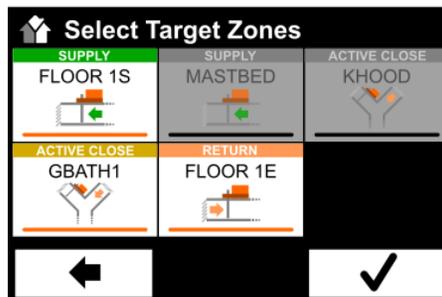
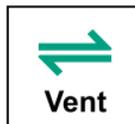
For heat, cool, vent, and recirc, you may select either a custom fan speed for the device, or “Link to CERV”, which uses the CERV’s configured fan speeds.

### Configure Fan Speed



If configured for Ventilation: in the scenario where one or more Zone Dampers are used with the CERV, the homeowner may wish to pair the input to activate one or more zones. For example, if there were exhaust zones for the master bathroom, guest bathroom, and kitchen, and the input is “linked” to the master bathroom zone, triggering the input would close down the guest bathroom and kitchen zones to favor the master bathroom.

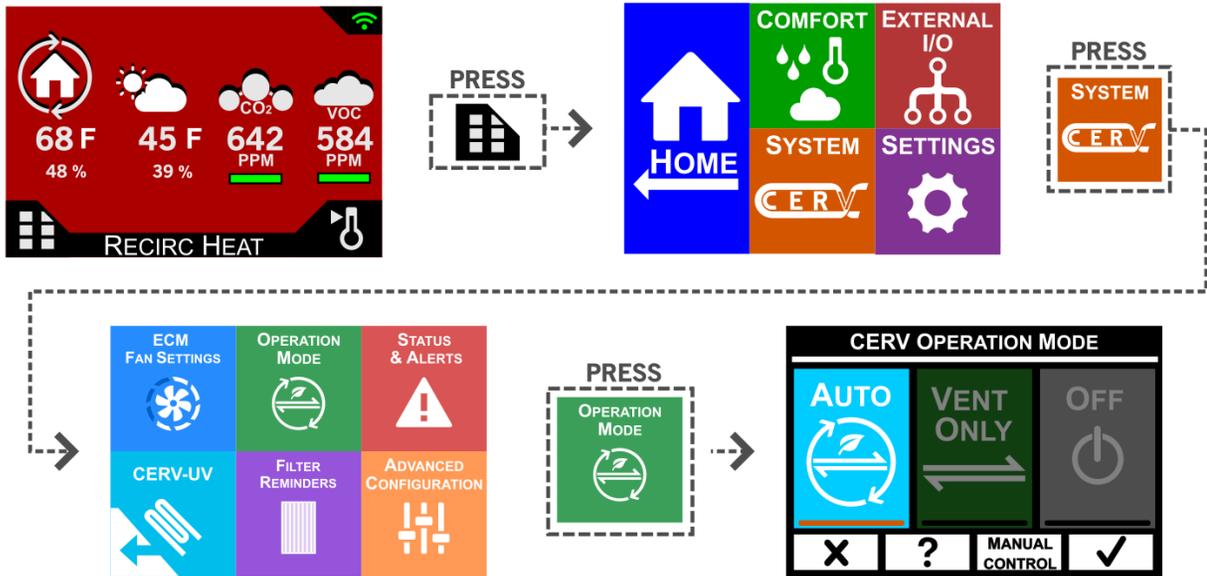
### Link to Zone(s) if Applicable



# CERV Operation Mode

## Overview:

In most cases, you will want to use Auto Mode letting the CERV use its own internal algorithms to determine its operation based on the setpoints. There may be a scenario in which you want to specify that the CERV may only operate in ventilation mode, or that the system should remain off. You can select the appropriate mode on this screen. Note that selecting Off does not remove power from any portion of the CERV and should not be used in servicing the unit. Electrocutation can occur if the proper procedure of disconnecting power to the CERV is not followed.



HELP	CERV OPERATION MODE	HELP	CERV OPERATION MODE	HELP	CERV OPERATION MODE
	CERV can operate in both recirculation and ventilation modes to fulfill ventilation and temperature requirements. This is the most efficient and effective choice.		CERV will attempt to fulfill ventilation requirements, but will not recirc heat/cool due to temperature setpoints. Heating and cooling may still occur during ventilation. Unconditioned recirculation may still be used.		CERV does not operate. Use when no ventilation or conditioning will be needed (i.e. you are opening windows). This mode should not be used to service unit - system power must be removed.

## Recommendations:

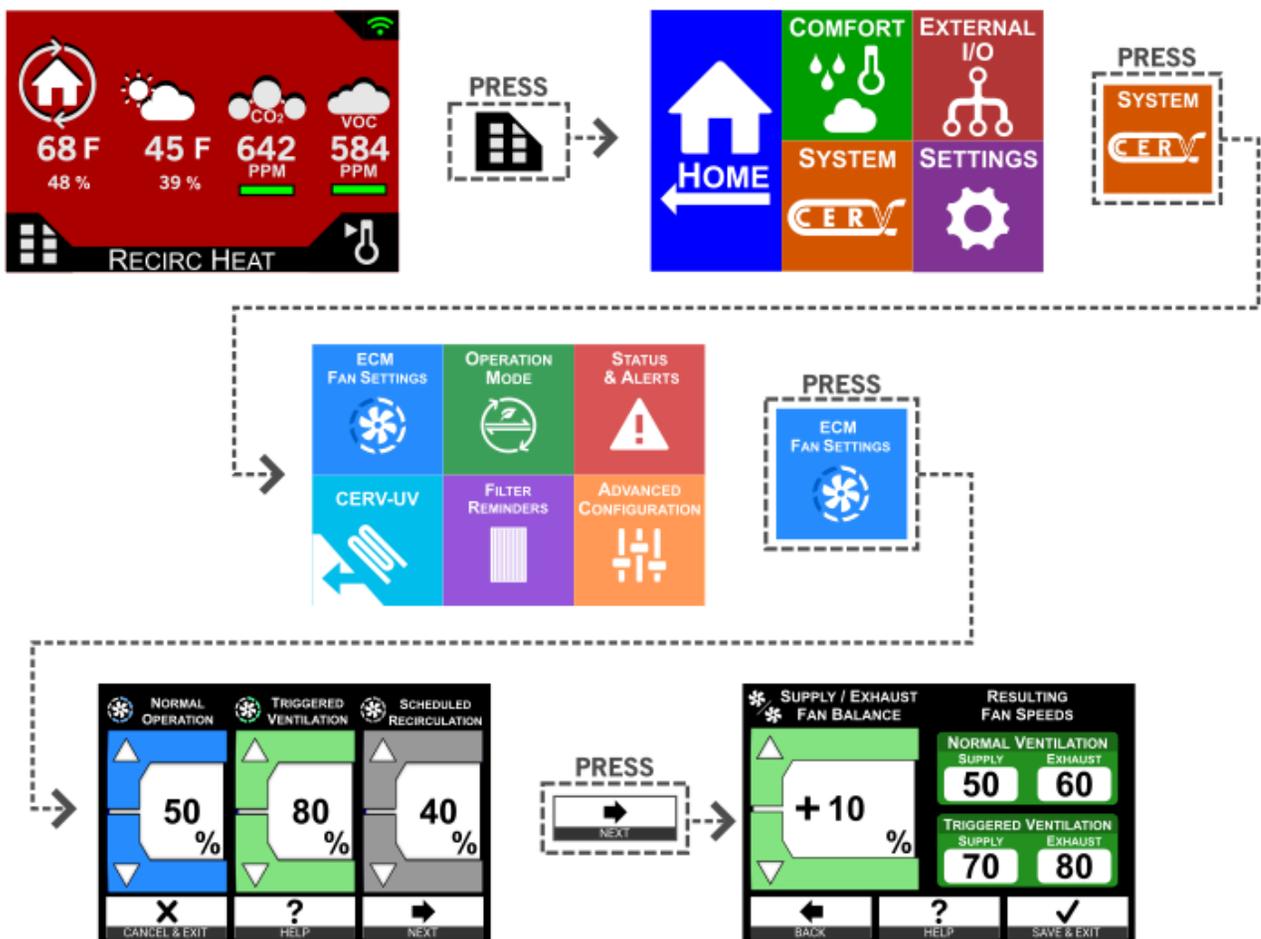
Auto mode is the default operation and is recommended for most efficient operation. Vent mode can be selected if using the CERV for heating and cooling is not wanted. Scheduled recirculation can still be used in this mode. Manual control is only recommended for trouble shooting when a certain mode is needed to check operation.

# ECM Fan Settings

## Overview:

The inline fans included with the CERV can be configured to help maximize comfort and fresh air delivery to the home. There are three configuration settings for the inline fans:

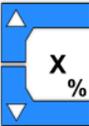
- Normal Operation: This will be the default fan speed for the system as it ventilates, recirculates, heats, and cools your home as determined by the integrated sensors.
- Triggered Ventilation: If a wireless switch or wireless/wired input triggers a ventilation period, the fans will increase to the Triggered Ventilation fan speed setting. This fan speed setting also applies if you start a timed ventilation event from the wireless controller (see Triggered Ventilation section above).
- Scheduled Recirculation: When no heating, cooling, or ventilation is needed, but the Scheduled Ventilation setting is greater than 0%, the inside fan will recirculate air throughout the home. This fan speed setting allows you to recirculate at a higher or lower airflow than normal operation.



After the Normal, Triggered Ventilation, and Recirculation fan speeds have been set, you may choose a Supply/Exhaust Fan Balance. This can be used to properly balance the system, or provide a positive or negative pressure to the home when ventilating. Please note, the fan balance only affects the CERV in ventilation modes (vent heat, vent cool, vent setpoint, etc.), but not recirculation modes. The fan balance is entered as a positive or negative percentage, and applied towards the exhaust fan, as seen by the graphic above.

**HELP FAN SPEED CONFIGURATION** 

**Normal Operation Fan Speed**

 When the CERV is operating normally, this is the desired fan speed. The following two help screens describe the two exemptions - Triggered Ventilation mode and Scheduled Recirculation mode.

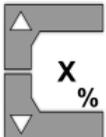
**HELP FAN SPEED CONFIGURATION** 

**Triggered Ventilation Fan Speed**

 When a wireless ventilation switch is pressed, or the Trigger Ventilation option is used, the CERV will immediately ventilate using the specified fan speed. This acts to boost airflow to help purge the home as soon as possible.

**HELP FAN SPEED CONFIGURATION** 

**Scheduled Recirculation Fan Speed**

 During the Scheduled Recirculation mode (where only the inside fan is active), this setting will determine the speed to recirculate air throughout the home.

**Recommendations:**

- Normal Operation: This fan setting should be chosen to achieve around 150cfm airflow to the home.
- Triggered Ventilation: If you wish to purge the home as quickly as possible, this may be set up to 100%
- Scheduled Recirculation: For those with noise sensitivities, a lower airflow for recirculation may be desired. To improve air quality and comfort mixing, a higher airflow could be selected.
- Supply/Exhaust Fan Balance: Once ductwork has been characterized, this should be configured to achieve the desired pressurization level.

# Free Cooling Economizer

## Overview:

The Free Cooling Economizer is a feature that allows the CERV to take advantage of cooler night time temperatures in the summer and swing seasons. The Free Cooling Economizer is configured with an offset from the CERV's standard cooling setpoint.

Example:

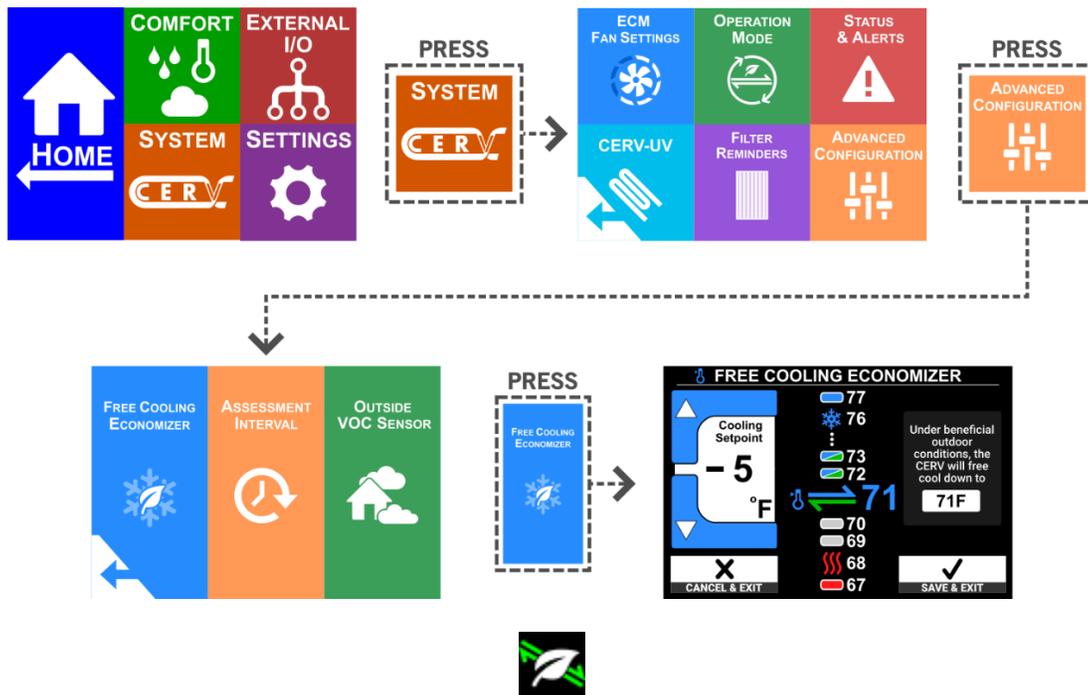
In the summer, you may like your home to stay at 76 during the day. The CERV's cooling setpoint would be therefore set to 76 degrees. When it is warm outside, therefore the CERV will cool the house when the temperature rises above 76 degrees, and stop cooling below 76.

To take advantage of cooler night-time temperatures, the Free Cooling Economizer can use the cooler outside air to help lower the indoor temperature past the cooling setpoint. For example, if the Free Cooling Economizer offset is -5 degrees, the CERV will ventilate with fresh, cool air between indoor temperatures of 71F – 76F.

Special Conditions:

The CERV is intelligent enough to manage both humidity and temperature during the Free Cooling Economizer. The CERV's algorithms consider the inside and outside temperature/RH to make sure that it does not increase your home's humidity when it's bringing in the cooler outside air.

The CERV also keeps track of whether the CERV was last in heating or cooling mode. If the CERV has been heating, the free cooling economizer will not take effect.

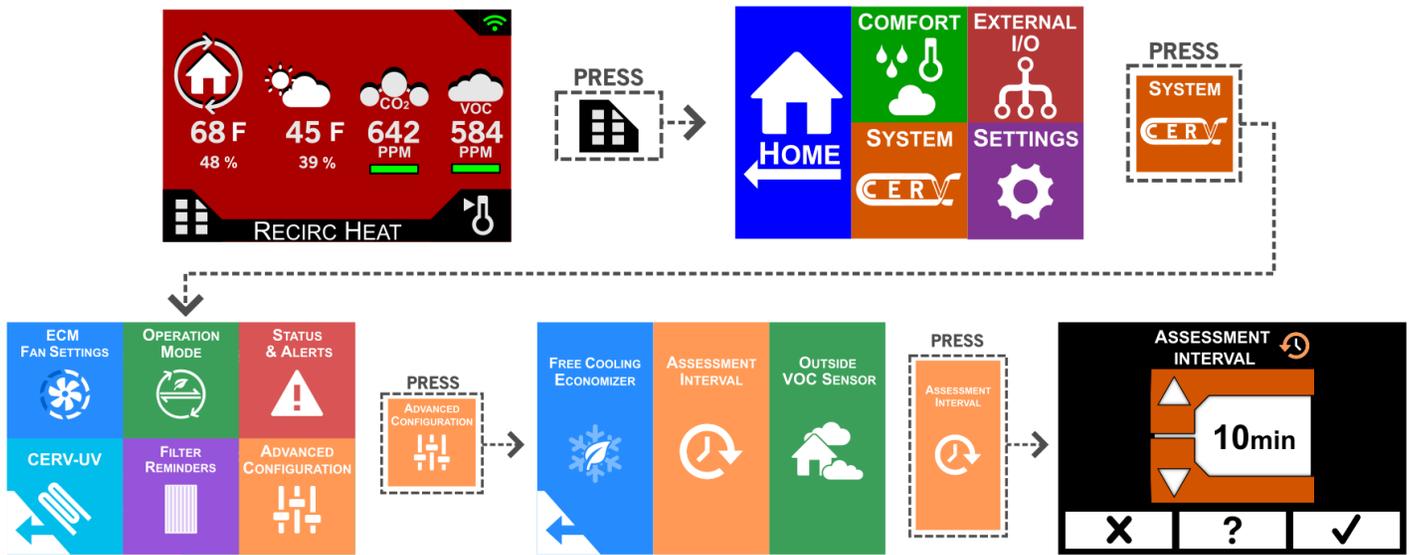


When the Free Cooling Economizer is operating, the above icon will be visible on the CERV's Home screen.

# CERV Assessment Interval

## Overview:

When heating, cooling, and ventilation setpoints are all satisfied the CERV will turn off to save energy. By default, the CERV is set to an Assessment Interval of 10 minutes, which means that after 10 minutes of being off, the CERV will perform an assessment to see if any heating, cooling, or ventilation adjustment is needed. During the assessment, only the fans are activated to move air while taking sensor readings. If setpoints remain satisfied the CERV will turn back off for another Assessment Interval period. The Assessment Interval can be increased to prolong the time period between assessments from 10 minutes up to a maximum of 120 minutes. Scheduled Recirculation % discussed on page 7 is based on this assessment interval.



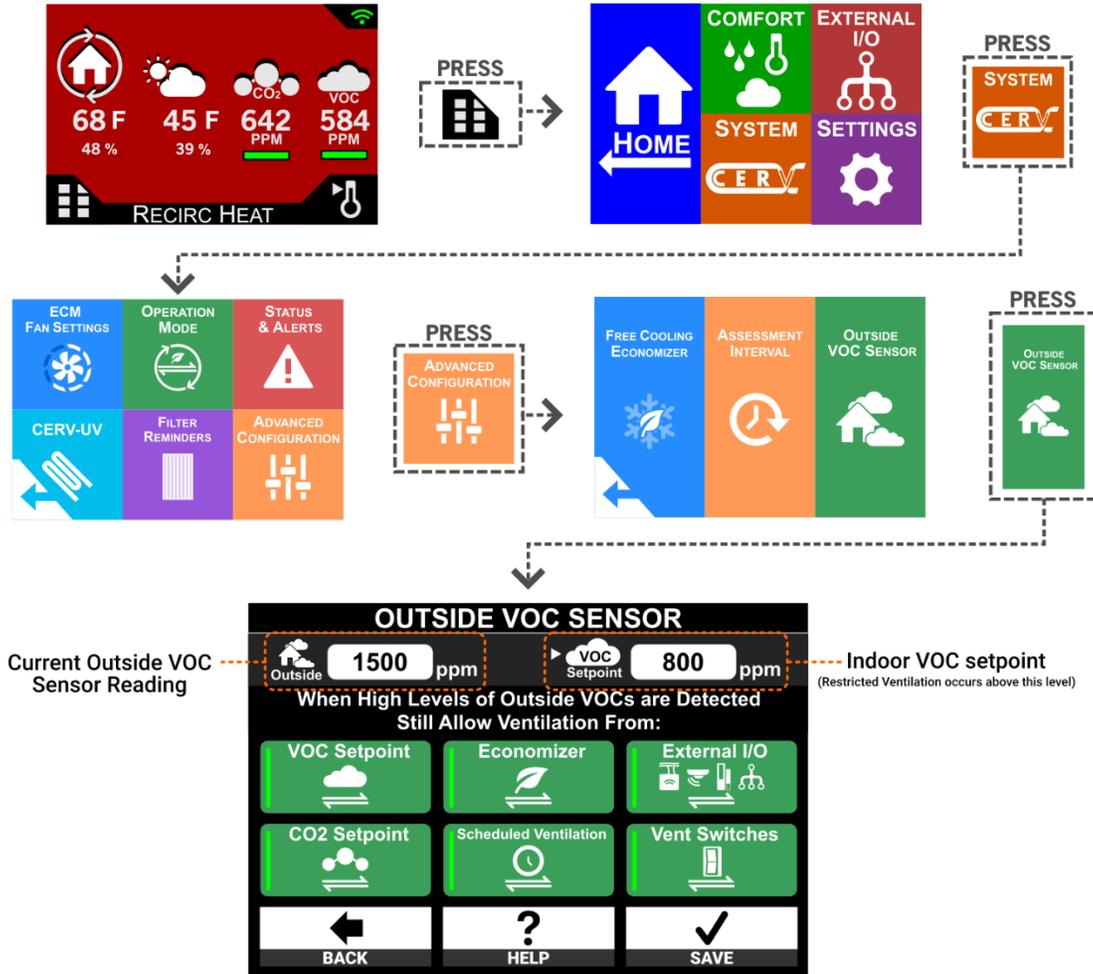
## Recommendations:

In general, the shorter the Assessment Interval the more responsive the CERV will be to detecting indoor air quality pollution events. In some cases where noise from fans turning on and off can be detected, increasing the Assessment Interval may be preferred by reducing fan cycling.

# Outside VOC Sensor

## Overview:

The outside VOC sensor option allows the CERV2 to measure VOC levels in the fresh air entering the CERV2 from outside. An Outside VOC Prevention function can be enabled by the user to allow the CERV2 to disable ventilation during times when the outside VOC level is higher than inside. This is especially useful in locations where wildfires or other outside pollutants are a concern.



When outside VOCs rise above the CERV's VOC setpoint, the CERV can run with restricted ventilation based on options selected in the screen above. When this occurs, the home screen of the CERV will display the following icon:



**Note:** After powering on the CERV, the VOC sensor takes approximately 15 minutes to warm-up. During this period, the sensor will read 400ppm.

Descriptions for each of the options can be found on the following page.

## Outside VOC Control Options

When outside VOCs rise above the CERV's VOC setpoint:



CERV ventilates to keep indoor VOCs below setpoint.  
Remote VOC sensors can trigger Ventilation.



No ventilation due to high indoor VOC levels.  
Remote VOC sensors do not trigger Ventilation.



CERV ventilates to keep indoor CO2 below setpoint.  
Remote CO2 sensors can trigger Ventilation.



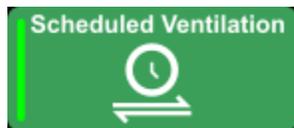
No ventilation due to high indoor CO2 levels.  
Remote CO2 sensors do not trigger Ventilation.



If outdoor temperature and relative humidity are beneficial, the CERV may ventilate to help heat or cool.



The CERV will not ventilate to help boost heating or cooling.



Setting a ventilation schedule (ex. vent 10 min every hour) allows the CERV to vent periodically.



Even with a ventilation schedule configured, the CERV will not ventilate.



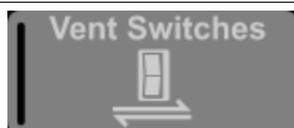
Status Monitors (ACT, motion detectors, etc), auxiliary inputs, and remote RH sensors may trigger ventilation.



Status Monitors (ACT, motion detectors, etc), auxiliary inputs, and remote RH sensors will not trigger ventilation.



Wireless Ventilation Switches may be used to trigger the CERV to ventilate.

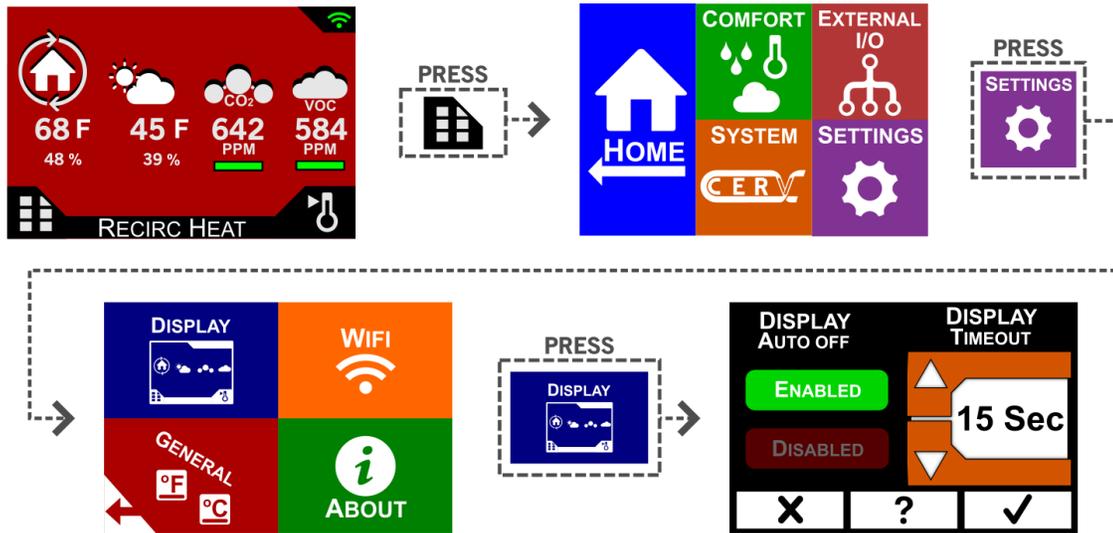


Wireless Ventilation Switches will not trigger ventilation when pressed.

# Display Settings

## Overview:

On the Display Settings screen, you can configure the auto-off feature of the screen. If there has been no interaction with the screen after the amount of time specified in Display Timeout, the touchscreen controller will turn off the screen to save power. Simply touch the screen again to turn the display back on. Disabling the auto-off feature will turn the screen on indefinitely.



?

DISPLAY AUTO OFF	DISPLAY AUTO OFF
<p><b>ENABLED</b></p> <p>After the specified amount of time, the screen will turn off to save power. Simply tapping the screen will turn the display back on.</p>	<p><b>DISABLED</b></p> <p>The Screen will stay on indefinitely, even when there has been no activity.</p>

## Recommendations:

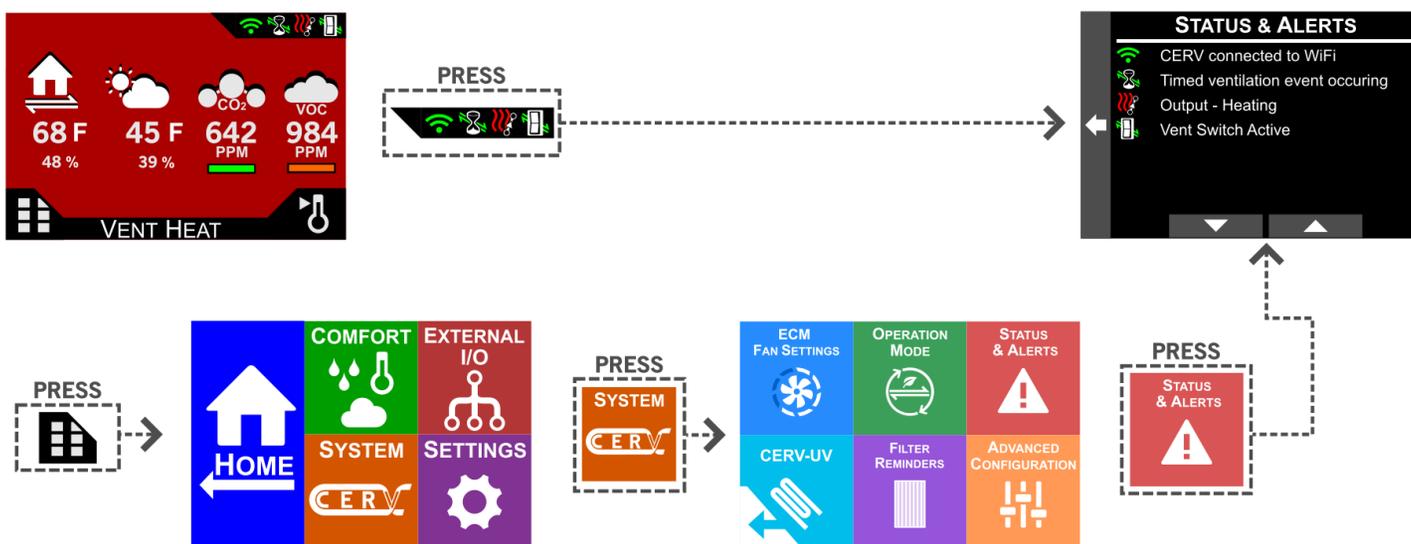
Auto-off saves energy and extends the life of the touch-screen.

# Status & Alerts

## Overview:

The Status & Alerts screen provides descriptions of the icons displayed in the Status & Alerts bar on the Home Screen. Clicking on the status bar in the upper right of the Home Screen takes you to the Status & Alerts Screen; likewise, you can get there through the Main Menu. There is always a connection icon in the status bar indicating the status of the connection between the CERV and the touchscreen controller. Any additional icons in the status bar indicate different system alerts or events that may be occurring.

If the CERV detects that there is a problem with the system, such as a malfunctioning sensor, an error symbol icon  will appear in the status bar. On the Status & Alerts screen an error reference code or message will be displayed on the line with the yellow warning symbol. See CERV Operation Manual for error code troubleshooting.



List of possible Status and Alerts icons

### Status Messages

	No Connection to CERV
	CERV connected
	Timed ventilation event occurring
	External heating system is on
	External cooling system is on
	GEO-Boost is on
	Zone 1 Active
	Zone 2 Active
	Switched ventilation event occurring

### Alert Messages

	<b>CERV Error: Heat Pump Comm</b> The CERV is unable to communicate with the Heat Pump. Please follow the Troubleshooting section in the CERV Operation Manual to resolve this error.
	<b>CERV Error: Heat Pump Freq</b> The variable speed frequency signal is not being received by the heat pump module. Please follow the Troubleshooting section in the CERV Operation Manual to resolve this error.
	<b>CERV Error: ref #</b>



1103 N. High Cross Rd.  
Urbana, IL 61802

support@buildequinox.com  
(773)-492-1893