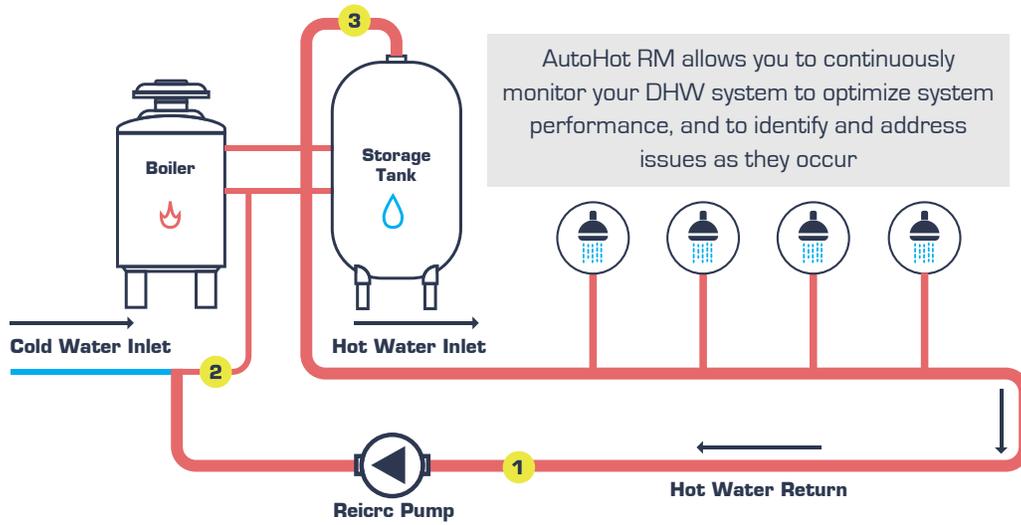


The Enovative **AutoHot**® Energy Management System (EMS) is a comprehensive monitoring, control, and fault detection system for domestic hot water systems in any building type.

The recirculation control reduces pump runtime by as much as 90% by activating at the time that a hot water draw, or demand is initiated in the building and turning off when there is a temperature rise or a set point achieved on the hot water return line. Multiple pump options and activation sensor options are available.

These control strategies achieve the optimal balance between comfort, water savings and energy efficiency.



### This system will be able to:

- Remotely monitor AND CONTROL the central hot water system from anywhere using any device
- Track and record performance data in real time and view data history which can help pinpoint potential issues saving time and money
- Manage energy use to help keep utility costs down
- Reduce tenant complaints
- Have alert notifications sent to you as soon as system starts to malfunction to prevent or minimize downtime which can reduce complaints from tenants (know before your tenants do)
- Maintain efficiency of your DHW or solar thermal system
- Control temperature settings and recirculation controls remotely
- Ensure solar thermal system always working

## CONTROLLER FEATURES

### Recirc Pump Control

Activation with hot water demand (multiple sensor options), turn off pump with temperature which can be adjusted between 5° and 25°, and can have a set lockout point between 80° and 125°. Max runtime after activation of 10 minutes. Autoprime feature, pulses pump activation based on intervals between 10 minutes and 4 hours. Switches to switch operation mode from full demand to temperature based, continuous, and sensor based.

### Boiler Temperature Modulation (Boiler Setback Schedule)

Create a fixed setpoint schedule adjustable to be compliant with various jurisdictions and codes. Adjustable setback temperature between 60° and 160° for each hour of the day.

OR

OR

### Outdoor reset control for heating system pumps

Control a heating system pump on an outdoor reset adjustable based on the hour of the day.

### Local Data Logging and Diagnostics

Record data to onboard SD card such as up to 3 temperature points (min, max, avg), 4 CT switches for equipment runtime (totalized and per period), and sensor activity. Onboard LED's provide diagnostic information on relay runtime, lockout status, and equipment runtime activity.

### Remote Monitoring and Control (All models)

Models with remote monitoring include a visible LCD screen for additional real time data, control, and status of remote connection. Built in wifi for connection to existing onsite network or hotspot with cellular connection available as a preconfigured option. (Hotspot with cellular service included with subscription to monitoring portal)

View data online, configure alert notifications on any sensor to be send via email to designated personnel. Control system equipment and parameters such as control settings for both pumps and water heater setpoints and schedules.

- Purchase of wi-fi router includes controller/router set up, equipment is plug and play ready.
- Local wi-fi set up made easy with phone or computer.
- Remote monitoring web app ready, just install devices and start monitoring.
- Router ready for plug and play, no set up needed.
- Local Wi-Fi connection set up procedure



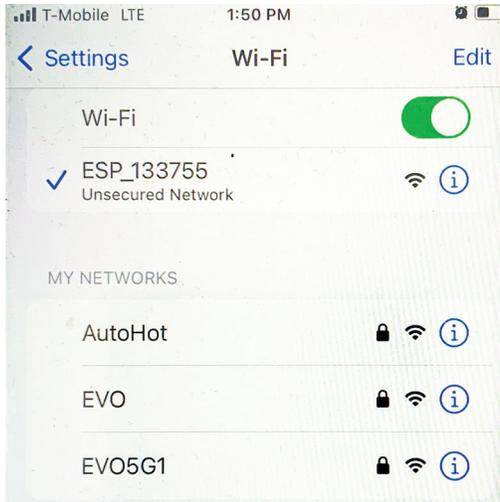
Press first button on top corresponding to the "set up" icon



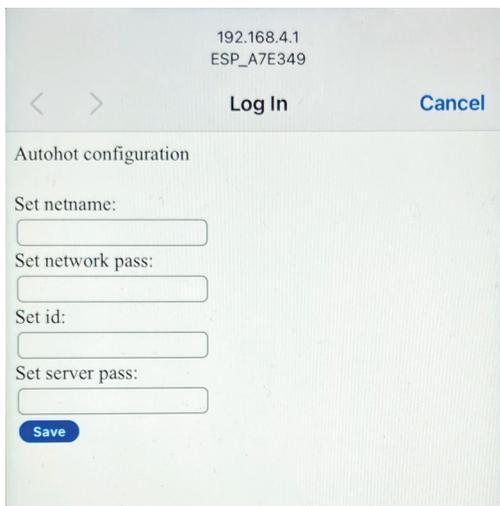
On setup page, press on the third button corresponding to "AP" button to turn it on.



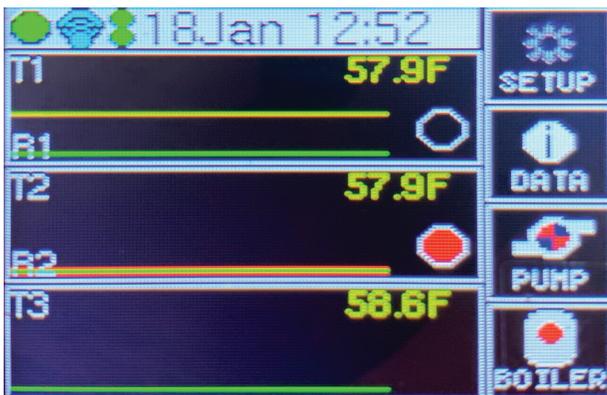
Leave "AP ON" for the following steps.



Go to phone wi-fi networks and look for the network starting with "ESP..." as in picture, Connect to ESP... network



Wait for AutoHot log in page to load.  
 Under set name enter your Wi-Fi network name. Please pay attention to the correct spelling.  
 Under "Set Network Pass", enter the Wi-fi network password.  
 Note: Enter only network name under "Set name" and password under "Set network pass". Do not fill out "set id" and "set server pass"  
 After network name and password have been entered, press on the save button.  
 Display will reset, it will flash and will connect to the network.



Verify that controller connected to wi-fi network by looking at the circles on the top left hand corner of the display. All four circles need to be either green or blue.  
 Or check the web app for your controller's activity.  
 Use same procedure when using a computer.

This section describes the layout and navigation of the Web App.

## The Web App screen map

Main page/Front page

### NAVIGATION BAR (ON TOP)

<b>SITES</b> List of all active devices  "Show" icon/button for each device.	Alerts page, displays alerts logged in by system	Profile page, shows device unique profile saved during programming
	Overview page, displays current temperature readings and settings	Notes page, displays any logged in notes
	Graph page, shows the current readings in a graph. Shows values for Runtime, period of time and temperature. Time interval to display data and reading selection with color codes.	Log page, displays connectivity activity for the device
	List page, shows recorded readings at a constant interval	Settings page, device settings to change current device settings
<b>ALERTS</b>	Alerts events saved	<b>ACCOUNT</b> to update Password

### DASHBOARD

It displays data relevant to the devices on the site.

Manual navigation is as follows:

	<p>The first page is blank. In this page we are going to see alerts if there are any available. This page is reserved to display new</p> <p>Pressing on the AutoHot logo at the top right hand corner brings you back to this front page.</p>
	<p>The icon "sites" takes you to the page with all of the devices registered</p>
	<p>The icon "Alerts" takes you to the page where all of the alerts that have been created by the system appear.</p>

### MANUAL NAVIGATION

The dashboard shows the AutoHot logo, navigation links for 'Sites' and 'Alerts', and an 'Account' dropdown menu. The main content area is titled 'Ongoing Alerts' and displays an alert for 'Temperature alert' at 'Enovative AutoHot Building'. The alert details include the address '440 N Barranca Ave, Covina, CA, USA', a start time of '2023-01-08 15:42:00 -0800', and a duration of '10 days'. The alert status is 'Ongoing' and the temperature is 'below 80 °F'. There are buttons for 'Graph', 'List', and 'Dismiss'.

The icon "Account" on the top right hand corner will bring a drop down menu with the options to go into your account and to log out.

The 'Your account' page features a header with the AutoHot logo and navigation links. Below the header is a 'Your account' section with an 'Edit your account' button. The main content area contains a form with fields for 'Firstname' (AutoHot), 'Lastname' (Enovative), 'New password', and 'Confirm new password'. A 'Save' button is located at the bottom of the form.

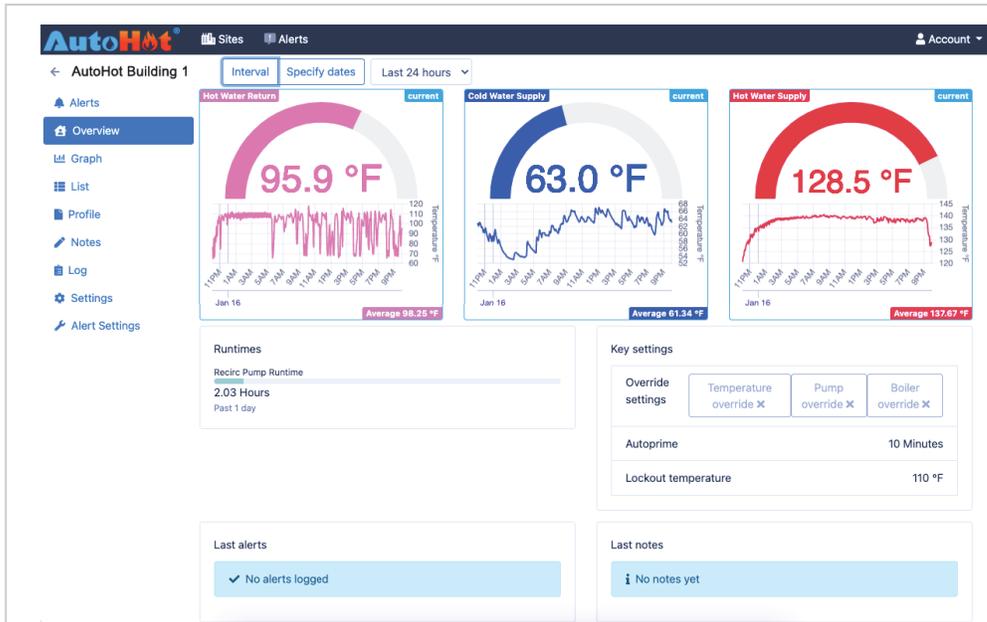
Pressing the "Your account", icon brings on the "Edit your account" page where you can change your password.

The 'Sites' page displays a list of sites for 'Enovative AutoHot Building'. Each site entry includes the site name, address, device name, serial number, and connection status. For Site Enovative AutoHot Building 1, the device is 'Solar Riser' (DC000AR Rev7) and is 'Connected'. For Site Enovative AutoHot Building 2, the device is 'Recirc Pump Runtime' (DC000AR Rev7) and is 'Connected'. For Site Enovative AutoHot Building 2A, the device is 'Recirc Pump Runtime' (DC000AR Rev7) and is 'Disconnected' (Last seen 10 days ago). Each site entry has a 'Show' button.

When pressing "Sites", the page shows the name of the site with all of the devices installed. The information shows name of the individual site, serial number of the device, and the main features of the application.

Recirculation pump in the last 24 hours, the current temperatures at the Hot water return, Cold and Hot water supplies, internet connection and a button that takes you to individual devices settings.

### MANUAL NAVIGATION

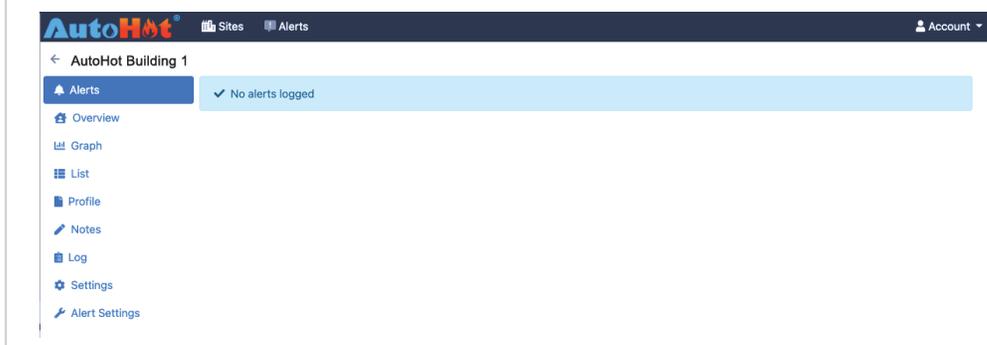


Pressing on a device's "show" icon, takes you to the "overview" page.

On the left side we have pages where you can see all the device information. The overview page only shows current settings, you cannot make changes directly on the values display.

Last alerts will display if there are any alerts logged.

Last notes will display if there are any notes logged.



"Alerts" page will display a list of alerts if any have been logged.

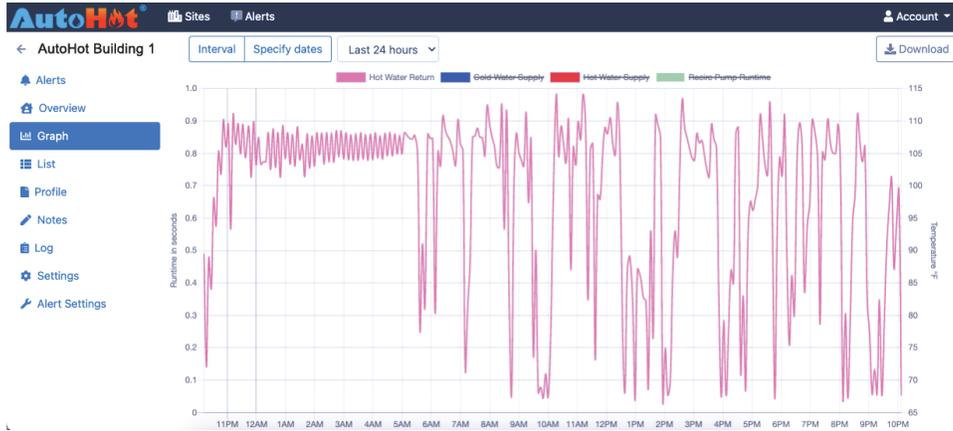


The "Graph" page shows the different sensor temperatures and the pump runtime. You can change the period of time with the drop down menu or by specifying the dates.

You can also hide and isolate values by selecting the corresponding icons on top.

The interval selected can be as small as an hour.

### MANUAL NAVIGATION



The values displayed on the graph are runtime in seconds, a period of time selected by the drop down menu and the sensor's temperature. The download button on the top right hand side will generate an excel sheet report based on the interval selected on the drop down menu.

Server timestamp	Device timestamp	Recirc Pump Runtime	Hot Water Return	Cold Water Supply	Hot Water Supply
2023-01-15 22:20:01	2023-01-15 22:20:00	33	Avg 77.2 °F 65.2 °F - 86.6 °F	Avg 63.5 °F 63 °F - 63.9 °F	Avg 126.1 °F 125.8 °F - 126.4 °F
2023-01-15 22:25:01	2023-01-15 22:25:00	0	Avg 85.9 °F 85.2 °F - 86.7 °F	Avg 62.8 °F 62.4 °F - 63.2 °F	Avg 125.5 °F 125.4 °F - 125.6 °F
2023-01-15 22:30:02	2023-01-15 22:30:01	59	Avg 86.9 °F 81.7 °F - 92 °F	Avg 62.4 °F 61.9 °F - 62.8 °F	Avg 128 °F 127.4 °F - 128.5 °F
2023-01-15 22:35:02	2023-01-15 22:35:01	0	Avg 96 °F 95.4 °F - 96.6 °F	Avg 61.6 °F 61.3 °F - 62.1 °F	Avg 127.8 °F 127.6 °F - 128 °F
2023-01-15 22:40:03	2023-01-15 22:40:02	59	Avg 94 °F 88.4 °F - 98.9 °F	Avg 61.9 °F 61.5 °F - 62.2 °F	Avg 129.3 °F 128.9 °F - 129.9 °F
2023-01-15 22:45:03	2023-01-15 22:45:02	0	Avg 102.6 °F 102 °F - 103.1 °F	Avg 60.9 °F 60.4 °F - 61.3 °F	Avg 128.9 °F 128.7 °F - 129.3 °F
2023-01-15 22:50:04	2023-01-15 22:50:03	59	Avg 102.5 °F 98.7 °F - 106.7 °F	Avg 60.4 °F 59.8 °F - 61.3 °F	Avg 129.4 °F 128.5 °F - 130.3 °F
2023-01-15 22:55:04	2023-01-15 22:55:03	0	Avg 107.1 °F 106.6 °F - 107.6 °F	Avg 60.9 °F 60.6 °F - 61.3 °F	Avg 129.8 °F 129.5 °F - 130.1 °F
2023-01-15 23:00:04	2023-01-15 23:00:04	59	Avg 105.3 °F 101.9 °F - 108.5 °F	Avg 60.2 °F 59.8 °F - 60.6 °F	Avg 130.1 °F 128.9 °F - 131.2 °F
2023-01-15 23:05:05	2023-01-15 23:05:04	0	Avg 72.4 °F 71.9 °F - 73.1 °F	Avg 61.4 °F 60.9 °F - 61.9 °F	Avg 131.9 °F 131.6 °F - 132 °F
2023-01-15 23:10:05	2023-01-15 23:10:05	59	Avg 103.4 °F 98.9 °F - 108 °F	Avg 60.5 °F 60 °F - 60.9 °F	Avg 131.7 °F 131 °F - 132.4 °F

The "List" menu will display the temperature values read by the sensors and the runtime. The values are recorded every second. The time interval can also be changed with the drop down menu.

Field	Value
Address	4661 Plumosa Drive, Yorba Linda, CA, USA
Model	DC000AR Rev7 <span>Water Heater</span>
Serial number	0120223339
SSID	CPE-6441
Hotspot Admin IP	AutoHot
SIM	8901240114205595473
Notes	Pump connected to controller 11/18/22

The profile page displays device settings entered during programming.

### MANUAL NAVIGATION

In the "Notes" page you can add notes, it can be used as a log for equipment maintenance, reminders, etc.

Press on "New note" button to add another entry.

For a "New note", enter the type of note, description, and start and end time if needed.

The action button can be selected to mark the note and indicate that an action will resolve the issue.

Images can be attached as part of the note.

The "Log" maintains a list of connection and disconnection events. This information can be useful to set up alerts that can be caused by device disconnection.

### MANUAL NAVIGATION

The "Settings" page displays all of the settings that can be changed.

Changing a setting will need to be saved by pressing the "Save" button at the bottom of the page.

Any setting change that has been saved in the web app, will transfer to the unit within the next 20 minutes or if the change needs to be immediate, the button fetch needs to be pressed until the cycle is complete and the display reseted.

If the settings are saved at the device, the settings need to be sent to the web app by pressing the "send" button and allowing the device to complete the "send" cycle. If the "sent" cycle is not completed, the device settings will revert to previous settings.

Send cycle completes when the send button is pressed continuously until the blue stripe fills up the empty space and the display blinks to reset.

Type	Name	Condition	Interval	Active		
Runtime alert	Pump is running for 24 hours straight	Recirc Pump Runtime above_or_equal 1 Days	1.5 Thousand Minutes	✓	Edit	Delete
Temperature alert	Low Return Temp	Hot Water Return below 80 °F	120 Minutes	✓	Edit	Delete
Offline alert	Offline	No connection to device	180 Minutes	✓	Edit	Delete

The "Alert Settings" page will display a list of alerts entered in the system.

"Create offline alert" will notify when the system loses connectivity.

"Create a new temperature alert" will allow users to set up alerts based on temperature increase or decrease at the different sensors and under specific conditions.

"Create a new runtime alert" will alert users when temperature increases or decreases based on the set conditions.

### MANUAL NAVIGATION



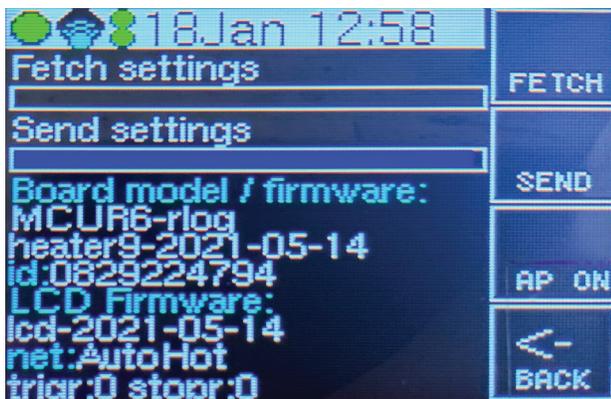
To make settings adjustments using the controller display, access the device settings by pressing the button that corresponds to the "pump" icon



The pump button displays all the settings currently being applied. The highlighted red is the current selection to change, to advance to the next setting, the next button needs to be pressed and advance it to the setting that needs to be changed.

The up or down buttons need to be pressed to move the next mode of operation or increase or decrease the values.

After making the changes to the settings, the button that corresponds to "back" icon needs to be pressed to save and go back to the main front page.



Press the set up button to fetch or send settings.

### MANUAL NAVIGATION

The screenshot displays the AutoHot web application interface for 'AutoHot Building 1'. On the left, a navigation menu includes Alerts, Overview, Graph, List, Profile, Notes, Log, Settings (highlighted), and Alert Settings. The main content area shows a temperature profile with two rows of sliders for different time periods (12 AM to 11 AM and 12 PM to 11 PM) and their corresponding temperatures in °F. Below this, the 'Override settings' section includes checkboxes for Temperature override, Pump override, and Boiler override, and sliders for Autoprime (10 min), Interval (5 min), Delta (15 °F), Lockout temperature (110 °F), and Hysteresis (5 °F). A 'Save' button is located at the bottom of the settings section.

The buttons "Temperature Override" and "Pump Override" can be selected to change to different modes of operation.

Temp override	Pump override	Boiler override	Mode of operation
			Demand
X			4 min demand timer
	X		Thermo
X	X		Constant

### Troubleshooting Connectivity Issues from office, after it has been connected

- Potential Reasons
  - Router or controller, or both, not connected to power
  - Router not connected to internet
  - Check for usage and location to see if it is where it's supposed to be
  - Location is on the edge of being good and bad
  - Sleep timer triggered
- Device Not Connected to hotspot
  - LCD or mainboard is frozen - reset (can't be done from office)
  - Hotspot is missing/stolen

By logging in to the EMS Beta Portal, [you agree to these terms and conditions.](#)