



TS2301 Wi-Fi Electric Water Heater Controller

# User Manual





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## Welcome!

Thank you for choosing the TrickleStar® TS2301 Wi-Fi Electric Water Heater Controller.

We are your smart partner in maximizing savings for your electric water heater. You can now remotely control your water heating timing and duration from anywhere. You can also monitor the energy usage from a summarized report found in your TrickleStar Portal account.

If you have any inquiries about TrickleStar products or need technical support, visit our website for tutorials, videos and Frequently Asked Questions (FAQ). You can also contact us by email or phone.

Website: [www.tricklestar.com](http://www.tricklestar.com)  
Email: [customer.service@tricklestar.com](mailto:customer.service@tricklestar.com)  
Toll Free: 1-888-700-1098

## Instruction Videos

If you want to see the Installation Instructions as videos, visit our YouTube channel:

<https://www.youtube.com/user/TrickleStarUS/>





## Overview

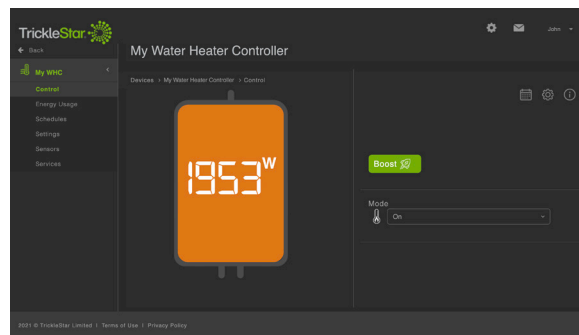
### What's in the System?

Congratulations on the purchase of your new TrickleStar Wi-Fi Electric Water Heater Controller. This Water Heater Controller offers a wide range of options to monitor and control your water heater, via:

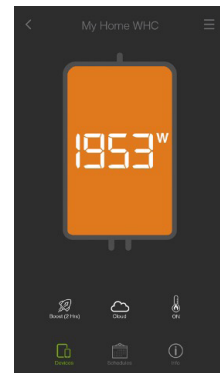
- the Water Heater Controller
- the TrickleStar Portal (Portal), which is also mobile browser friendly
- the TrickleStar App (App) on your smartphone.



Water Heater  
Controller



Portal / Portal Mobile



App

This User Manual will guide you through the Water Heater Controller features using the Water Heater Controller, Portal and App. You can check the list of features and the location from which to perform the features by referring to “Feature List” from pages [59](#) to [62](#).

*Note: If you have not installed your Water Heater Controller, refer to the [Installation Guide](#).*





Water Heater Controller User Interfaces

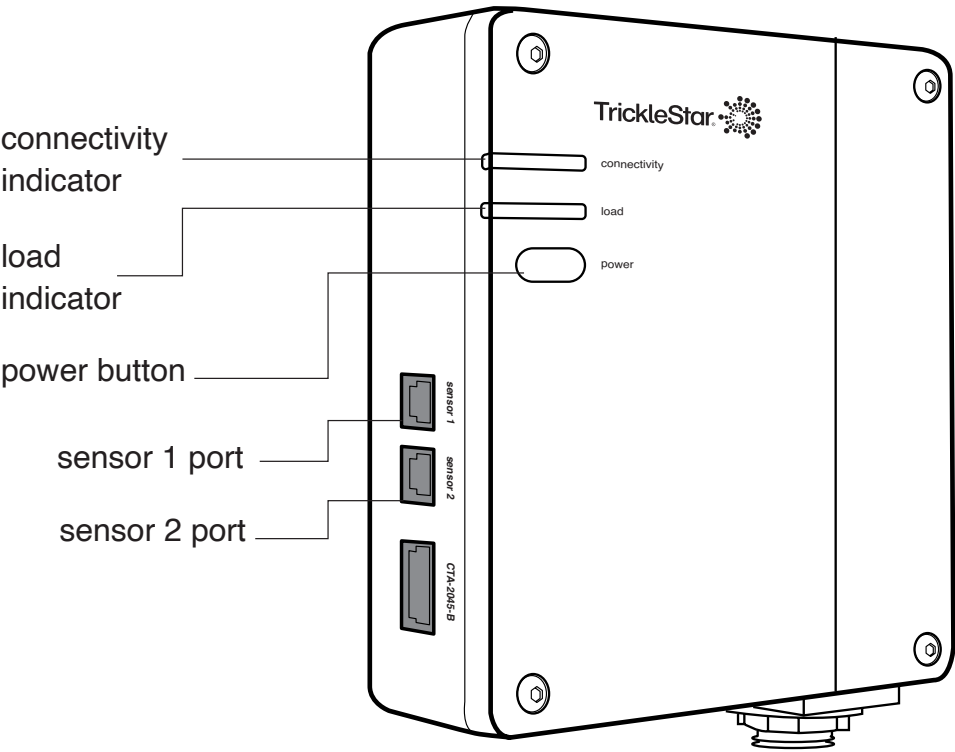


Fig 5-A



## Using the Water Heater Controller

The Water Heater Controller comes with a minimalist design. It only has two LED indicators and a power button on the front panel, with two sensor ports on the side panel. As such, you need to use the TrickleStar Portal or TrickleStar App to perform the features. You can check the list of features which the Water Heater Controller can perform by referring to “Feature List” from pages [59](#) to [62](#).

However, you can check the LED indicators to obtain information on the Water Heater Controller. You can also use the power button to manually turn on or off your water heater.

This device contains the following modules:

FCC ID: VPYLB1LD

IC: 772C-LB1LD

This device complies with part 15 of FCC Rules and Industry Canada’s license-exempt RSSs. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

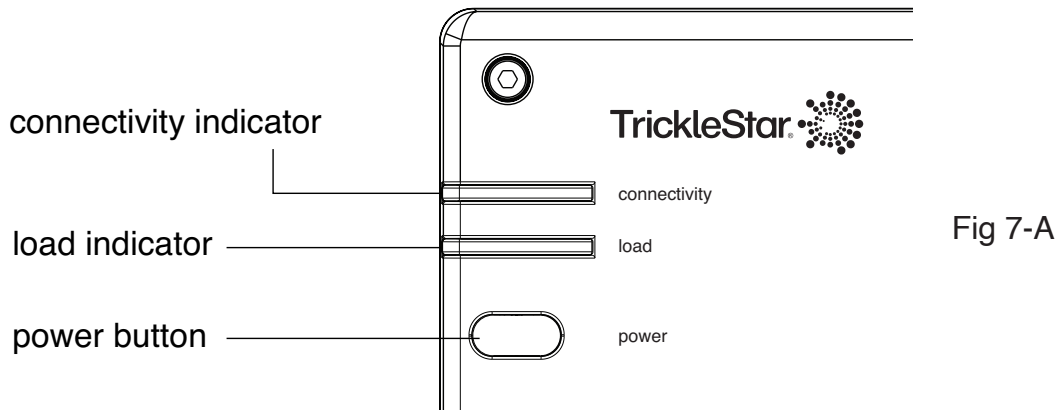
Le présent appareil est conforme à la partie 15 des règles de la FCC et aux normes des CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### FCC CAUTION

Changes or modifications not expressly approved by TrickleStar could void the user’s authority to operate the equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

## Understanding the LED Indicators and Power Button



The LED indicators provide the following information:

Indicators	Status	Information
connectivity	Does not light up	There is no power to the Water Heater Controller.
	Lights up in green	The Water Heater Controller is connected to Wi-Fi but there is no demand response activity.
	Lights up in blue	The Water Heater Controller is connected to Wi-Fi and there is demand response activity.
	Flashes in green	The Water Heater Controller has not been connected to Wi-Fi via the Portal or there is a connectivity error.
load	Does not light up	The load is off; there is no power to your water heater.
	Lights up in red	The load is on; power is supplied to your water heater.
	Flashes in red	An error has been detected, and the load is off as a protective measure.

**If you do not have access to the Portal or App but you want to turn on your water heater:**  
Press the power button to turn on or off the water heater manually.



## Using the App

The TrickleStar App is a one-stop App platform allowing contractors and homeowners to easily register, configure and control the Connected Products (**Smart Thermostat** and **Wi-Fi Electric Water Heater Controller**).

This section explains the process of registering and controlling your Water Heater Controller using the TrickleStar App.

Download the TrickleStar App to your mobile device from the Apple App Store or Google Play Store. You can also scan the following QR codes:

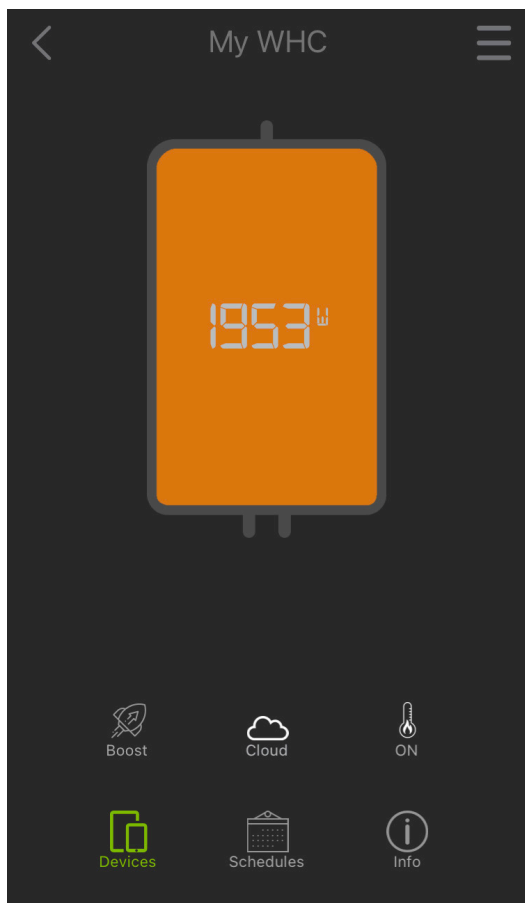



Fig 8-A

*Note: To use the App, you need to have a Portal account. If you have not created a Portal account, create one at: [portal.tricklestar.com](https://portal.tricklestar.com)*



## Adding a New Device

To add a new device in the TrickleStar App, please follow the steps below:

1. Launch the TrickleStar App, you should see the following screen if you do not have any devices added to your TrickleStar account.
2. Tap on the Menu icon  and tap on “Add New” to add a new device.

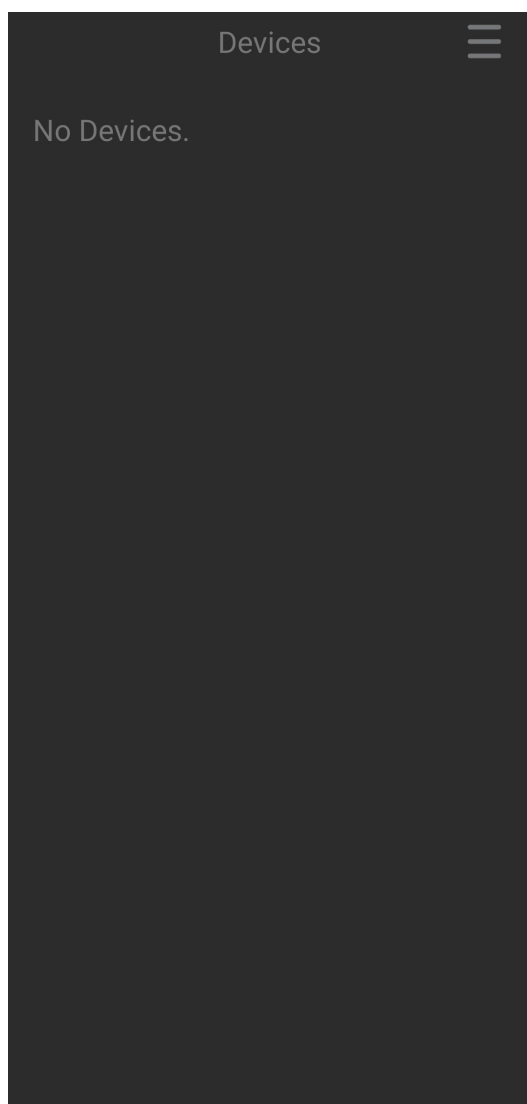


Fig 9-A

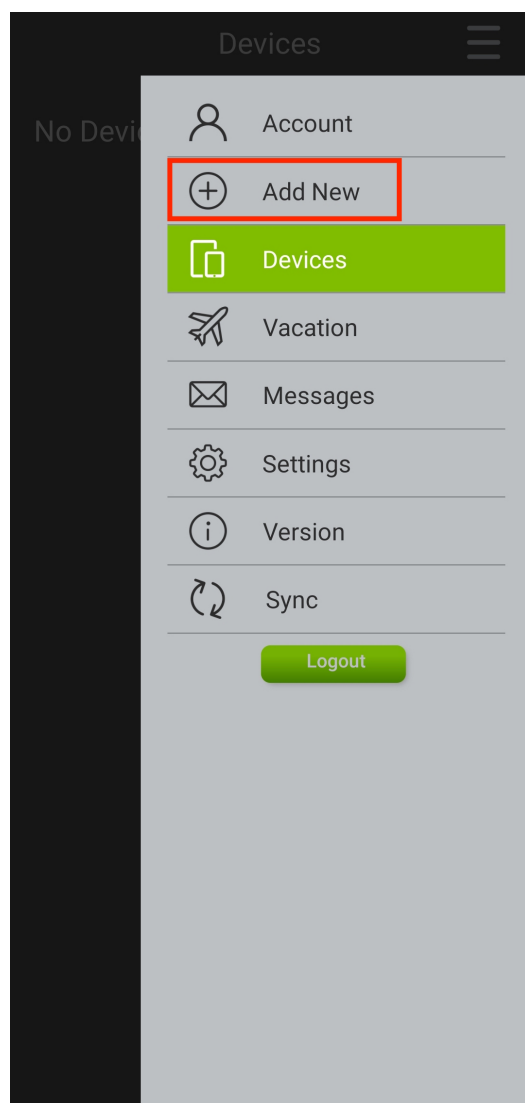


Fig 9-B



3. Select “Wi-Fi Electric Water Heater Controller”.
4. Create a new site for the device.  
For example, you can name your site as “Home”.

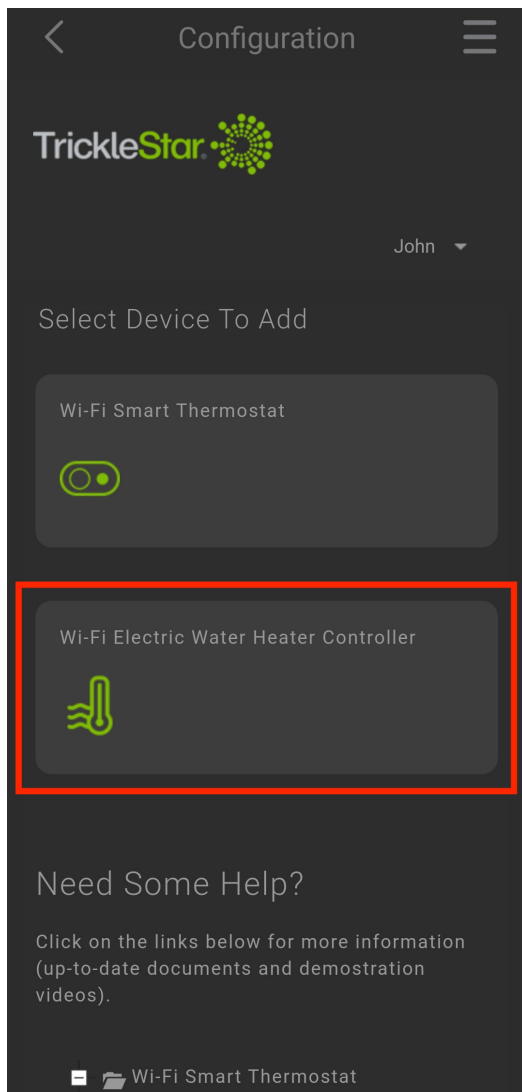


Fig 10-A

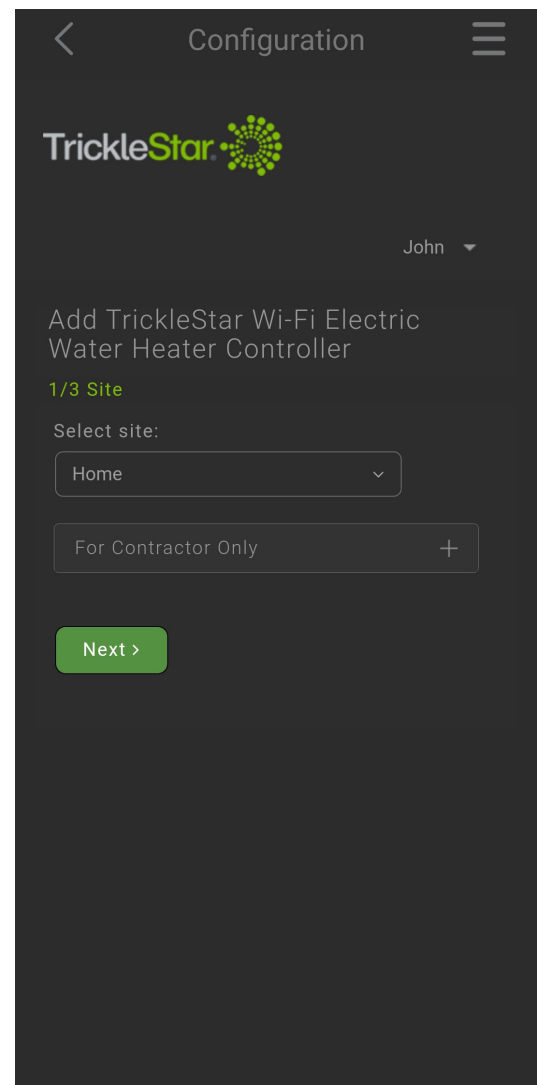


Fig 10-B



5. Create a Device Name.  
For example, you can name your device as “Basement” or “Attic”.
6. Tap on the button that corresponds to the state of the Water Heater Controller. For a fresh, out of the box installation, it will typically be the first state of “Connectivity LED blinking”.

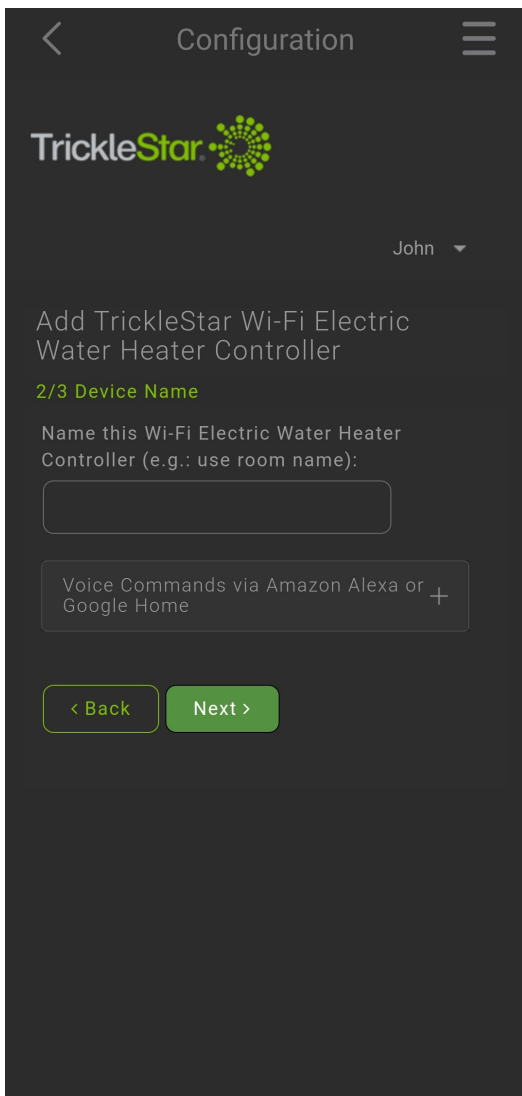


Fig 11-A

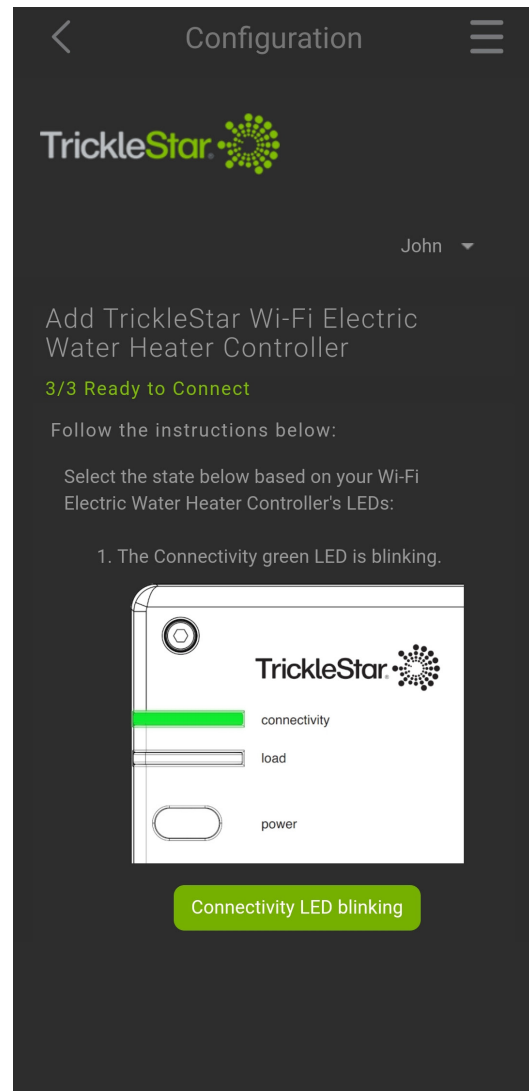


Fig 11-B



7. Enter the device DSN into the text field.  
The DSN is case-sensitive, and all alphabets must be in upper-case.
8. Go to the Wi-Fi settings in your mobile device and connect to the Water Heater Controller's Wi-Fi broadcast.

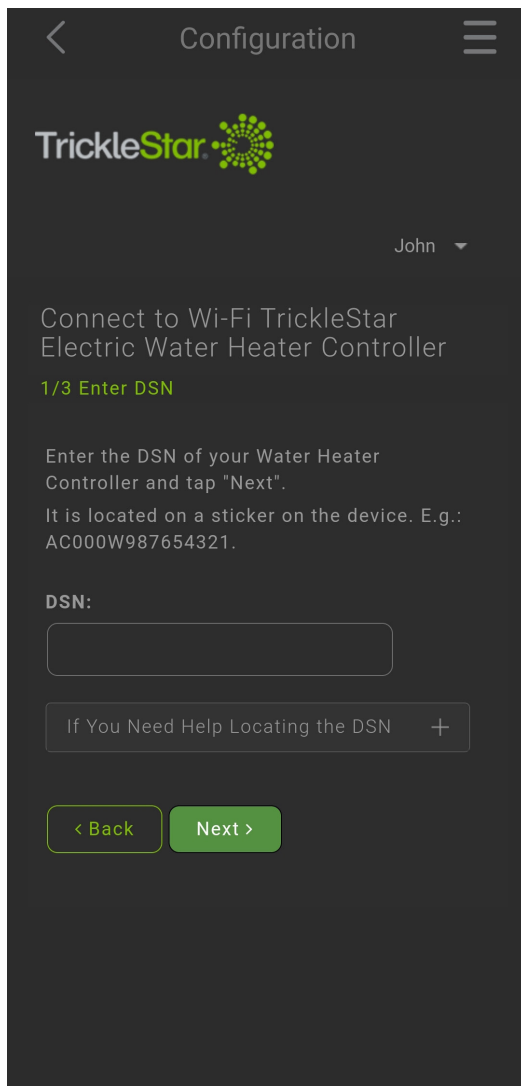


Fig 12-A

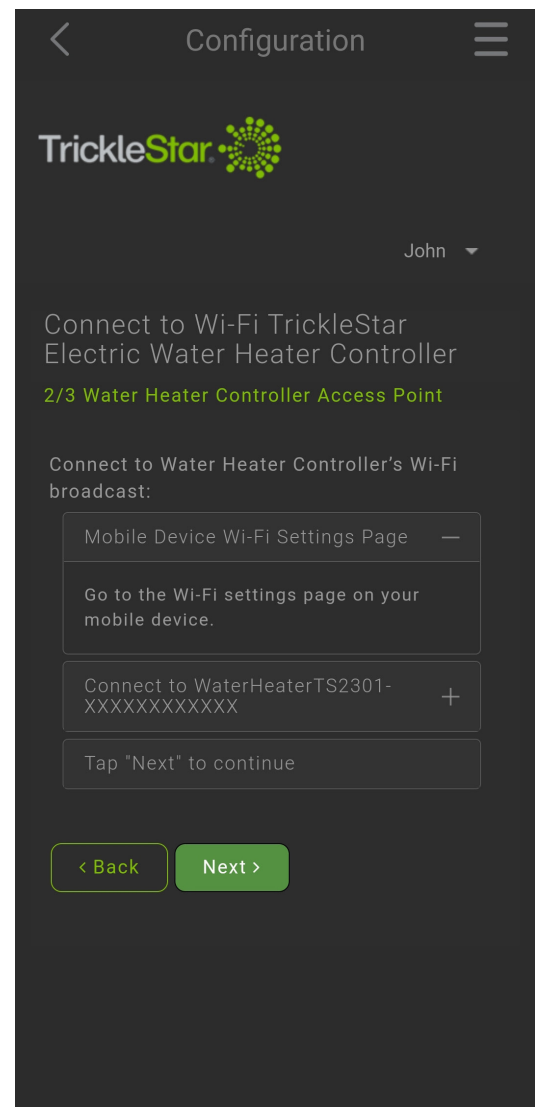


Fig 12-B

*Note: The Water Heater Controller Wi-Fi broadcast should look like this: WaterHeater-XXXXXXXXXXXX, where the 12 alphanumeric represents the MAC address of the device.*





9. Ensure that your mobile device is now connected to the Water Heater Controller’s Wi-Fi broadcast. At the TrickleStar App, tap on “Tap here” to open the Access Point interface. Connect the Water Heater Controller to your Wi-Fi network. Next, you must connect your mobile device to the same Wi-Fi network. Tap on “Done” afterwards.

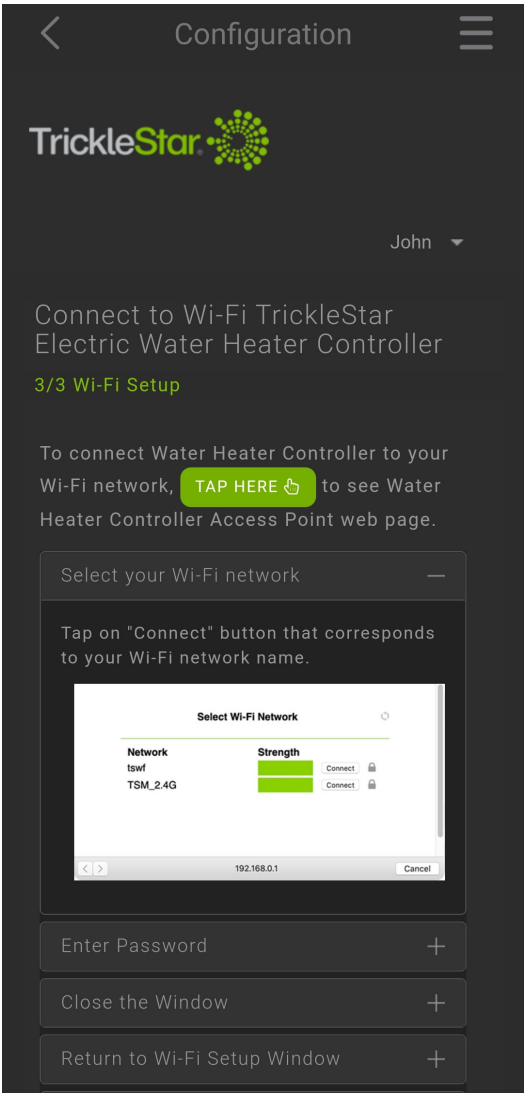


Fig 13-A

*Note: The Wi-Fi network credentials will be saved in the Water Heater Controller’s memory. These credentials will not be lost even in the event the Water Heater Controller loses power.*



10. The App may take several minutes to register the device to your account. Once connected to Wi-Fi, the Water Heater Controller's "connectivity" LED indicator will be lighted in green permanently.

## Transferring Ownership after Setup (For Contractors Only)

For Contractors assisting homeowners to setup the Water Heater Controller, the Contractors must transfer ownership of the device (by transferring the entire Site) to the homeowner in the TrickleStar App.

Contractors may follow the steps below to transfer ownership to the homeowners:

1. Tap on the Menu icon  and select "Sharing".
2. The Site Management and Sharing page will be shown. Tap on "Ownership" tab.

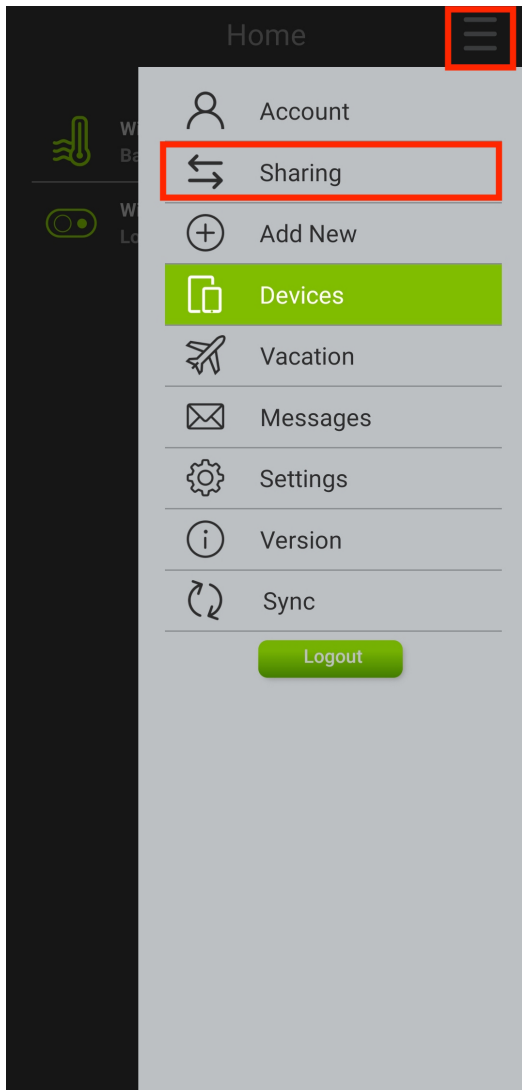


Fig 15-A

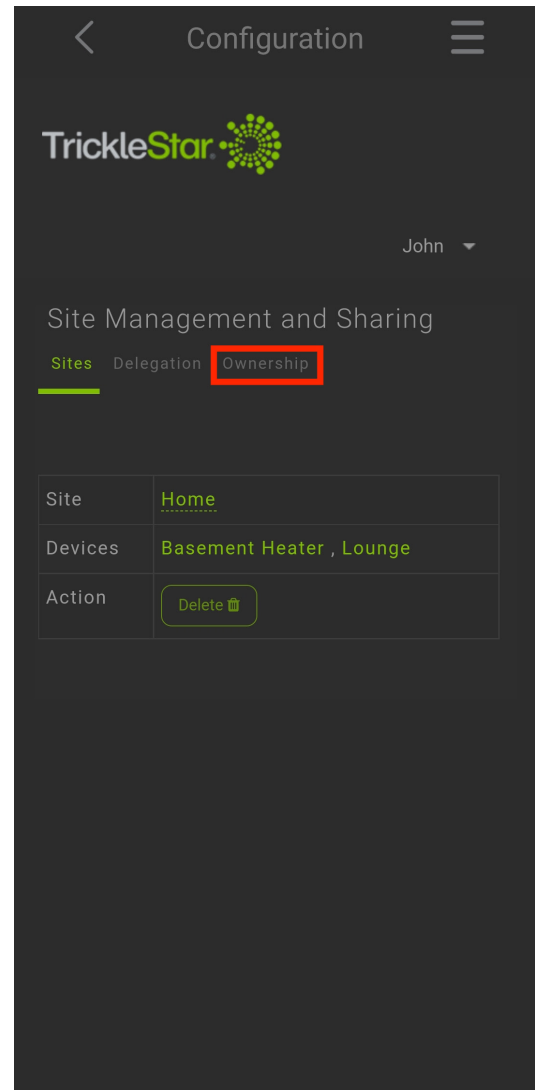


Fig 15-B

3. Tap on “Add New +”

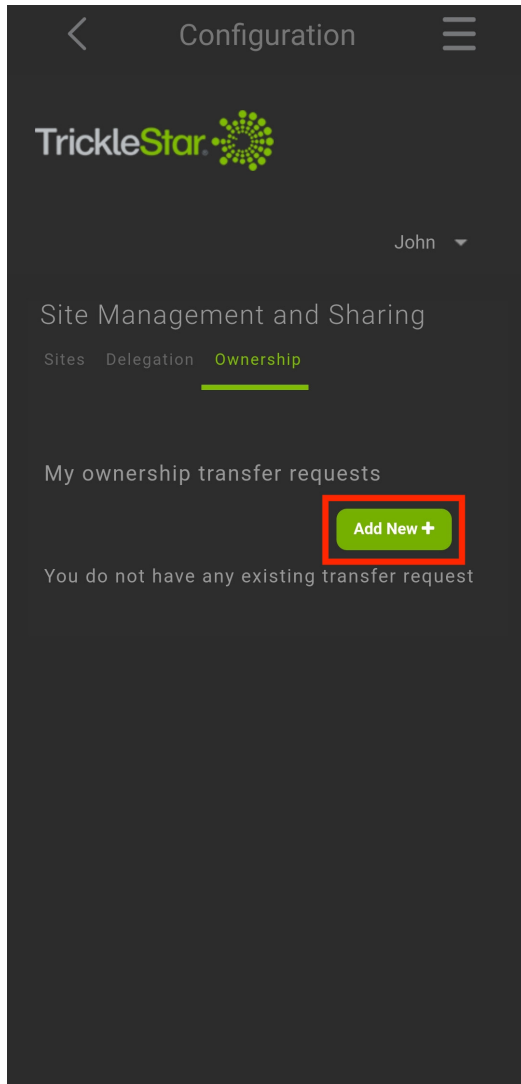


Fig 16-A

4. Ensure the homeowner has already created a Portal account. Enter the homeowner’s email address to the Email field and select the Site to transfer. Tap on “Add”.

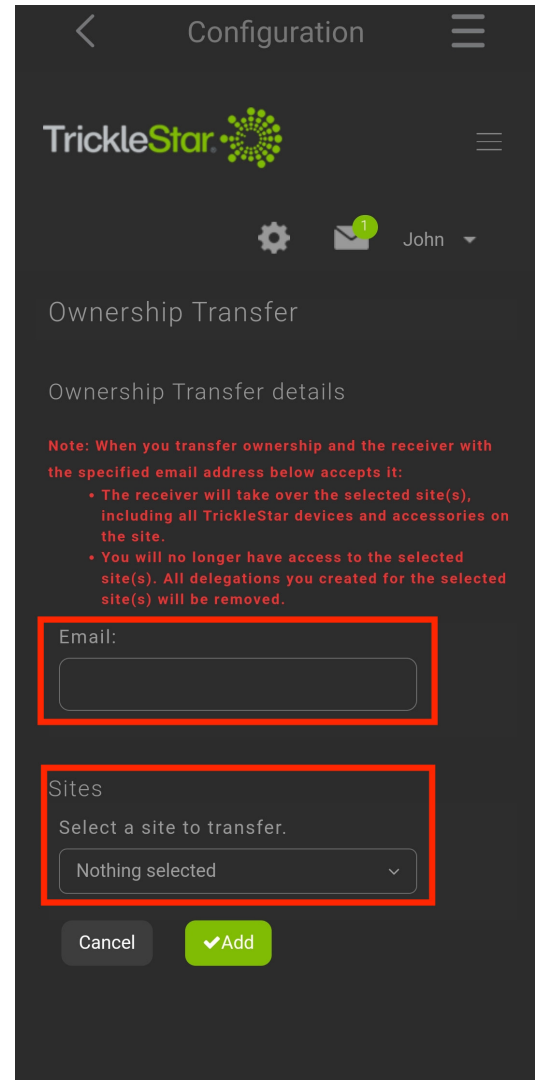


Fig 16-B

*Note: Once accepted, all devices under the selected Site will be transferred to the homeowner’s account.*



5. TrickleStar Portal will send an email to the listed email address. The homeowner will have to log into the TrickleStar App and accept the ownership transfer request.
6. Once the ownership transfer request has been accepted by the homeowner, the contractor will lose all control over the device permanently.

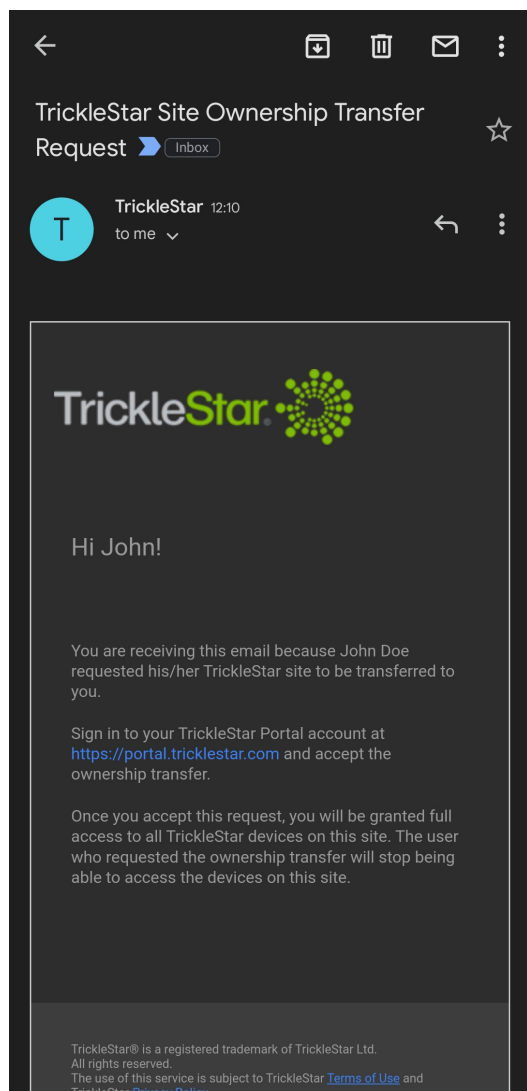


Fig 17-A

Controlling the Device

To control the device, click on the Menu icon and select “Devices”.  
The following are the controls accessible via the TrickleStar App in the Devices page:

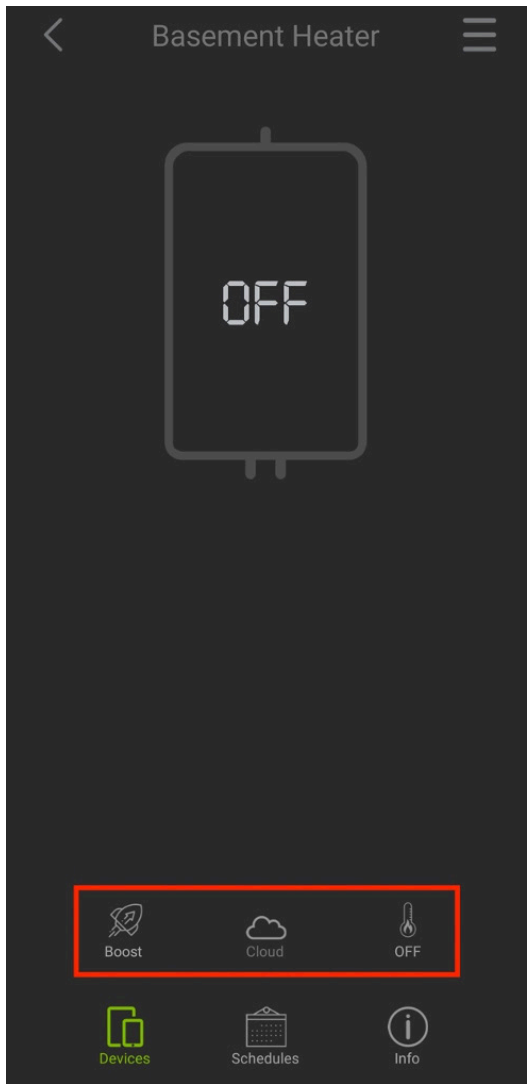
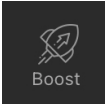
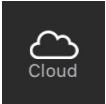



Fig 18-A

Tap on the icon	To
	Boost on with timer or Boost off.
	Indicate if the App is working at a different network (Cloud) or same network (LAN) with the Water Heater Controller.
	Turn on or off the water heater.

- Note:*
- If you have registered more than one device in your Site, tap on the device to access the respective Devices page.
  - If you have more than one Site in your TrickleStar account, you need to first select the desired Site, and then tap on the device to access the Devices page.
  - The graphics on the page shows the real-time power consumed by the water heater.

## Scheduling the Device

Tap on the “Schedules” icon to access the Schedules page. To edit the Schedule, click “Edit Schedules”. The Water Heater Controller will automatically change the water heater on/off according to the different times of the day, for all 7 days in a week. Tap on the “Add Schedule” icon to add a new schedule event, or tap on existing schedules to edit or delete them.

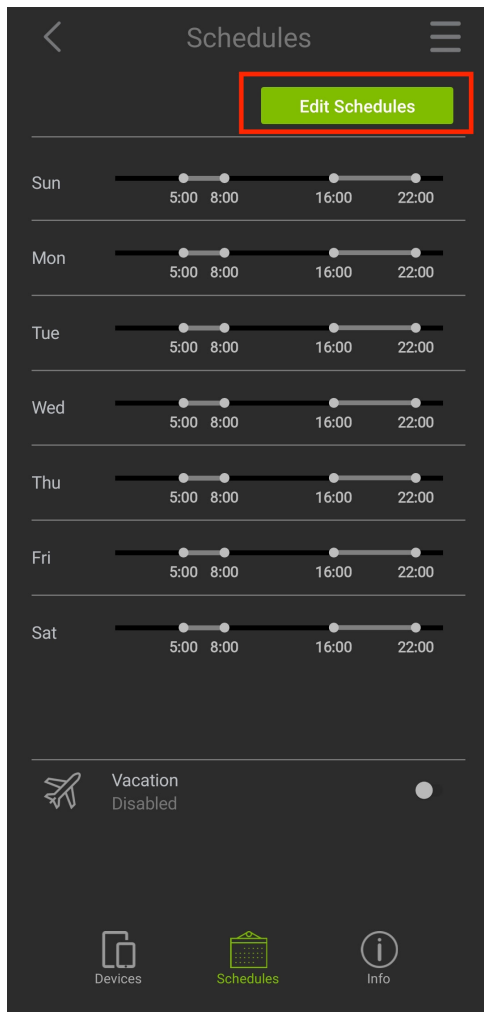


Fig 19-A

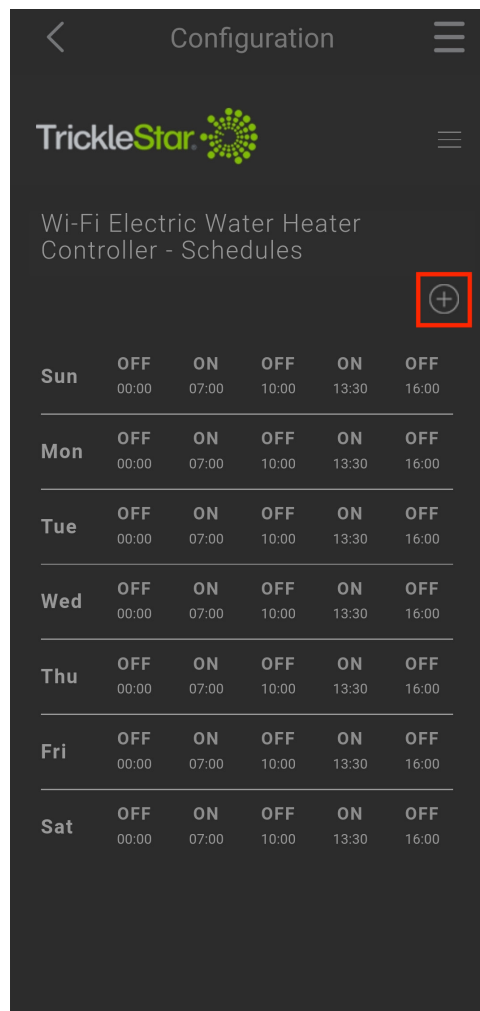


Fig 19-B

### Note:

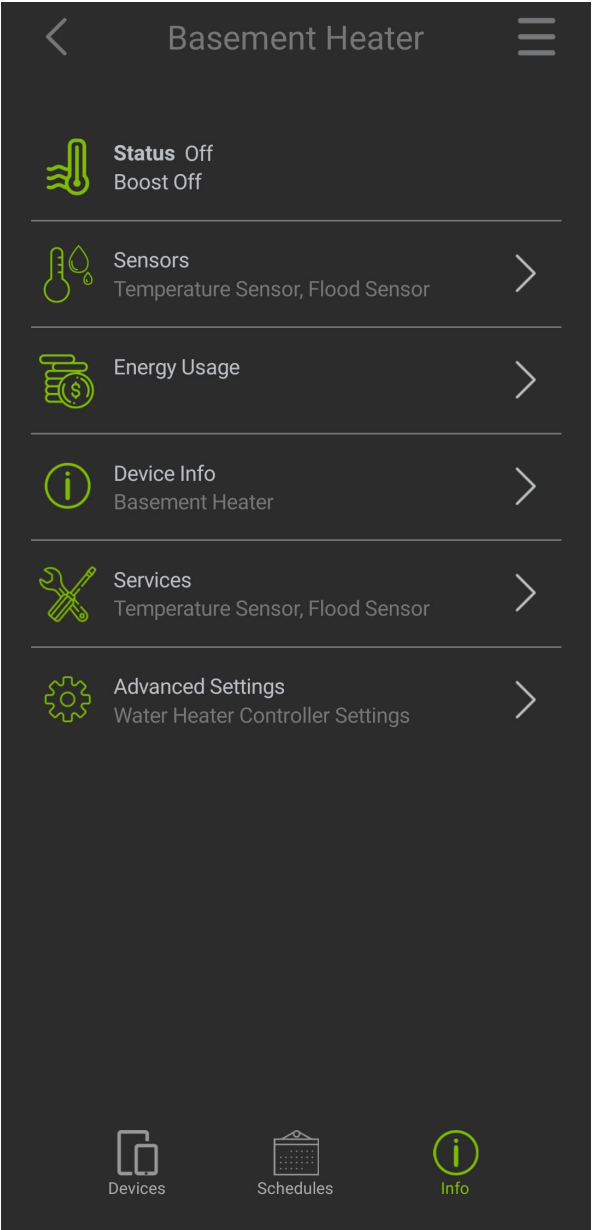
- You only need to configure the start time of each event, and it will remain in effect until the next scheduled event.
- You can schedule up to 6 events in a day.



### Checking the Device Info

Tap on the “Info” icon to access the information of the Water Heater Controller operations and the connected sensors.

The App allows you to view some general information about the Water Heater Controller, as well as to set the advanced settings for the unit.




Tap on the icon	To
	Show the status of your water heater.
	Show the status of your connected sensors.
	Show the energy usage and energy cost for a specific period.
	Show the information for your device.
	Show the settings for Alerts and Reminders.
	Change the Advanced Settings for the Water Heater Controller.

Fig 20-A





Miscellaneous Tabs in the Menu

The Menu icon  provides additional tabs for miscellaneous configuration and settings:

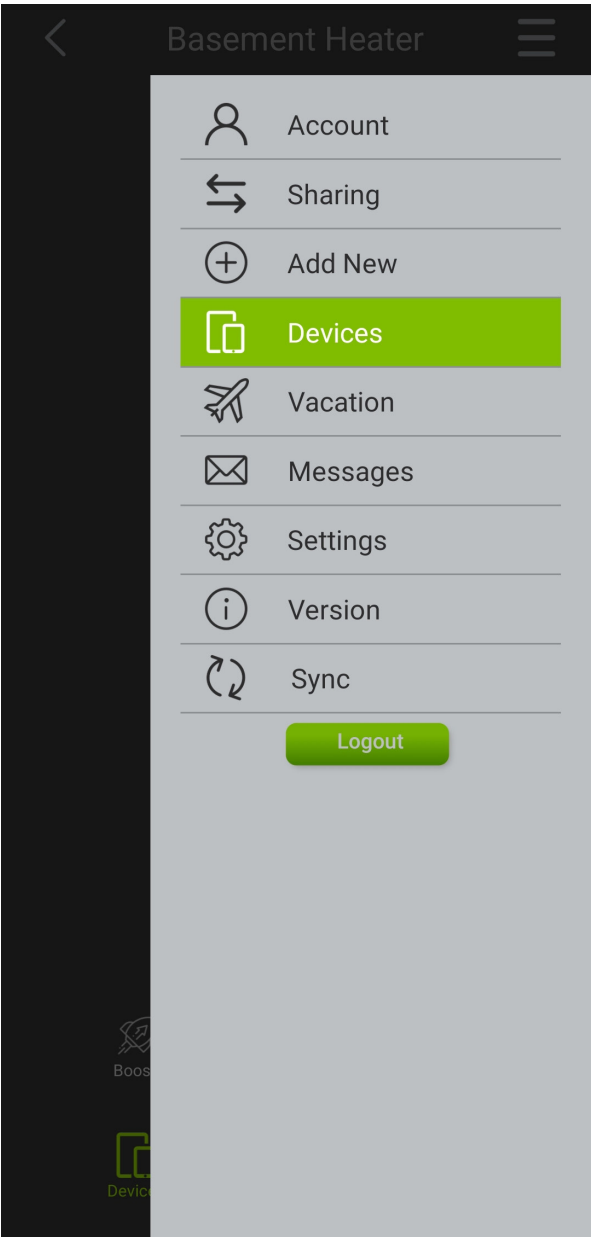












Fig 21-A

Select	To
 Account	Change your account information.
 Sharing	Change the Site Management and Sharing settings.
 Add New	Add a new device to your TrickleStar account.
 Devices	View and select the connected devices. If you have multiple sites, it will show all Site names. Tap on your desired Site, it will show all connected devices in that Site.
 Vacation	Update your vacation settings and enable/disable the vacation schedule.
 Messages	Check and delete your messages.
 Settings	View or change the General Settings, including Geofence settings (only for Thermostat).
 Version	Check the App’s version and to access the TrickleStar Website, Privacy Policy, and Terms and Conditions.
 Sync	Sync the information from the Portal.
	Log out from the App.



## Using the Portal

TrickleStar Portal provides an alternative access to control your devices via your PC browser. It is also mobile-friendly, so you may access the Portal via your mobile device's browser.

The Portal houses all control and setting elements, and is synchronized with the TrickleStar App. Therefore, any controls and settings that you can configure in the TrickleStar App can also be performed via the Portal.

You can check the list of features which the Portal can perform by referring to “Feature List” from pages [59](#) to [62](#).

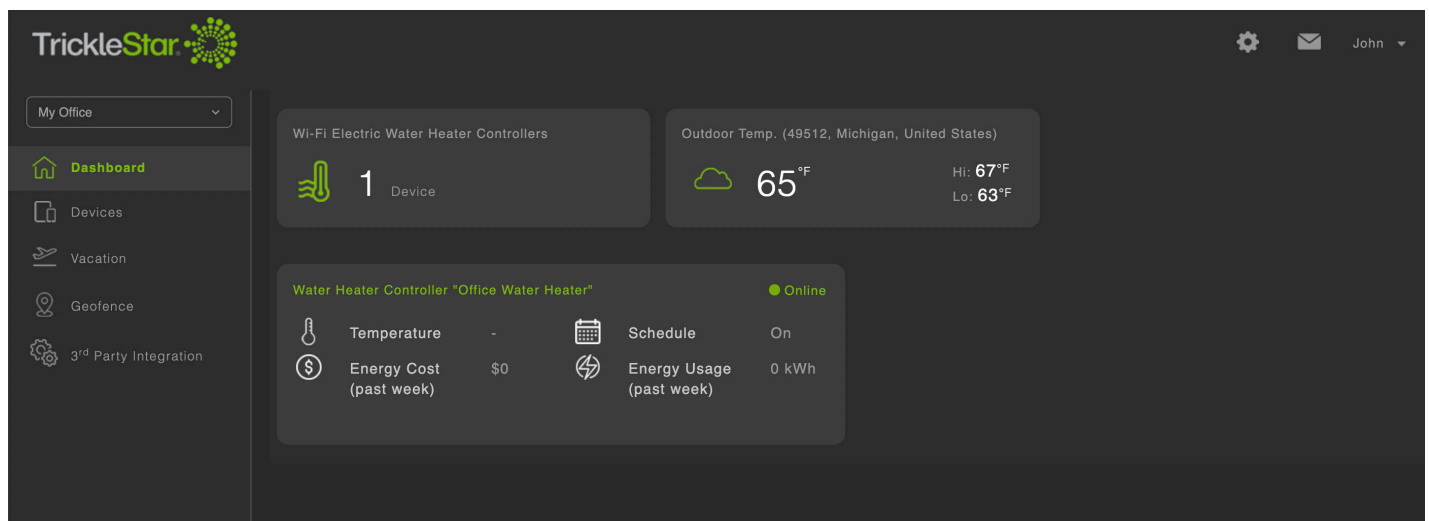


Fig 22-A

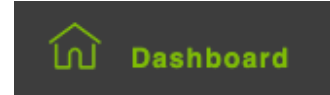
**Note:**

- If you have not created a Portal account, create one at: [portal.tricklestar.com](https://portal.tricklestar.com)

## Understanding the Icons

The TrickleStar Portal is designed to be intuitive and easy-to-use. Most of the icons, buttons and interfaces have their functions clearly labelled on the button itself.

For example: The Dashboard icon is labelled as such.



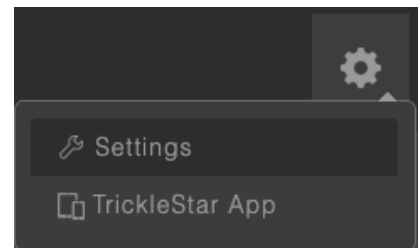
Where the icons are not labelled from the get-go, you may mouse over those icons, and the label will be shown automatically.

For example: Mouse over the Control icon, the label will be shown.



Some icons act as a dropdown menu when clicked. As such, they do not have their labels shown from the get-go or when moused over.

For example: Click on the Settings icon to see the dropdown menu.



The Messages icon stores all messages prompted by the Portal, the App, or utilities (for DR and ToU integrations).

For example: Click on the Messages icon to see all messages.

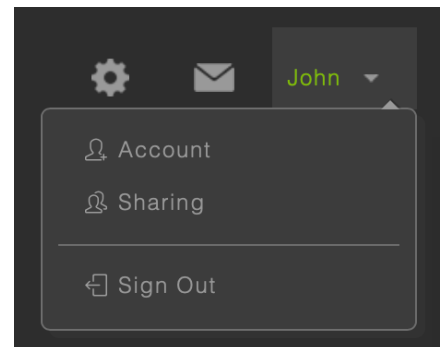


Your Portal account name is shown at the top right corner of the Portal. Clicking on the name will reveal a dropdown menu showing the "Account", "Sharing" and "Sign Out" icons.

For example:


You can change your Account Settings in the "Account" icon.

Clicking on the "Sharing" icon takes you to the Site Management and Sharing page, where you can manage your sites as well as your delegation and ownership transfer requests.



Click on the "Sign Out" icon if you want to sign out from your Portal account.

### Note:

- Some advanced device settings may have a tooltip explaining the settings in more detail. Simply mouse over the tooltip icon  to read the settings explanation.
- Please allow for a few seconds for the tooltip explanation to be shown when mousing over the tooltip icon.

## Using the Icons on the Left Column

You can select the icons on the left column to perform specific tasks as follows:

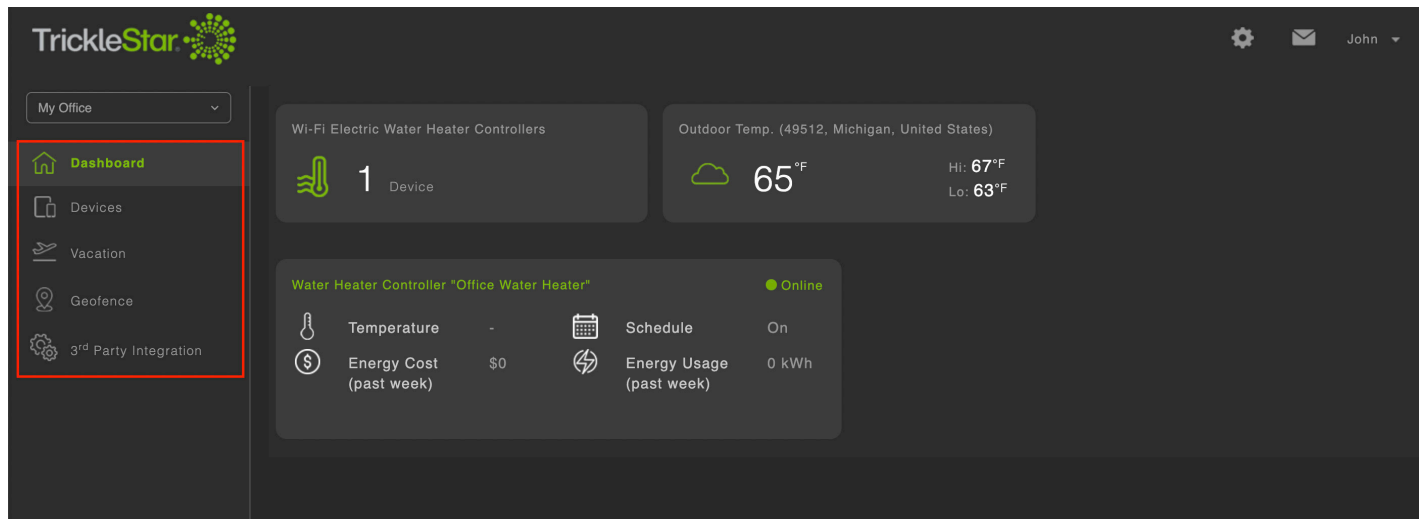







Fig 24-A

Select this Icon	To
 <b>Dashboard</b>	Show the basic settings for your connected devices and to change the settings.
 <b>Devices</b>	Show your connected devices so that you can select and change the settings for each device.
 <b>Vacation</b>	Update your vacation details and to enable/disable the vacation schedule for your connected devices.
 <b>Geofence</b>	Define the boundary of your geofence. Only available for the TrickleStar Smart Thermostat.
 <b>3<sup>rd</sup> Party Integration</b>	Integrate with Amazon Alexa or Google Home.



On the Dashboard Page (Home Page)

- 1. Select “Dashboard” to show the basic settings for your connected devices.
- 2. Click on the device to access the Device control page where the settings can be changed.

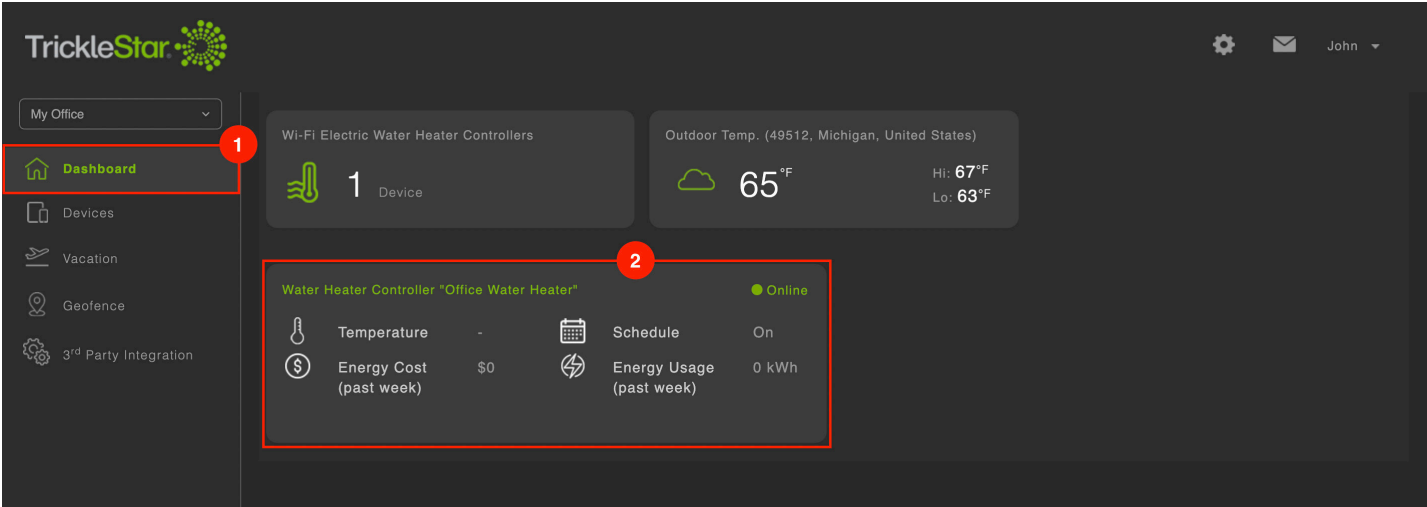


Fig 25-A

## On the Devices Page

1. Select “Devices” to show your connected devices.
2. Click on the device name to access the Device control page where the settings can be changed.
3. Switch on or off your water heater by clicking on the “On/Off” slider button. You may also click on the icons from the available actions.
4. Delete device(s) by checking the checkbox in front of the device and clicking "Delete". You may delete more than 1 device at a time.
5. Click “Add New +” to add a new device to your TrickleStar account.

The screenshot shows the TrickleStar web interface. On the left sidebar, the 'Devices' menu item is highlighted with a red box and a red circle containing the number 1. The main content area is titled 'Devices' and shows a summary card for 'Wi-Fi Electric Water Heater Controllers' with a green icon and the text '1 Device'. To the right of this card is a weather widget for 'Outdoor Temp. (49512, Michigan, United States)' showing 50°F. Below the summary card is a table of devices. The first row is highlighted with a red box and a red circle containing the number 2. The table has columns: Device Name, Device Type, DSN / MAC, Location, Status, On/Off, and Actions. The first device is 'Office Water Heater', a 'Wi-Fi Electric Water Heater Controller' with DSN 'AC000W008520353' and location 'My Office'. Its status is 'Online'. The 'On/Off' column has a green slider button labeled 'On'. The 'Actions' column has several icons. A red box and red circle containing the number 3 are around the 'On/Off' slider and the 'Actions' icons. Above the table, there are 'Delete' and 'Add New +' buttons, each with a red box and red circle containing the numbers 4 and 5 respectively. A search bar is located below these buttons.

Device Name	Device Type	DSN / MAC	Location	Status	On/Off	Actions
Office Water Heater	Wi-Fi Electric Water Heater Controller	AC000W008520353	My Office	Online	On	[Icons]

Fig 26-A

## Adding a new Water Heater Controller

1. At the “Devices” page, click “Add New +” to add a new Water Heater Controller.

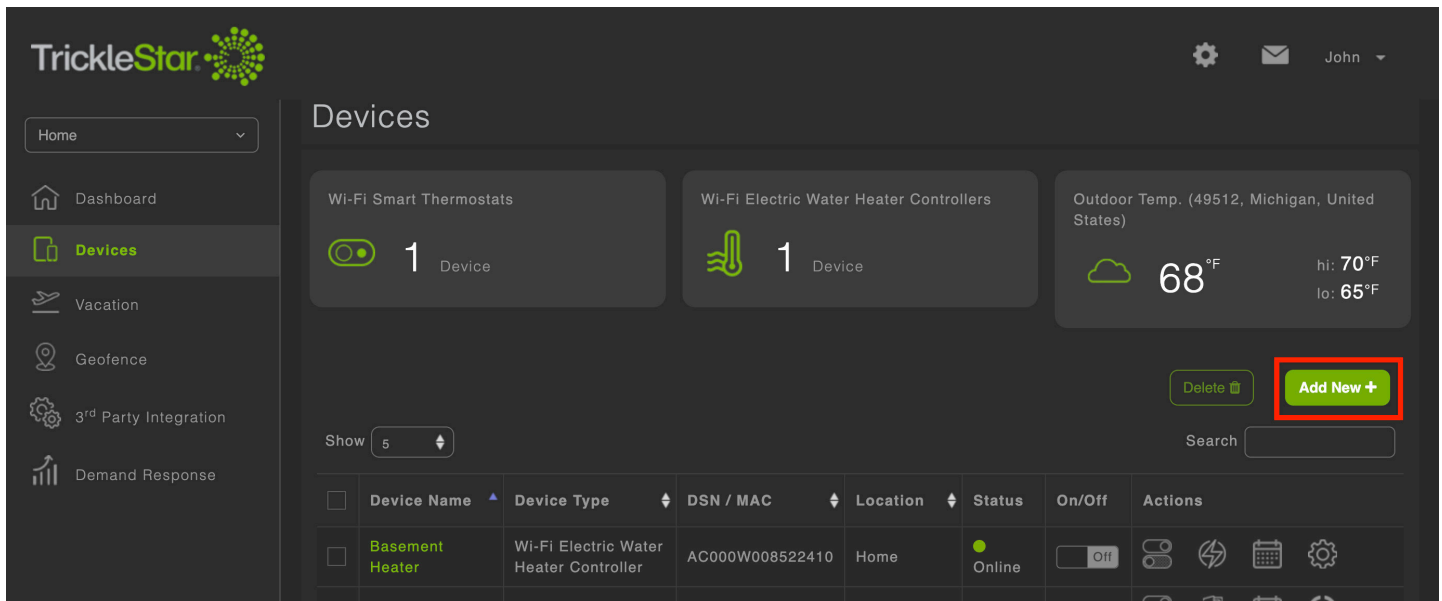


Fig 27-A

2. Select “Wi-Fi Electric Water Heater Controller”.

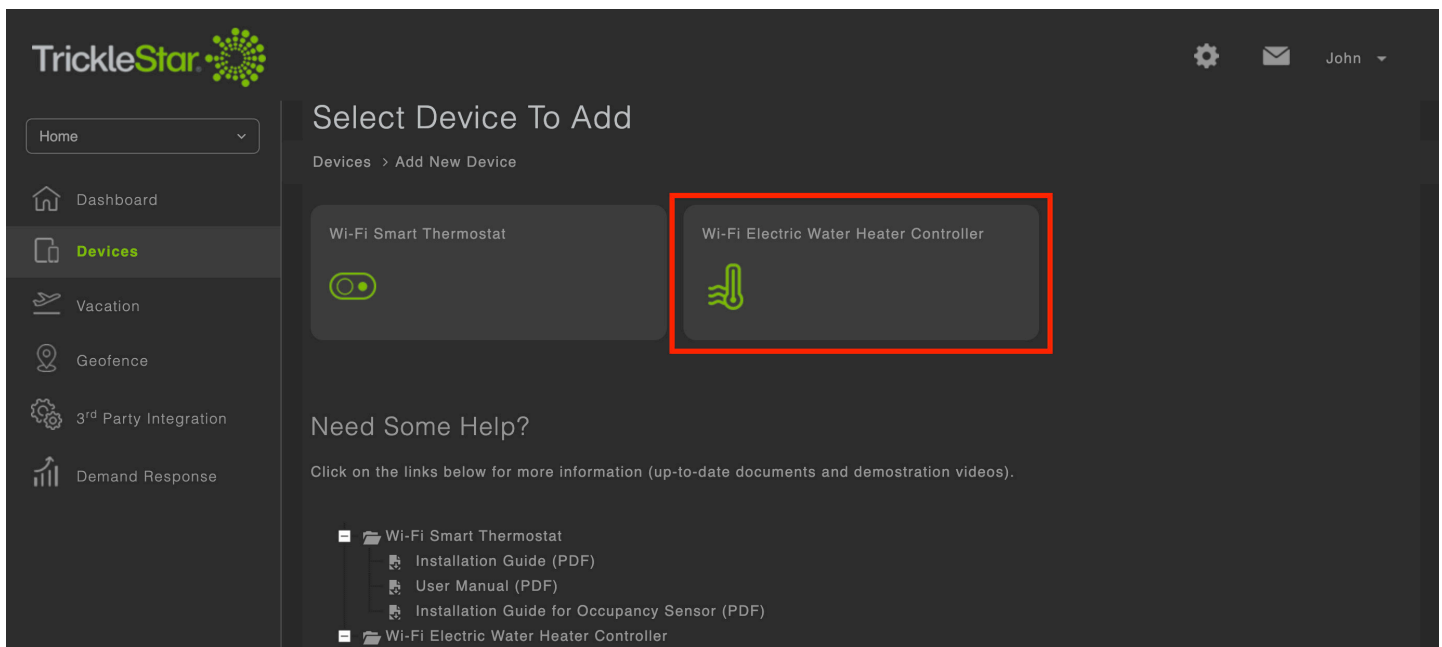


Fig 27-B

3. Select an existing site or create a new site and enter the Site Name. Then, click “Next”.

TrickleStar®

Home

Dashboard

Devices

Vacation

Geofence

3<sup>rd</sup> Party Integration

Demand Response

## Add TrickleStar Wi-Fi Electric Water Heater Controller

Select Device To Add > Add TrickleStar Wi-Fi Electric Water Heater Controller

1 Site

2 Device Name

3 Ready to Connect

Select site:

Home

For Contractor Only +

Next >

Fig 28-A

4. Create a name for the Water Heater Controller that you are adding. Choose a short name that is easy to pronounce, and avoid cryptic names like WHC-01. Then, click “Next”.

TrickleStar®

Home

Dashboard

Devices

Vacation

Geofence

3<sup>rd</sup> Party Integration

Demand Response

## Add TrickleStar Wi-Fi Electric Water Heater Controller

Select Device To Add > Add TrickleStar Wi-Fi Electric Water Heater Controller

1 Site

2 Device Name

3 Ready to Connect

Name this Wi-Fi Electric Water Heater Controller (e.g.: use room name):

Note: To control this device with voice using Amazon Alexa or Google Home, choose a short name that is easy to pronounce.

< Back Next >

Fig 28-B





5. At the Ready to Connect page, click the button that corresponds to the state of your Water Heater Controller.

For a fresh, out of the box installation, it will typically be the first state of “Connectivity LED blinking”.

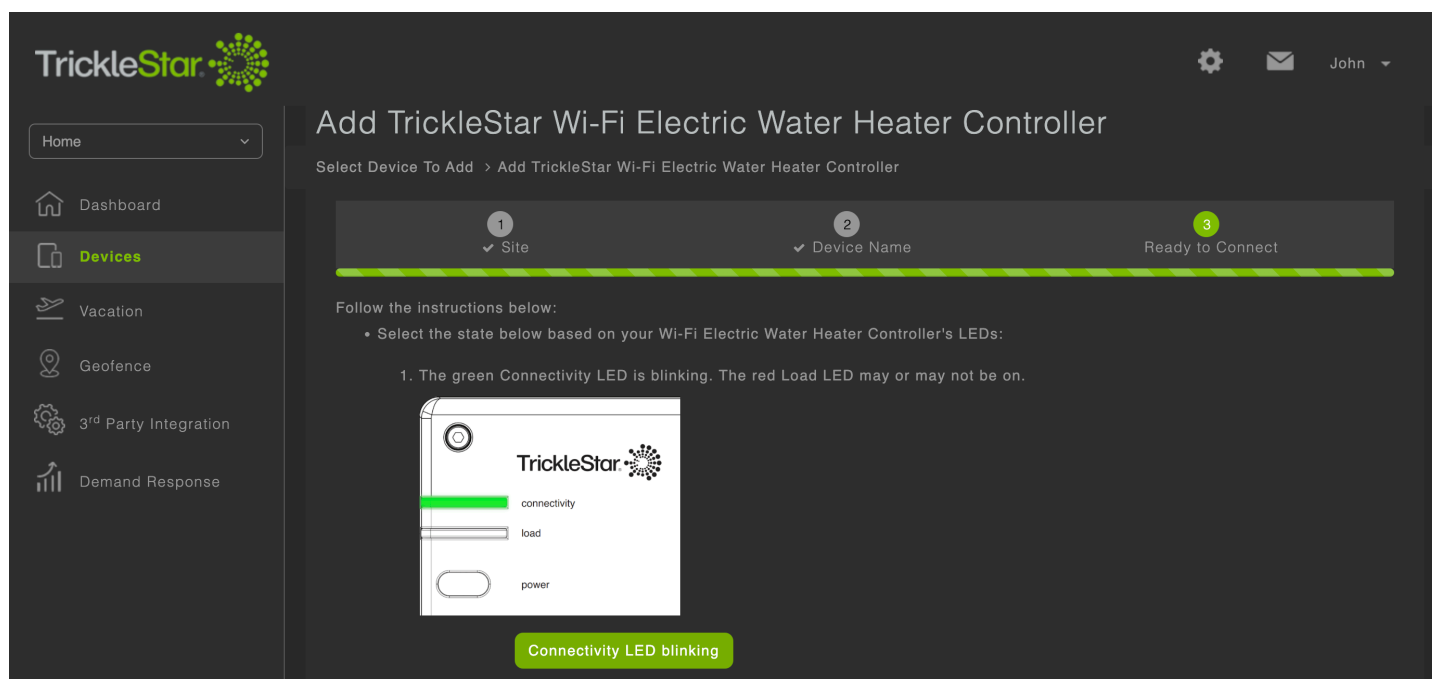


Fig 29-A



6. Enter the device DSN into the text field. The DSN is case-sensitive, and all alphabets must be in upper-case. Then, click “Next”.

The screenshot shows the TrickleStar web application interface. On the left is a dark sidebar with the TrickleStar logo and a navigation menu containing: Home (with a dropdown arrow), Dashboard, Devices, Vacation, Geofence, 3rd Party Integration, and Demand Response. The main content area has a dark background. At the top right of this area are icons for settings, email, and a user profile labeled "John". The main heading is "Connect to Wi-Fi TrickleStar Electric Water Heater Controller". Below it is a breadcrumb "Devices > Add New Device". A "Steps" section shows a progress bar with three steps: "4 Enter DSN" (highlighted with a green bar), "5 Water Heater Controller Access Point", and "6 Wi-Fi Setup". Below the progress bar, text reads: "Please enter the DSN of your Wi-Fi Electric Water Heater Controller in the text box below and press Next. It is located on a sticker on the device. E.g.: AC000W987654321." There is a text input field labeled "DSN:". Below the field is a link that says "If You Need Help Locating the DSN +". At the bottom are two buttons: "< Back" and "Next >".

Fig 30-A

7. Click the Wi-Fi network connection icon on your computer. You will see the Water Heater Controller in Access Point mode, which is identified as “WaterHeaterTS2301-XXXXXXXXXXXX” where X is the 12-digit MAC address.  
Select the Water Heater Controller that you are adding based on the MAC address. Then, click “Next”.

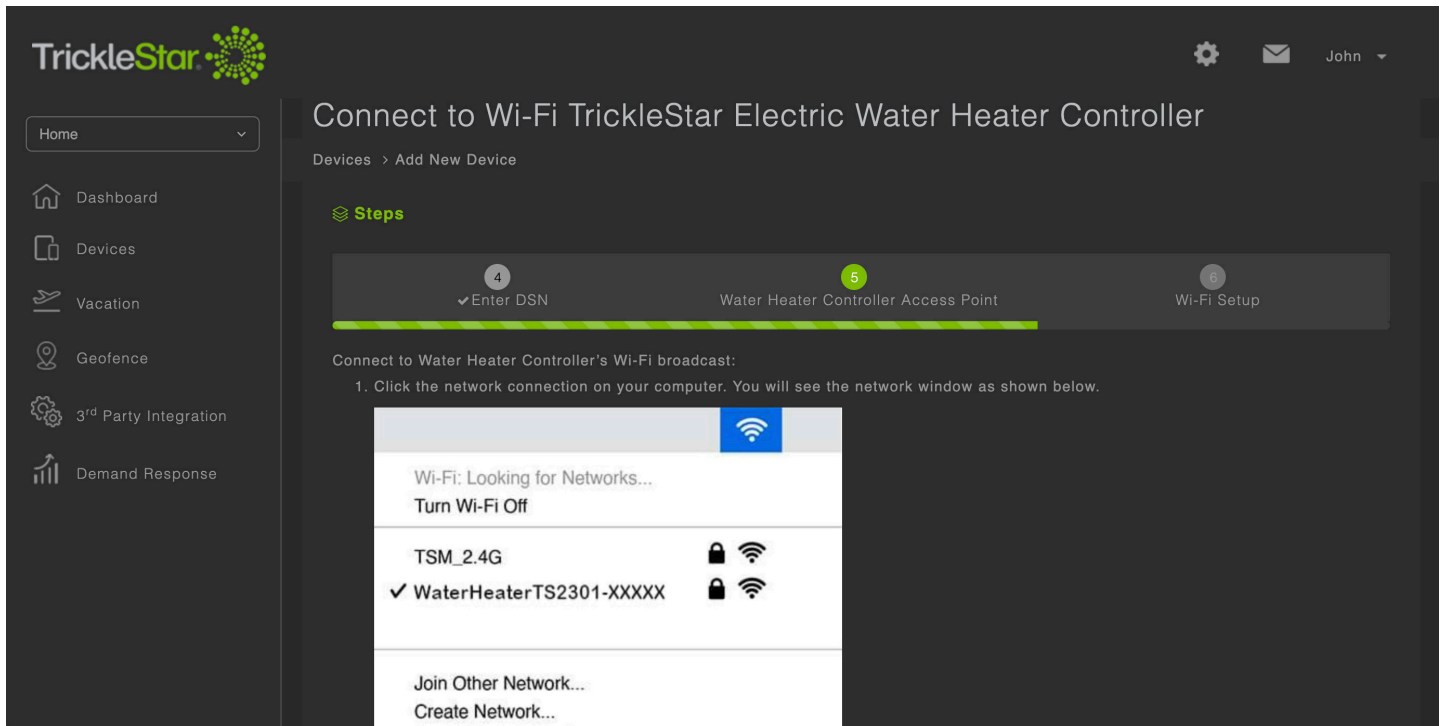


Fig 31-A

- Follow the instructions to connect the Water Heater Controller to your preferred Wi-Fi network. If the available Wi-Fi networks window is not displayed automatically, click on the button labelled “Here” to open a web browser tab for the connection window.

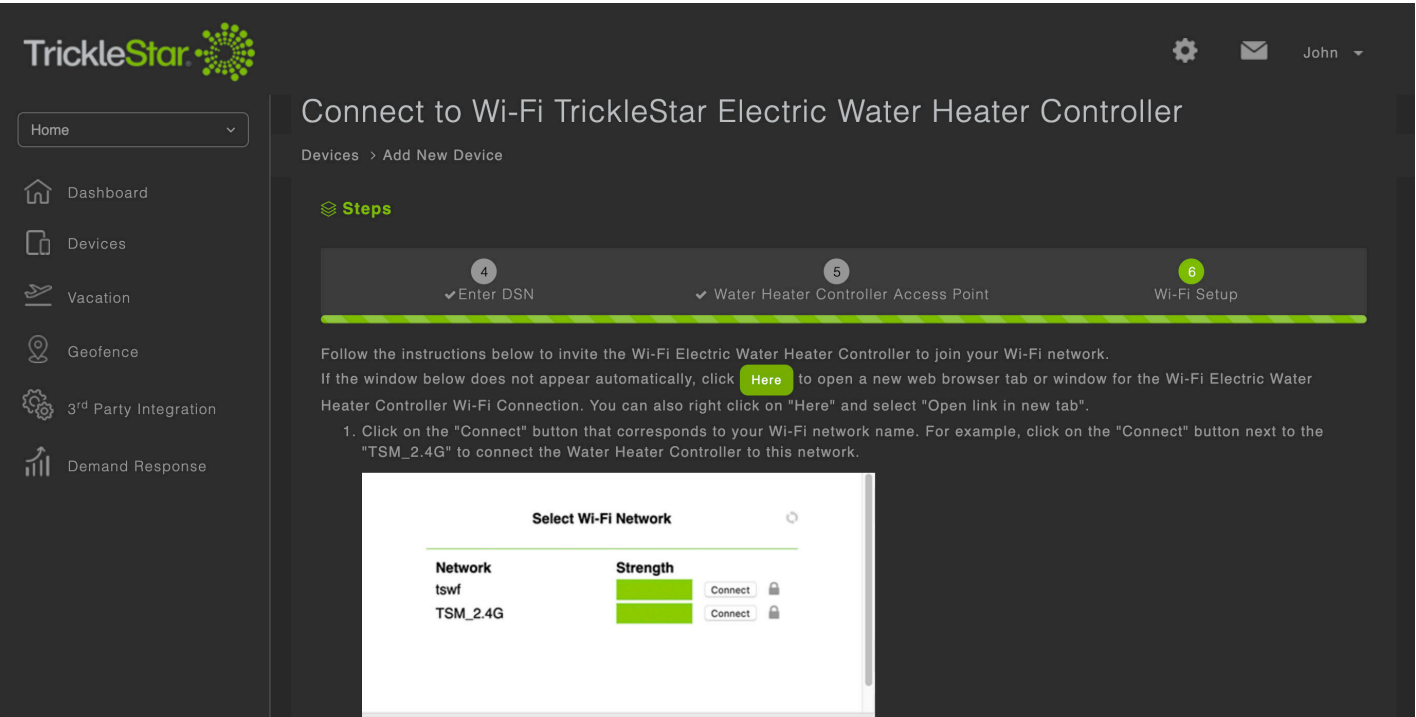


Fig 32-A



9. After connecting the Water Heater Controller to your Wi-Fi network, connect your computer to the same Wi-Fi network that you selected for the Water Heater Controller. Then, click “Done” at the bottom of the page to complete the registration.

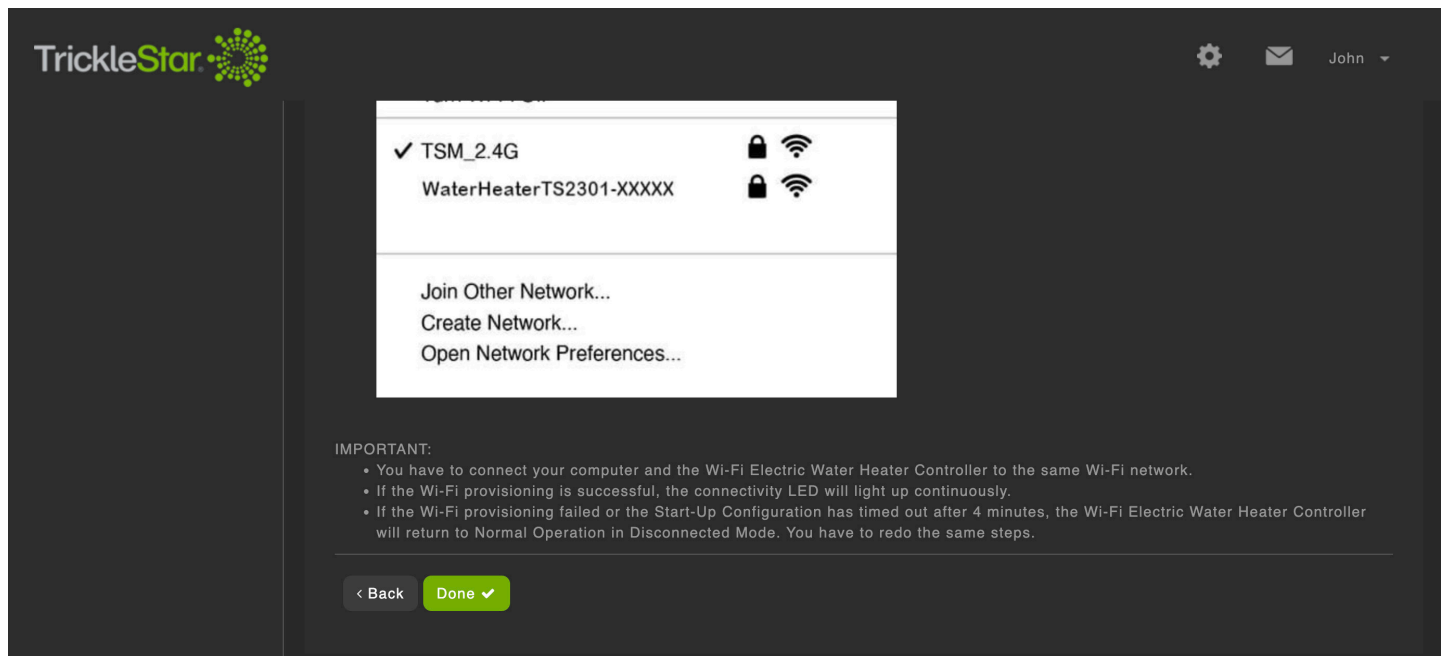


Fig 33-A



10. The App may take several minutes to register the device to your account.  
Once connected to Wi-Fi, the Water Heater Controller's "connectivity" LED indicator will be lighted up permanently in green.

## On the Control Page

1. Clicking on the Device Name in the Devices page will bring you to this page. Select the category to access the different functions as shown in the table that follows.

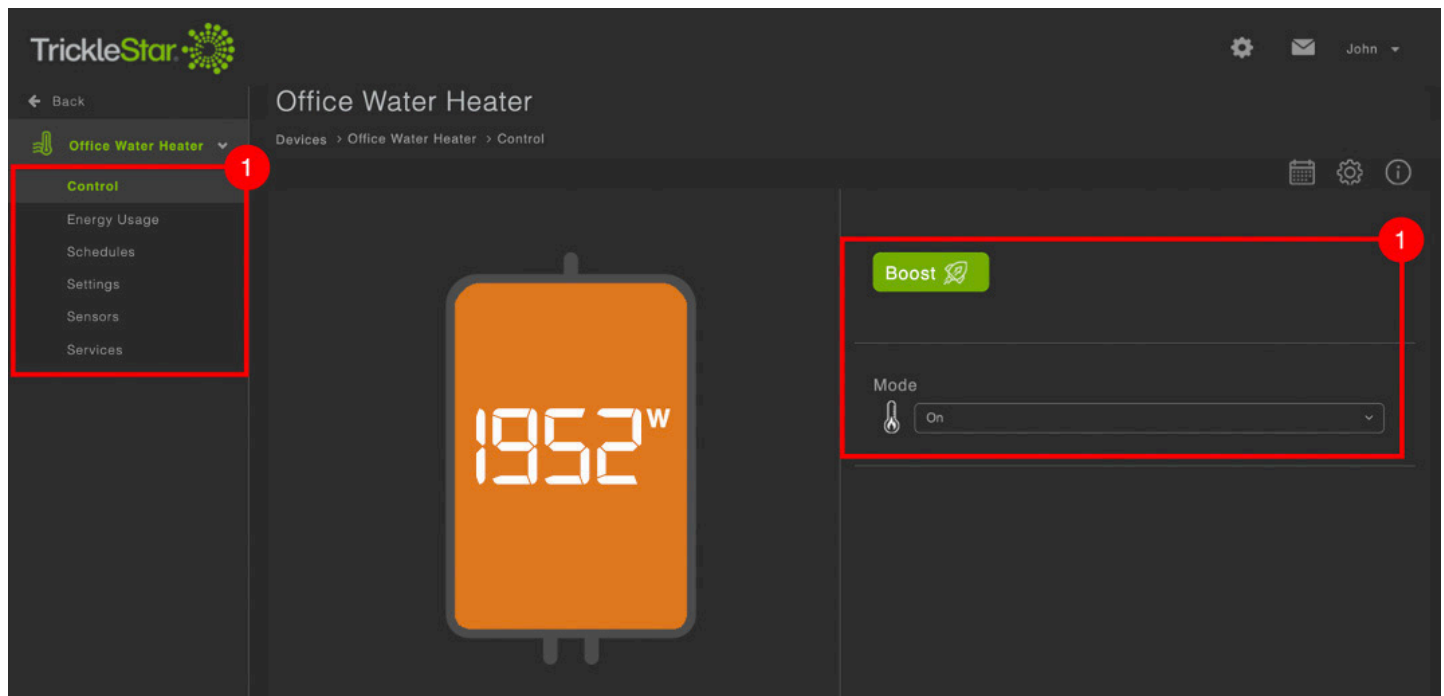


Fig 35-A

### Note:

The orange graphics on the page show the real-time power consumed by the water heater.

Select	To
Control	Control the water heater in real time.
Energy Usage	Check the energy usage and energy cost for a specific period.
Schedules	Show your daily/weekly schedule and to add/edit/delete a scheduled event.
Settings	Change the Safety Minimum Low Temperature Setpoint, enable/disable Boost and Boost duration settings.
Sensors	Show information of the connected sensors.
Services	Change the settings for Alerts and Reminders.
Mode	Turn on/off the water heater.
Boost	Turn on the water heater for a specific duration. When Boost is activated, schedules will not be executed.



## On the Energy Usage Page

1. Click on the dropdown arrow to select the energy usage period to view the collected data. The available options are Past week, Month-to-date and Year-to-date.

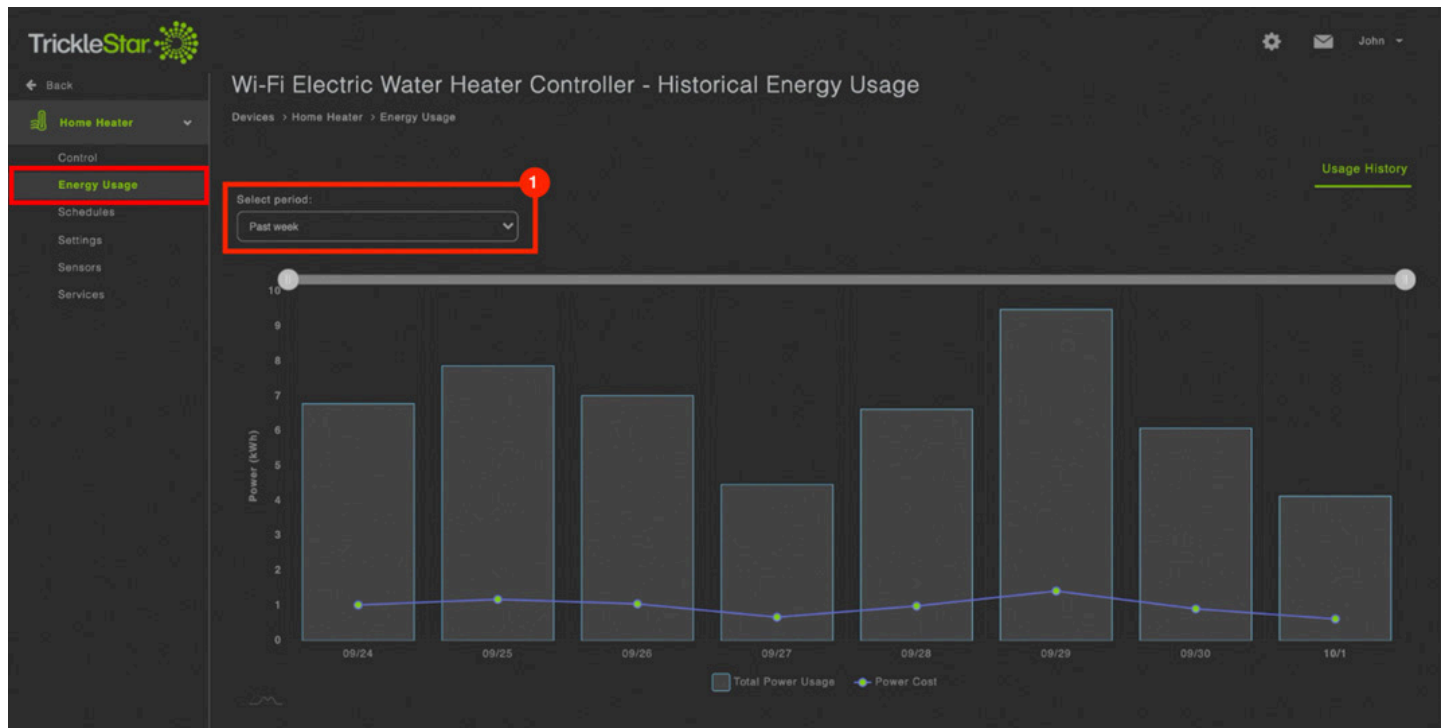



Fig 37-A

## On the Schedules Page

1. Click on  to add a new schedule or reset to the default schedule. You will need to specify the schedule's applicable day(s), time, and water heater mode – on or off.
2. You may also click on any existing schedule to edit or delete it.

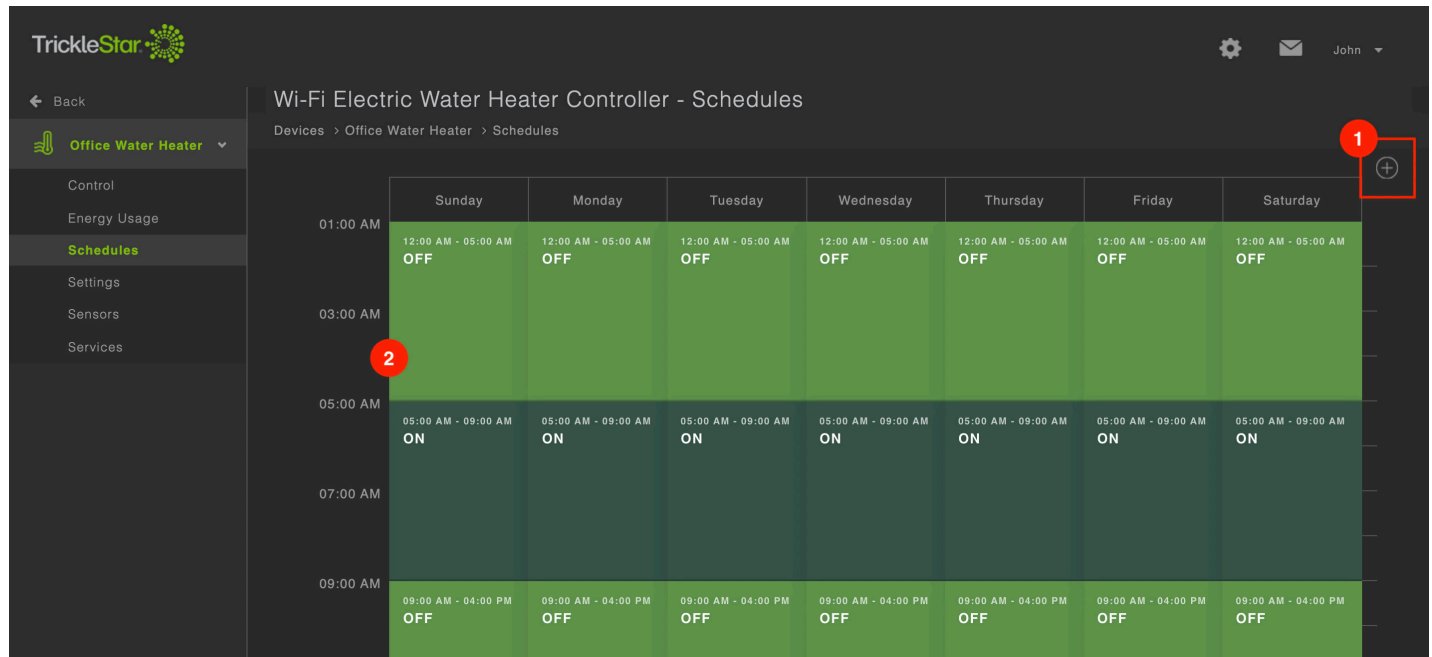


Fig 38-A

### Note:

- You only need to configure the start time of each event, and it will remain in effect until the next scheduled event.
- You can schedule up to 6 events in a day.

## On the Settings Page

1. Set the safety minimum temperature setpoint. If the cold-water inlet pipe temperature falls below this setpoint, the water heater will automatically turn on. TrickleStar App will also prompt a notification to the smartphone.

*Note:*

- The water heater will remain on until the measured temperature rises above this setpoint.
- All schedule or manual override using the Portal/App/Power button are not allowed.

2. Enable or disable Boost function on the Water Heater Controller and set its duration. If enabled, Boost can be activated from the Portal or App's control page.

*Note:*

- When Boost is activated, no schedule will be executed throughout the boost duration.
- Manual override using the Portal/App/Power button is allowed to deactivate Boost when Boost is activated.

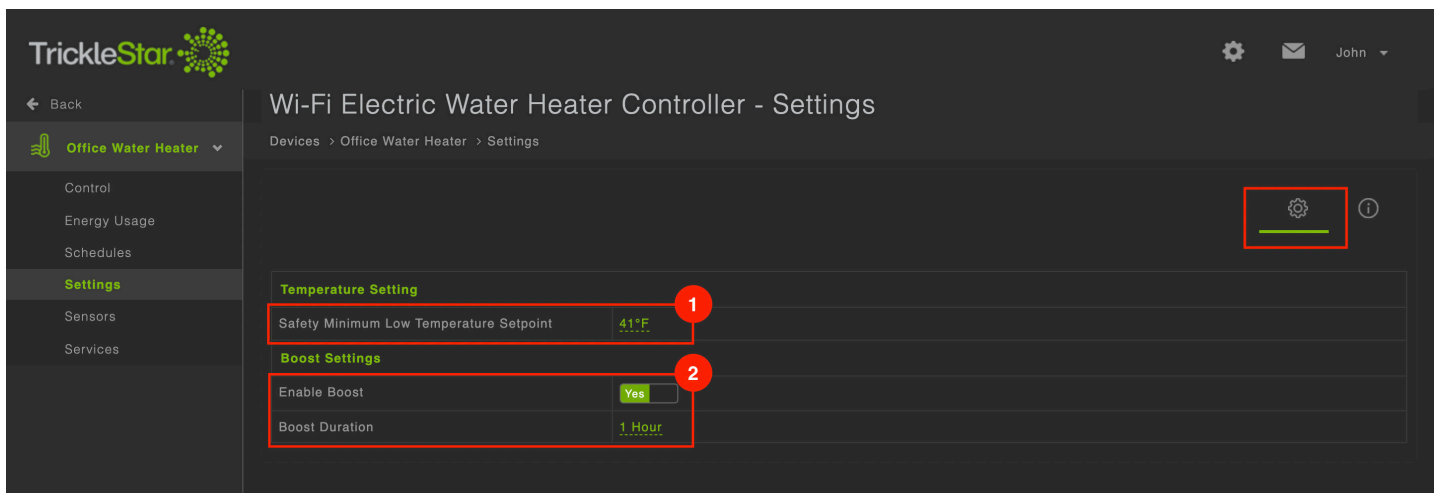
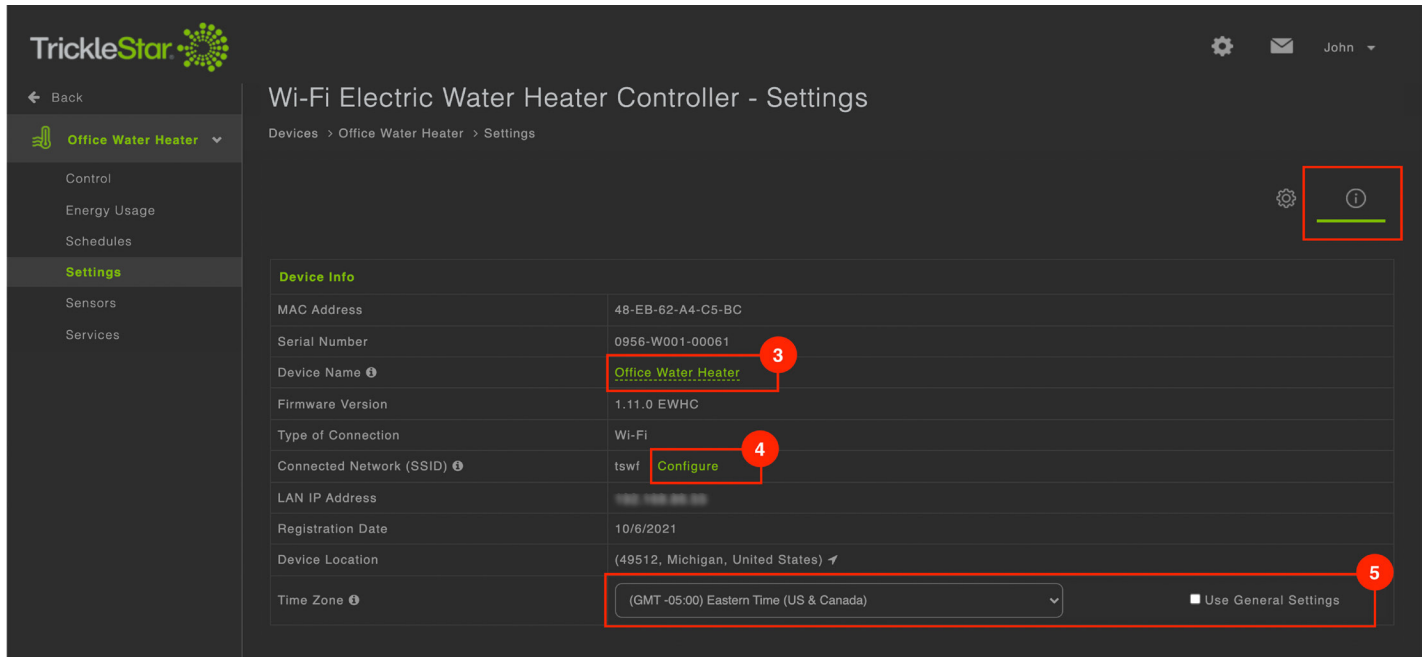


Fig 39-A

3. Rename your Water Heater Controller here.
4. Click to re-configure your Wi-Fi network if the Wi-Fi password has been changed or if you want to connect the Water Heater Controller to another Wi-Fi network.
5. Set the time zone of your Water Heater Controller. You can also use the time zone specified in General Settings by checking the “Use General Settings” checkbox.



TrickleStar

Wi-Fi Electric Water Heater Controller - Settings

Devices > Office Water Heater > Settings

Office Water Heater

Control

Energy Usage

Schedules

Settings

Sensors

Services

Device Info

MAC Address	48-EB-62-A4-C5-BC
Serial Number	0956-W001-00061
Device Name	Office Water Heater
Firmware Version	1.11.0 EWHC
Type of Connection	Wi-Fi
Connected Network (SSID)	tswf <a href="#">Configure</a>
LAN IP Address	192.168.0.10
Registration Date	10/6/2021
Device Location	(49512, Michigan, United States)
Time Zone	(GMT -05:00) Eastern Time (US & Canada) <input type="checkbox"/> Use General Settings

Fig 40-A



On the Sensors Page

- 1. The temperature sensor shows the real-time temperature measured at the cold-water inlet pipe. The flood sensor shows if water leak is detected. When leak is detected, the water heater will be turned off and a water leak icon will be shown on the Portal and App's control page. TrickleStar App will also prompt a notification to the smartphone.

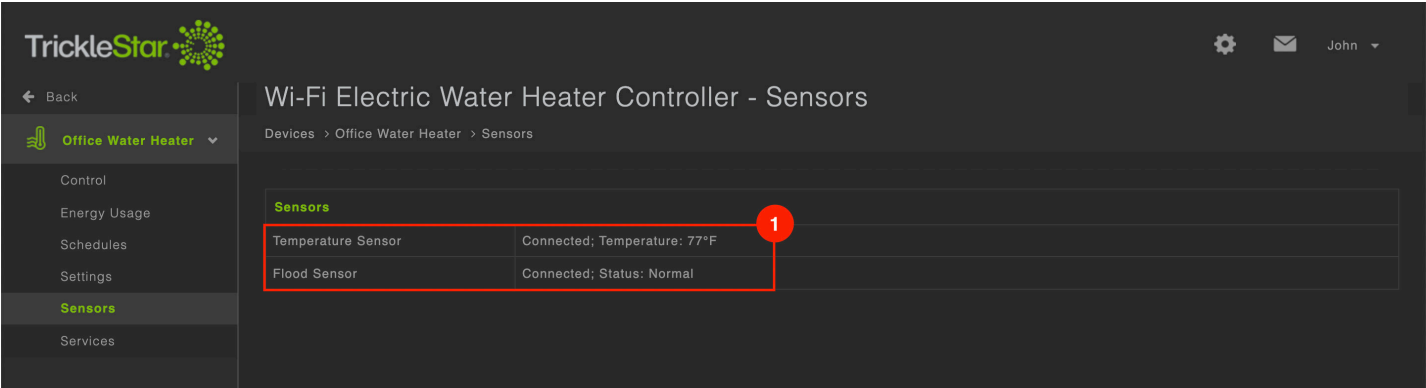


Fig 41-A

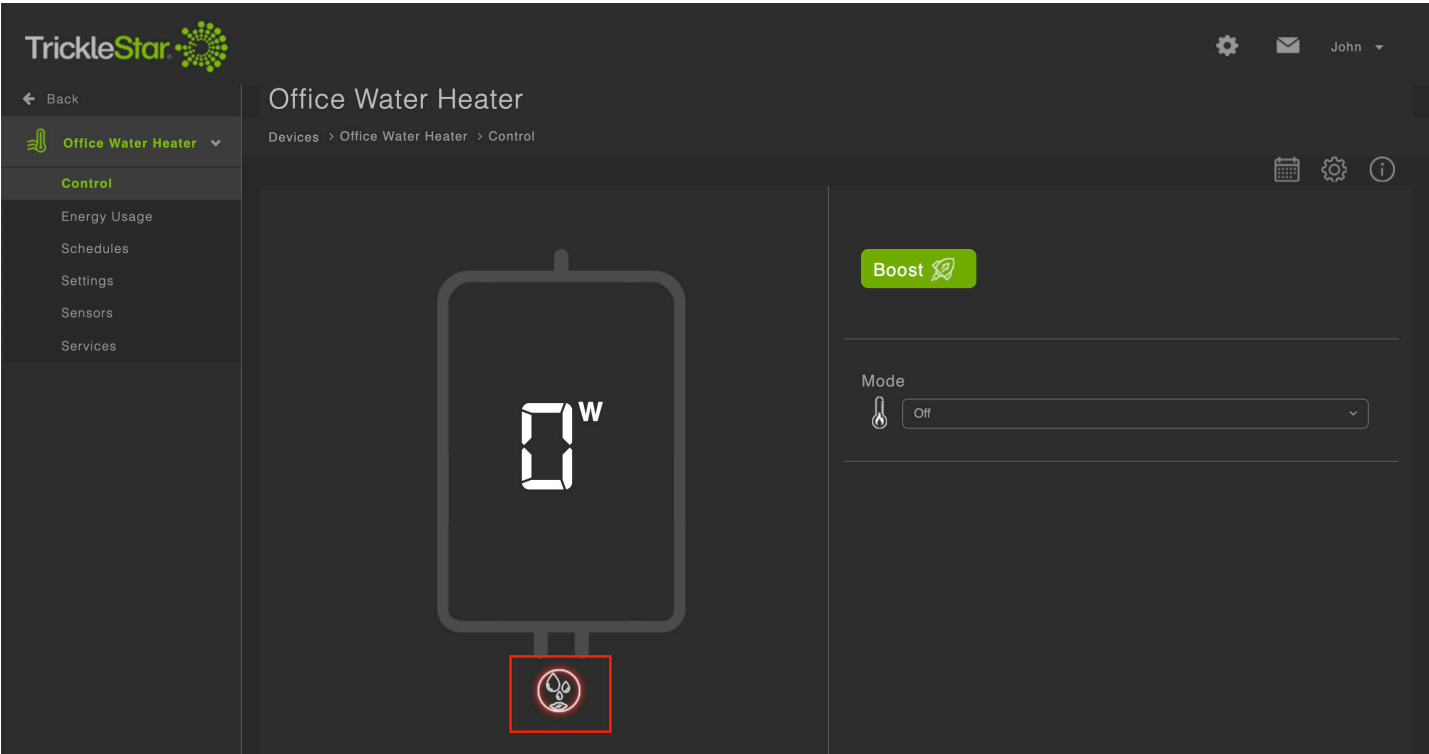


Fig 41-B

## On the Services Page

1. Set the temperature setpoint for low temperature alert. TrickleStar App will prompt a notification if the cold-water inlet pipe temperature falls below this setpoint.

*Note:*

*Check the checkbox to synchronize the setting with the “Safety Minimum Low Temperature Setpoint”.*

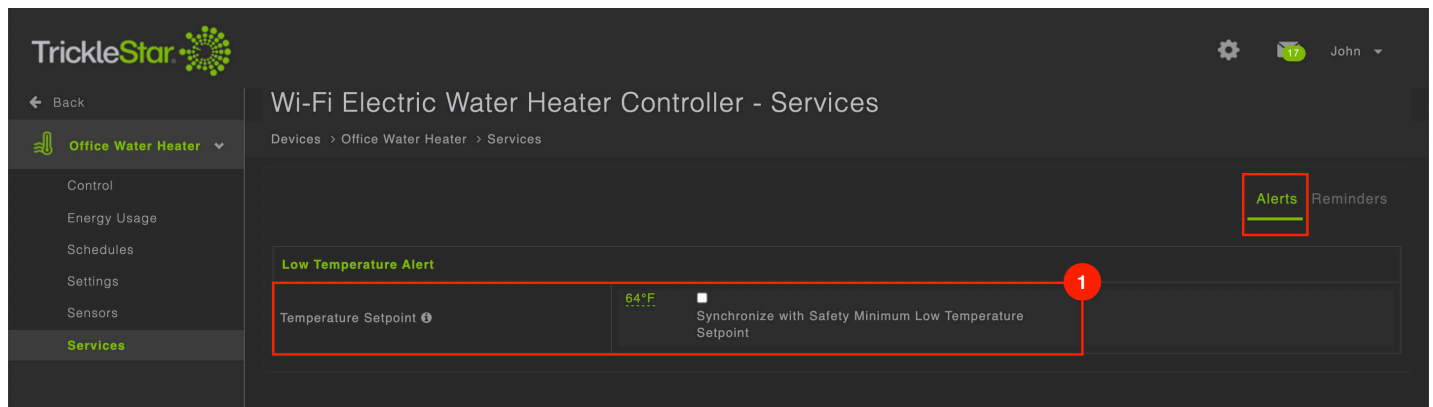


Fig 42-A

2. Set a maintenance reminder to check on your water heater system. Select the duration accordingly and the TrickleStar App will prompt a notification to the smartphone on the date shown in brackets.

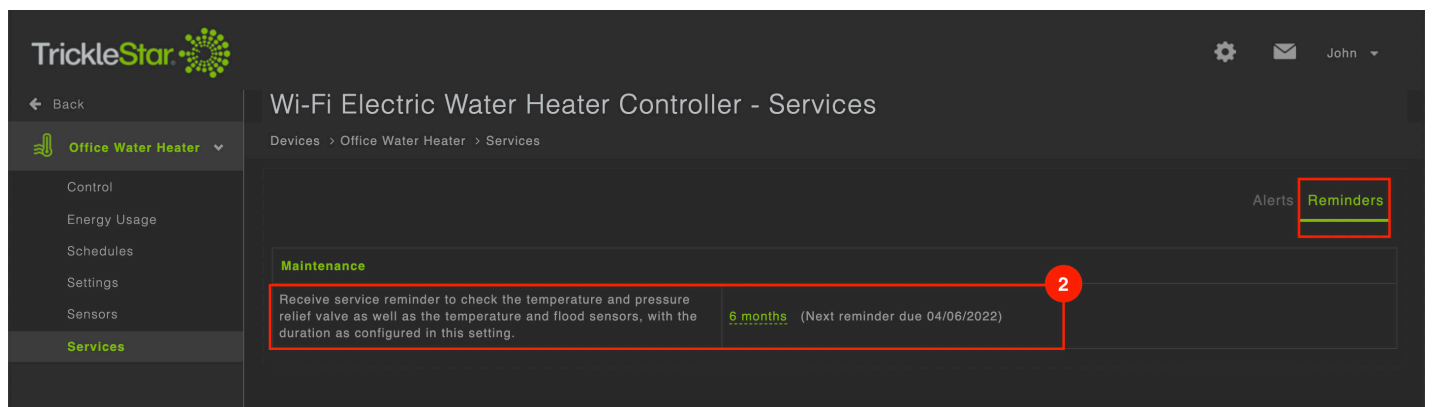


Fig 42-B

## On the Vacation Page

1. Select “Vacation” to update your vacation schedule for your connected devices.
2. Update your vacation details and enable/disable the vacation schedule.

TrickleStar®

My Office

Dashboard

Devices

**Vacation**

Geofence

3<sup>rd</sup> Party Integration

### Vacation Settings

Dashboard > Vacation Settings

#### Vacation Dates

Depart 10/16/2021 08:00 AM Return 10/28/2021 02:00 PM

Once dates and times are provided and Vacation is enabled, all TrickleStar devices on site "My Office" will be programmed to activate the Vacation schedule between these dates/times.

#### Devices

The list of devices on site "My Office":

- Office Water Heater

Note:

- Vacation schedule will be enabled for all devices of the currently selected site "My Office".
- If you wish to enable Vacation schedule for another site, please select that site and repeat the Enable Vacation Schedule process.

#### Status

**Enable Vacation Schedule**

Vacation schedule is currently **Disabled**.

Fig 43-A



On the 3rd Party Integration Page

- 1. Select “3rd Party Integration” to integrate with Amazon Alexa or Google Home.
- 2. Click “Configure” accordingly to integrate with your preferred 3rd party system.

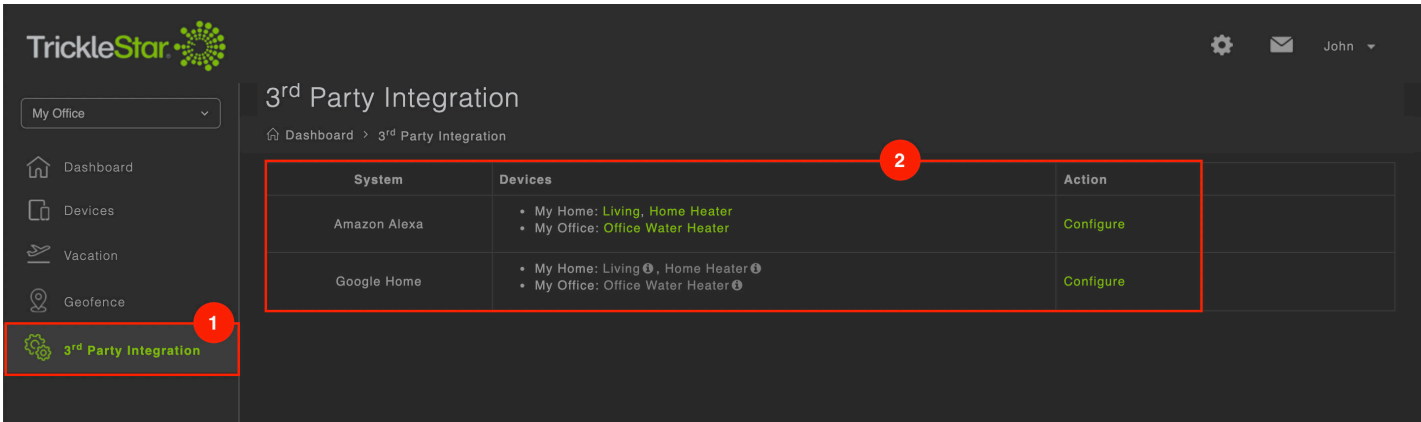


Fig 44-A





## Taking Ownership of a Water Heater Controller Registered to a Different User

TrickleStar Portal identifies different Water Heater Controller devices using its DSN number, unique to each device. When a device with a particular DSN number is already registered to a user, you will not be able to register the same device with the same DSN number in TrickleStar Portal/App.

If you have a device registered to a different user, or you have no information about its previous owner, these steps will be applicable to you.

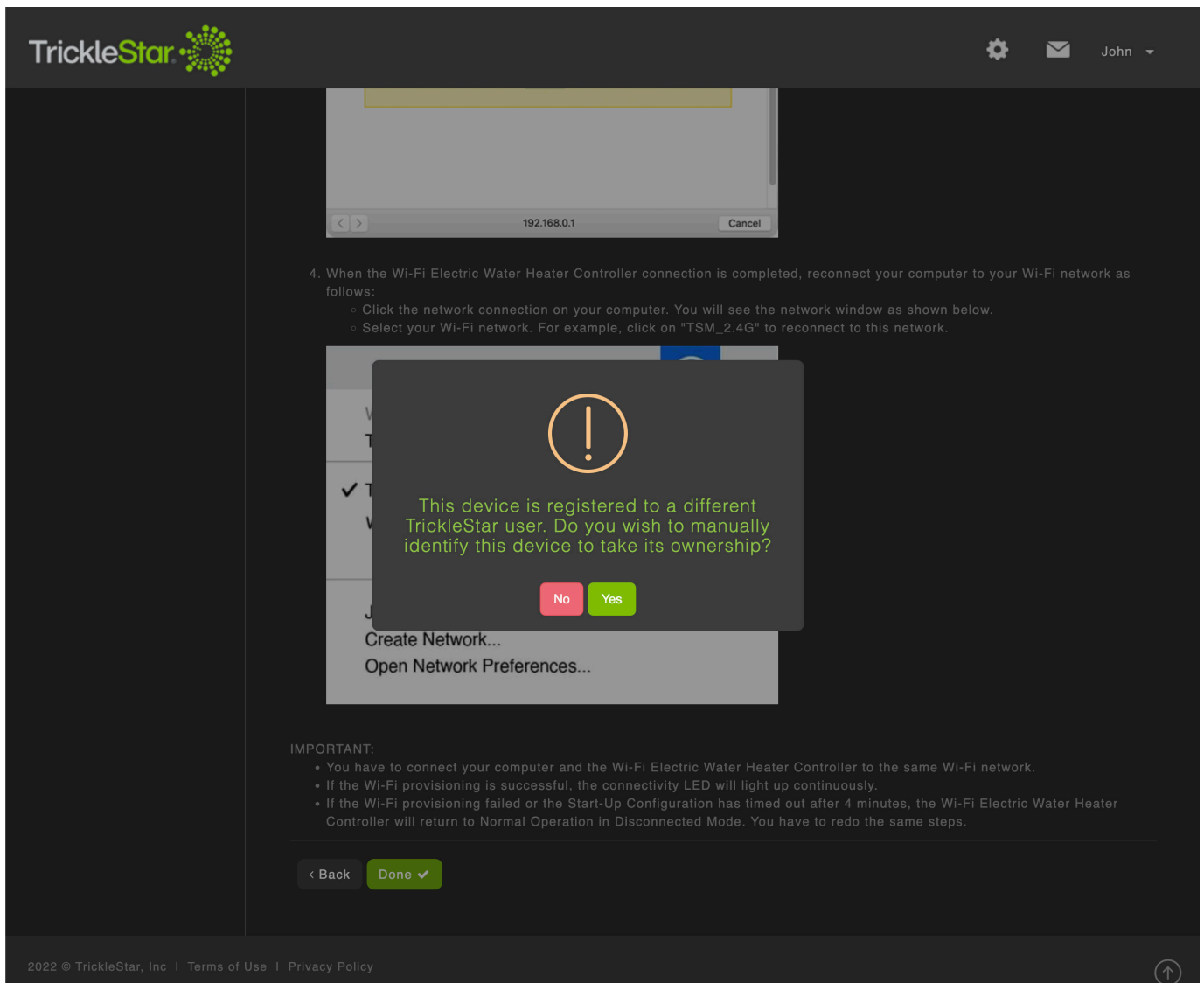
TrickleStar Portal offers steps to claim an already registered Water Heater Controller as your own, provided you can complete the manual identification process to confirm that you have control over the Water Heater Controller.

1. Ensure that you have access to TrickleStar Portal ([portal.tricklestar.com](http://portal.tricklestar.com)), and had already created a Portal account.
2. To begin the process, click “Devices” and then click on “Add New +” in the TrickleStar Portal.
3. Select “Wi-Fi Electric Water Heater Controller” to add a new Water Heater Controller unit.
4. Enter the Site Name as well as a name for the Water Heater Controller. For example, the Site Name could be “Home” while the Water Heater Controller could be named “Basement Heater”.
5. The “Ready to Connect” page will then be shown:

The screenshot shows the 'Add TrickleStar Wi-Fi Electric Water Heater Controller' page in the TrickleStar Portal. The page has a dark theme with a sidebar on the left containing navigation links: Home, Dashboard, Devices (highlighted), Vacation, Geofence, 3rd Party Integration, and Demand Response. The main content area shows a progress bar with three steps: 1. Site (checked), 2. Device Name (checked), and 3. Ready to Connect (active). Below the progress bar, instructions are provided for identifying the device based on its LEDs. Two scenarios are shown: 1. 'Connectivity LED blinking' and 2. 'Connectivity LED is on'. Each scenario includes a diagram of the device with labels for 'connectivity', 'load', and 'power' LEDs. At the bottom, there is a 'Back' button and a section for 'If all LEDs are off'.





6. Power on your Water Heater Controller, wait for it to initialize and click the button on Portal that corresponds to the state of the Water Heater Controller.
7. Next, the Portal will prompt users to enter the DSN number (case-sensitive) into the text box provided. It can be found on a sticker label at the back of the Water Heater Controller. Please call our Customer Service if you are unable to locate the DSN number.
8. If your Water Heater Controller is in state 1, follow the instructions to connect the device to your Wi-Fi network. Otherwise, if your Water Heater Controller is in state 2, it is already connected to your Wi-Fi network so the Portal will skip to the next step.
9. The following window will be prompted when the Portal detected that you are attempting to take ownership of an already registered device. Press “Yes” to confirm and take ownership of the Water Heater Controller.





10. The Portal will then show the following page to begin the manual identification process. Click “Next”.

TrickleStar

John

Home

Dashboard

Devices

Vacation

Geofence

3rd Party Integration

Demand Response

Wi-Fi Electric Water Heater Controller - Manual Identification

Water Heater Controller Setup Wizard > Manual Device Identification

6Start

7Identification

8Access Point

9Wi-Fi Setup

10Confirmation

If the Wi-Fi Electric Water Heater Controller you are trying to add is registered to a different user, this wizard will allow you to register this device to your Portal account if you have physical access to this device.

On the next step you will be asked to reset the device.


Before proceeding, please ensure your Wi-Fi Electric Water Heater Controller is on and its green Connectivity LED is permanently on.



< Back

Next >

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11. During the manual identification process, the Portal will prompt you to reset the Water Heater Controller to verify that you have control over the physical Water Heater Controller unit. Follow the instructions and click “Next” to continue.





John ▾

Home ▾

Dashboard

Devices

Vacation

Geofence

3<sup>rd</sup> Party Integration

Demand Response

## Wi-Fi Electric Water Heater Controller - Manual Identification

Water Heater Controller Setup Wizard > Manual Device Identification

6  
✓ Start

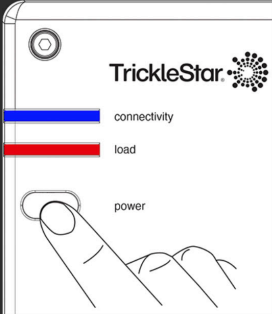
7  
Identification

8  
Access Point

9  
Wi-Fi Setup

10  
Confirmation

Press and hold the power button on the device for 30 seconds until its Connectivity LED starts blinking blue/green and its Load LED starts blinking red as shown in the illustration below.



Your device will reset to Factory Default Settings and lose its Wi-Fi connection.  
Wait for the blue and red LEDs to stop blinking and click Next to connect the device to your Wi-Fi network.

< Back


Next >

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12. Connect to the Water Heater Controller's Wi-Fi broadcast and click "Next":

The screenshot shows the TrickleStar web interface for the "Wi-Fi Electric Water Heater Controller - Manual Identification". The left sidebar contains navigation links: Home, Dashboard, Devices, Vacation, Geofence, 3<sup>rd</sup> Party Integration, and Demand Response. The main content area displays a progress bar with five steps: 6 Start, 7 Identification, 8 Access Point (highlighted), 9 Wi-Fi Setup, and 10 Confirmation. Below the progress bar, the instruction reads: "Connect to Water Heater Controller's Wi-Fi broadcast: 1. Click the network connection on your computer. You will see the network window as shown below." A simulated network selection window is shown, displaying "Wi-Fi: Looking for Networks..." and "Turn Wi-Fi Off". Two networks are listed: "TSM\_2.4G" and "✓ WaterHeaterTS2301-XXXXX". Below the network list are options: "Join Other Network...", "Create Network...", and "Open Network Preferences...". A note states: "Note: If you do not see the WaterHeaterTS2301-XXXXXXXXXXXX network, press and hold the power button on the device for 15 seconds until the connectivity indicator starts blinking blue/green, release the power button, and then check the list of available networks again." Further instructions are: "2. Select WaterHeaterTS2301-XXXXXXXXXXXX. Your computer may lose its internet connection at this point. Do not worry as you will get it back in the next step." and "3. Click 'Next'". At the bottom are "< Back" and "Next >" buttons. The footer contains: "2022 © TrickleStar, Inc | Terms of Use | Privacy Policy".

13. Connect the Water Heater Controller to your Wi-Fi network and click “Next”:


Settings
Mail
John

Home

Dashboard
Devices
Vacation
Geofence
3rd Party Integration
Demand Response

## Wi-Fi Electric Water Heater Controller - Manual Identification

Water Heater Controller Setup Wizard > Manual Device Identification

6
Start

7
Identification

8
Access Point

9
Wi-Fi Setup

10
Confirmation

Follow the instructions below to invite the Wi-Fi Electric Water Heater Controller to join your Wi-Fi network.  
If the window below does not appear automatically, click [Here](#) to open a new web browser tab or window for the Wi-Fi Electric Water Heater Controller Wi-Fi Connection. You can also right click on "Here" and select "Open link in new tab".

- Click on the "Connect" button that corresponds to your Wi-Fi network name. For example, click on the "Connect" button next to the "TSM\_2.4G" to connect the Water Heater Controller to this network.

Select Wi-Fi Network

Network	Strength	
tswf	<div></div>	Connect
TSM_2.4G	<div></div>	Connect

192.168.0.1

Cancel

- Enter your Wi-Fi password and click "Connect".

Connect to network

Network	TSM_2.4G
Security	WPA2 Personal AES
Password	*****

Cancel

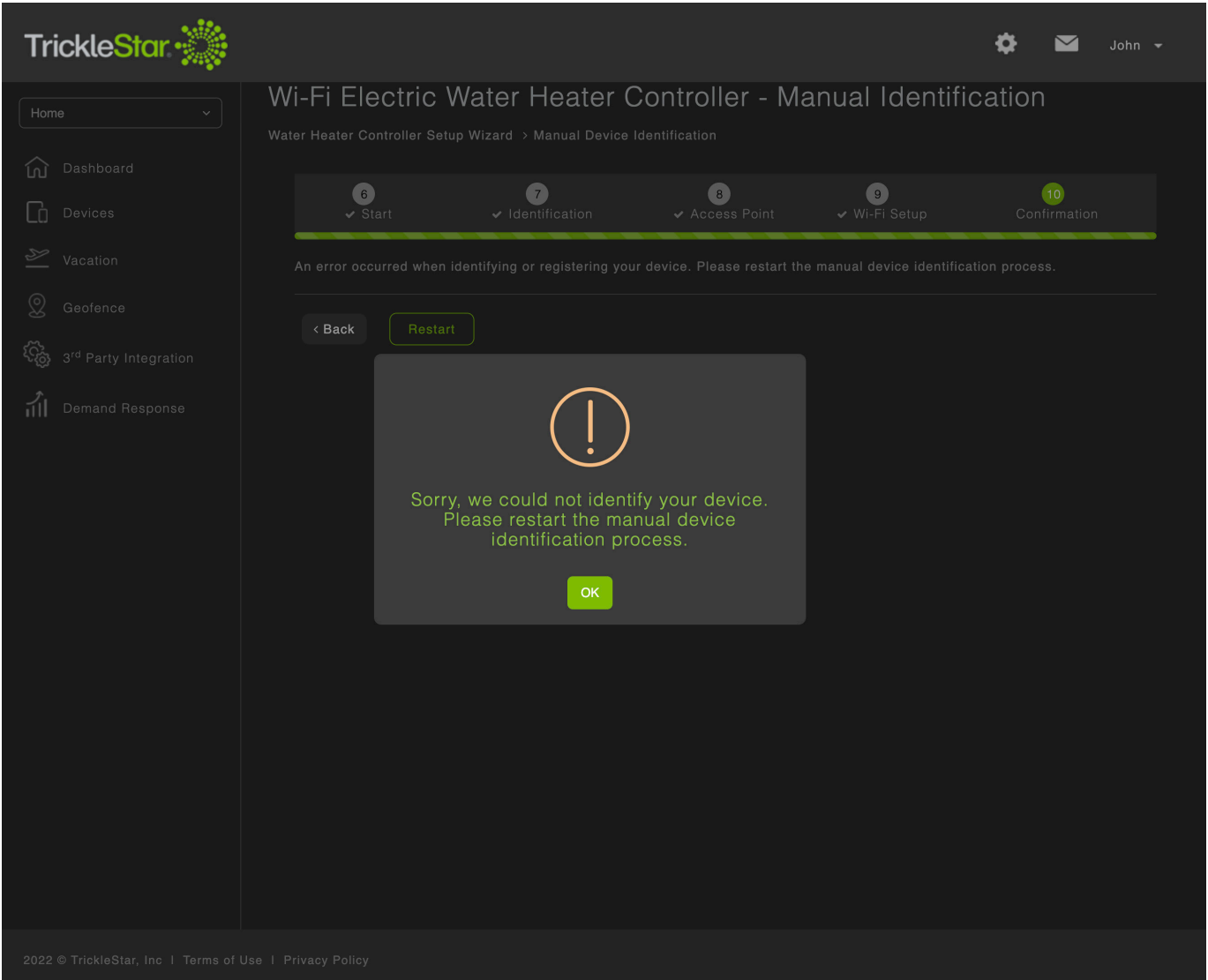
Connect

192.168.0.1

Cancel

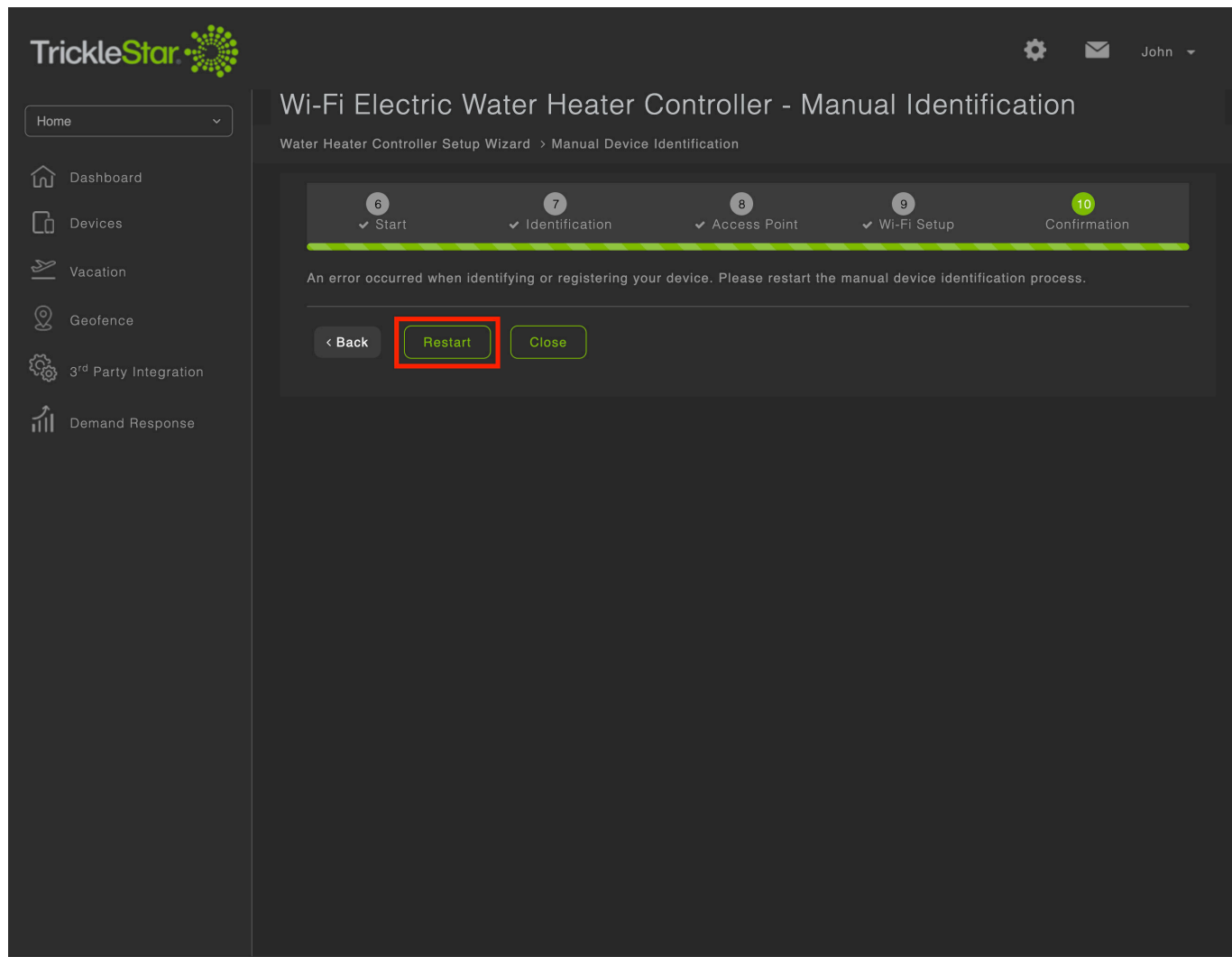


14. Occasionally, the Portal may prompt the following message requesting you to restart the identification process. Click “OK” to close the window.





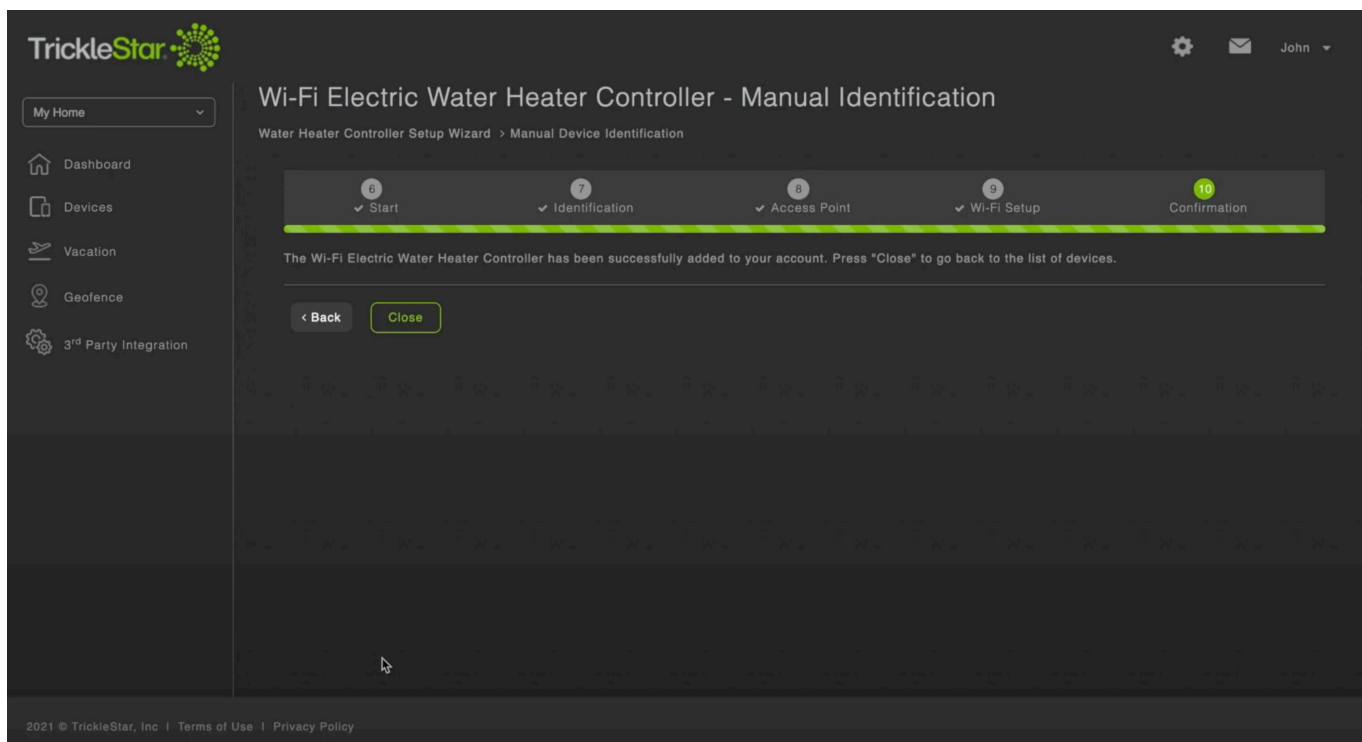
15. Click “Restart” to restart the manual identification process.







16. Repeat the process. Once it is completed, the following page will be shown. You have now successfully claimed ownership of the Water Heater Controller unit to your account in the TrickleStar Portal.





## Maintenance

### Factory Reset

If you need to reset your Water Heater Controller to factory default settings, please do the following:

1. Press and hold the power button for at least 30 seconds until the "connectivity" indicator flashes in red/green/blue.
2. Go to Portal, select the Water Heater Controller and click "Delete".
3. Click "Add New + " to add your Water Heater Controller. Then, follow the instruction guide.

All settings will be deleted and the Water Heater Controller will reset to factory default settings.

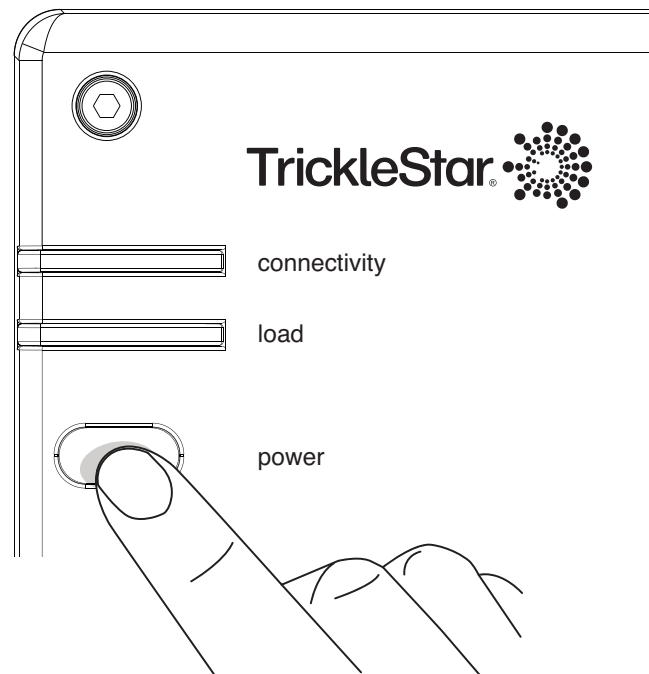


Fig 54-A

### Wi-Fi Network Reset

If you have changed to or added a new network, and you want to reset your Wi-Fi network for the Water Heater Controller, perform a Wi-Fi Network Reset.

At the Portal, select: Devices -> Device Name -> Settings -> Device Info icon -> Connected Network (SSID) -> Configure.

Follow the steps to reset your Wi-Fi network for the Water Heater Controller and reconnect your Water Heater Controller to the Portal.



## Firmware Update

The Portal will occasionally transfer a firmware update to your Water Heater Controller. After the new firmware is installed, your Water Heater Controller will restart and reconnect to the Portal and App automatically.

*Note: The firmware update cannot be initiated on the Water Heater Controller, and it cannot be canceled or postponed.*



## Cleaning the Water Heater Controller

Clean your Water Heater Controller with a clean cloth.

### *Note:*

- *Do not spray any water or liquid directly onto your Water Heater Controller.*
- *Do not use soap or any type of cleaning chemicals on your Water Heater Controller.*

## Troubleshooting

Problem	Solution
I changed the settings on the Portal but the App does not reflect the changes or vice versa.	<ul style="list-style-type: none"> <li>Depending on the internet connectivity, it may take a few minutes to reflect the changes on the Portal or App. This is not a malfunction.</li> <li>Refresh the Portal or App as follows: <ul style="list-style-type: none"> <li>- For Portal: Refresh the browser.</li> <li>- For App: Select "Sync".</li> </ul> </li> </ul>
I do not know which reset to perform.	<ul style="list-style-type: none"> <li>If you want to reset your Water Heater Controller to factory default, perform a Factory Reset by referring to pg. <a href="#">36</a>.</li> <li>If you have changed to or added a new network, and you want to reset your Wi-Fi network for the Water Heater Controller, perform a Wi-Fi Network Reset by referring to pg. <a href="#">36</a>.</li> </ul>



## Troubleshooting

Problem	Solution
I cannot register the Water Heater Controller via the TrickleStar Portal.	If the TrickleStar Portal requests for DSN number, refer to the label at the back of the Water Heater Controller. You will find the DSN number at the label. The DSN number can also be found on the Water Heater Controller packaging. Note, the DSN number is case-sensitive.
I cannot connect to the Portal or App.	<ul style="list-style-type: none"><li>• Check if your mobile devices are connected to Wi-Fi.</li><li>• Your Water Heater Controller may be installing a new firmware update. When the firmware installation is complete, you will be reconnected to the Portal and App automatically.</li></ul>

If the problem persists, you can refer to the Frequently Asked Questions (FAQ) section on our website, or email or call our technical support:

Website: [www.tricklestar.com](http://www.tricklestar.com)

Email: [customer.service@tricklestar.com](mailto:customer.service@tricklestar.com)

Toll Free: 1-888-700-1098

## Feature List

This Feature List shows the locations where you can perform the listed features. The Portal supports the entire set of features, whereas the App and the Water Heater Controller unit only support a limited set of features. This Feature List is created based on the Portal structure so that you can find the features you want easily.

● Available      — Not available

Features	Water Heater Controller	Portal	App
<b>Basic Features</b>			
Factory Reset	●	-	-
<b>Advanced Features</b>			
<b>Dashboard</b>			
General Settings		<a href="#">23</a>	<a href="#">21</a>
Message Settings			
• Receive System Notifications	-	●	●
• Receive Schedule Events	-	●	●
• Receive DR Events	-	●	●
• Receive Device Errors and Warnings	-	●	●
• Receive Configuration Events	-	●	●
Power Setting			
• Cost Per kWh	-	●	●
Other Settings			
• Currency	-	●	●
• Temperature Unit	-	●	●
• Time Zone	-	●	●
• Date Format	-	●	●
• Time Format	-	●	●

Features	Water Heater Controller	Portal	App
Messages	-	●	●
Account		<a href="#">23</a>	<a href="#">21</a>
• Account Settings	-	●	●
• Change Password	-	●	-
• Delete Account	-	●	-
Sharing		<a href="#">23</a>	
• Site Management	-	●	●
• Delegation	-	●	●
• Ownership Transfer	-	●	●
Wi-Fi Electric Water Heater Controllers		<a href="#">25</a>	
• No. of Device	-	●	-
Outdoor Temp. (Location)		<a href="#">25</a>	
• Current Temperature	-	●	-
• hi temperature	-	●	-
• lo temperature	-	●	-
Water Heater Controller - Device List		<a href="#">25</a>	
• Online / Offline	-	●	●
• Temperature	-	●	-
• Schedule	-	●	-
• Energy Usage	-	●	-
<b>Devices</b>		<a href="#">26</a>	
Delete	-	●	●
Add New +	-	●	●
Show	-	●	-
Search	-	●	-



Features	Water Heater Controller	Portal	App
Control		<a href="#">26</a>	<a href="#">18</a>
• Boost	-	●	●
• Mode	-	●	●
Energy Usage		<a href="#">26</a>	<a href="#">20</a>
• Select a period	-	●	●
Schedules		<a href="#">26</a>	<a href="#">19</a>
• Schedule Overview	-	●	●
• Add Schedule Event	-	●	●
• Edit Schedule Event	-	●	●
Settings		<a href="#">26</a>	
Temperature Settings	-	●	●
• Safety Minimum Heat Temperature Setpoint	-	●	●
Boost Settings			
• Boost Enabled	-	●	●
• Boost Time	-	●	●
Information and Time Zone			
• Device Information			<a href="#">20</a>
- MAC Address	-	●	●
- Serial Number	-	●	●
- Device Name	-	●	●
- Firmware Version	-	●	●
- Type of Connection	-	●	●
- Connected Network (SSID)	-	●	●
- LAN IP Address	-	●	●
- Registration Date	-	●	●
- Device Location	-	●	●
- Time Zone	-	●	●

Features	Water Heater Controller	Portal	App
Sensors			
• Temperature Sensor	-	●	●
• Flood Sensor	-	●	●
Services			
Low Temperature Alerts			
• Temperature Setpoint	-	●	●
<b>Vacation</b>		<a href="#">43</a>	<a href="#">21</a>
Vacation dates	-	●	●
Devices	-	●	●
Status	-	●	●
<b>3rd Party Integration</b>		<a href="#">44</a>	
• Amazon Alexa	-	●	-
• Google Home	-	●	-



For technical support, go to:  
Website: [www.tricklestar.com](http://www.tricklestar.com)  
Email: [customer.service@tricklestar.com](mailto:customer.service@tricklestar.com)  
Toll Free: 1-888-700-1098

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