

# Installation, Operation and Troubleshooting Instructions

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## Energy Smart® Electric Water Heater Controller



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# INSTALLATION AND SETUP

## 1 Get to know your Energy Smart® Electric water heater controller.

With your new electric water heater controller, you can:

- Monitor and control your water heater with a smart phone, tablet, or computer over your home's wireless (WiFi) network.
- Receive alerts when you're low on hot water.
- Create custom water heating schedules that are controlled by your computer or other device through your home's WiFi network.



Figure 1.

## 2 Review the requirements.

To get started, you will need:

- A working wireless (WiFi) network router with Internet access.
- A personal computer, smart phone, or tablet computer connected to your home's WiFi network.
- One of the following water heater models: ES2H40HD045V, ES2J40HD045V, ES2H50HD045V, ES2J50HD045V, ES2J65HD045V, ES2H80HD045V, ES2J80HD045V, ES40R92-45D, ES40R123-45D, ES50R92-45D, ES50R123-45D, ES80H123-45D.
- One #2 Phillips screwdriver.

Read and follow all of the instructions, cautions, and warnings in your water heater's use and care guide.

**⚠ WARNING!** Even if the water heater's temperature control is set to a relatively low temperature, hot water can scald. Install thermostatic mixing valves at each point-of-use to reduce the risk of scalding.

## 3 Install the Controller.

**⚠ WARNING!** Working on an energized circuit can result in severe injury or death from electrical shock. Turn power off before performing this installation. Check wires with a non-contact circuit tester to make sure power is off.

**Step 1: Turn power off at source (circuit breaker).**

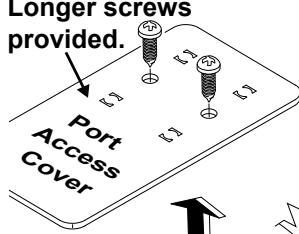
**Step 2:**

**Remove access cover.**

**Discard screws.**

**Longer screws**

**provided.**



**Step 3: Plug controller into water heater.**

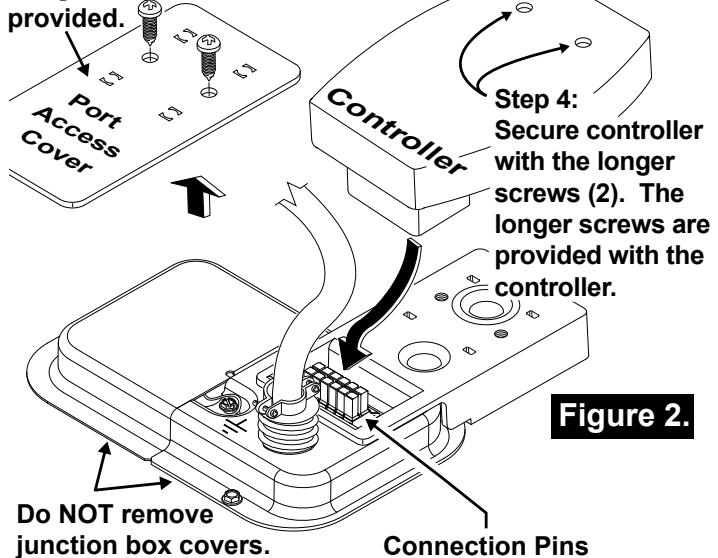


Figure 2.

**⚠ WARNING!** Do not turn power on unless screws are installed as described in step 4 above. Screws must be installed to prevent equipment damage.

**Step 5: Turn water heater's power back on according to its use and care guide.**

**Step 6: Watch the water heater's display screen for the Grid icon to appear (Figure 3). This may take a minute or so after power has been turned on.**

**Step 7: Activate the screen by touching any button, then releasing it.**

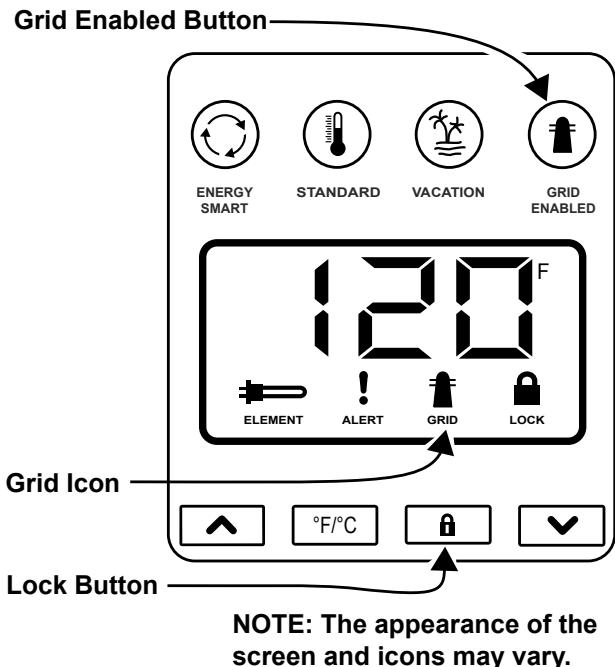
**Step 8: If the screen is locked, touch and hold the Lock button for at least 5 seconds. The Lock**

icon will disappear from the screen. This indicates that the control buttons have been unlocked. See Figure 3.

**Step 9:** Touch the Grid Enabled button (top right). The Grid Enabled button must be lit before continuing with the set up.

**Figure 3.**

**Water Heater User Interface**  
(located on the front of your Energy Smart® electric water heater).



## 4 Complete Setup.

**Step 1: Check the Status LED on the controller.**

The Status LED should brighten gradually, then dim suddenly. If it does not brighten gradually and dim suddenly, press the reset button 8 times with a paper clip (about once per second) until you hear a beep. See Figure 1. The beep indicates that the controller has been reset.

**Step 2: Open a wireless network control panel on your device (computer, smart phone or tablet).**

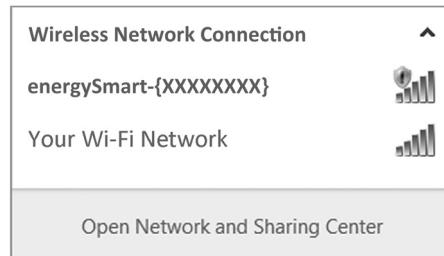
A list of available wireless networks should be displayed (Figure 4).

**Step 3: Disconnect your device (computer, smart phone or tablet) from your home's WiFi network.**

You will connect to a different network during the next step.

**Figure 4.**

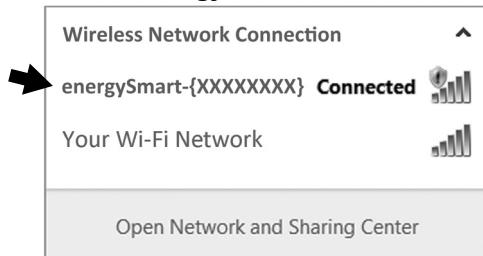
**Example: List of SSIDs Displayed in Available Wireless Networks**



**Step 4: Select the "energySmart" network (Figure 5). Your device (computer, smart phone or tablet) will connect to it.**

**Figure 5.**

**Select "energySmart" Network**



**Step 5: Once your computer is connected to the energySmart network,**

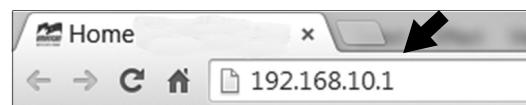
A. Open a browser window.

B. Type 192.168.10.1 into the browser's Address or Location bar, then press [Enter]. See Figure 6.

**NOTE:** The page may load automatically when the browser window is opened.

**Figure 6.**

**Browser's Address/Location Bar**

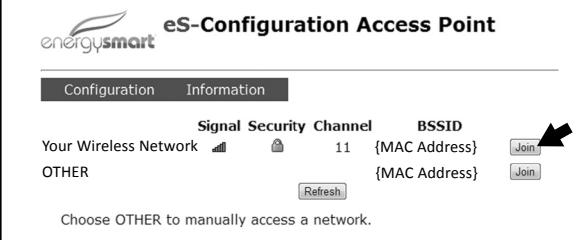


**Step 6: Follow these steps to connect the controller to your network:**

A. Locate your home's wireless network in the list (Figure 7).

- B. **IMPORTANT:** If your router is set to hide its SSID, look for its MAC address instead. You will be asked to enter its SSID during the next step.
- C. Click the “Join” button next to your home’s wireless network (Figure 7).
- D. If necessary, type your wireless network password in the dialog box, then click OK.
- E. When you have connected successfully, the Status LED will be on steady (no blinking, flashing, or dimming). However, if you don’t get a steady LED status light, repeat all steps in this section.

**Figure 7.**



**Step 7: Reconnect your device (computer, smart phone or tablet) to your home’s wireless network.**

**Step 8: Register and sign in as described in the next step.**

## 5 Get started with Iris®.

Before you try to sign in, check the following:

- The Energy Smart® Electric Water Heater Controller must be connected to your home’s wireless network.
- Your home’s wireless network must be connected to the Internet.
- The controller must be enabled before you can control and monitor your water heater through Iris®. See “**3 Install the Controller**,” Steps 6 through 9.

For more information about your water heater’s user interface, see your water heater’s use and care guide.

**To get started with Iris®, follow these steps:**

**Step 1: Register, then sign in to your Iris® account at:**

[www.lowes.com/iris](http://www.lowes.com/iris)

**Step 2: Click the ‘Add Devices’ button.**

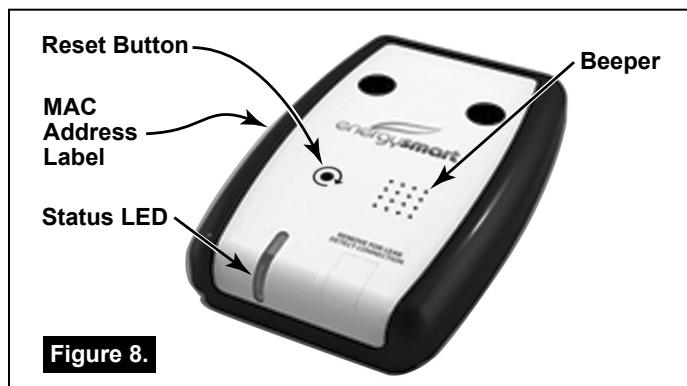
**Step 3: Follow the on-screen instructions.**

## Customer Care

If you need assistance, call 855-469-IRIS. Help is also available at [www.lowes.com/iris/support](http://www.lowes.com/iris/support).

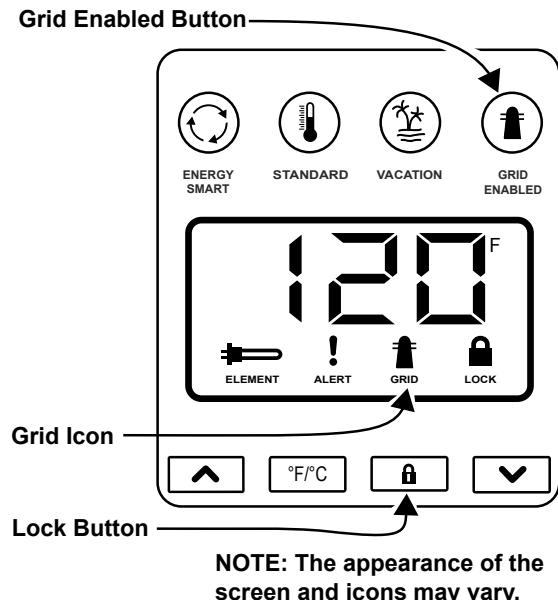
# OPERATION

## User Controls and Indicators



**Figure 9.**

**Water Heater User Interface**  
(located on the front of your Energy Smart®  
electric water heater).



## Status LED

The green LED on top of the controller indicates its connection status or error state as described below. See Figure 8.

See *Troubleshooting* for an explanation of each flash code (page 8).

## Beeper

Audible beeps indicate status changes that require your attention. If you hear a beep, refer to the Troubleshooting section to determine its meaning.

## Reset Button

The reset button is located toward the center of the electric water heater controller (Figure 1).

To reset the controller and put it in Access Point (AP) Mode:

1. Press the reset button 8 times with a paper clip (about once per second) until you hear a beep. See Figure 8.

The beep means that the controller has been disconnected from the WiFi network and has been reset.

2. If you can't connect to an SSID in the available networks list, repeat step 1. (See Figures 5 & 7). This may be necessary in areas with multiple WiFi signals or when the WiFi signal strength is weak.

To restart the controller without going into Access Point (AP) Mode:

1. Press and hold the reset button down until you hear a beep (about 12 seconds).
2. Release the button. The controller will reconnect to the web server. However, it will not default to AP Mode.

## Enabled / Disabled

### Enabled

To control your water heater through Iris®, your controller must be enabled and connected. It is enabled when the Grid Enabled button is lit up (backlit). **See Figure 9.**

To enable the controller:

1. Unlock the water heater's user interface (if it is locked). To do so, touch the lock button for at least 5 seconds. The Lock icon will disappear from the screen.
2. Touch the Grid Enabled button until it lights up (backlit).

### Disabled

While disabled, all water heater parameters can be **viewed** through Iris®, but they can only be changed through the water heater's user interface. This safety feature can be used to ensure local control only.

The controller is disabled if:

- The Grid Enabled button is not lit up (not backlit)
- The controller's LED is flashing "3 seconds ON, 3 seconds OFF."

**IMPORTANT:** In the event of a power outage, the Grid Enabled Button will turn OFF automatically. **See Figure 9.** Enable it as described in *Enabled* above.

To disable the controller so that the water heater can only be controlled locally:

1. Unlock the water heater's user interface (if it is locked). To do so, touch the lock button for at least 5 seconds. The Lock icon will disappear from the screen.
2. Touch the Grid Enabled button until its light goes out (no longer back lit).

## Parameters

You can monitor and control the following water heater parameters through Iris®: operating mode, temperature set point (up to Maximum Set Point), and heating schedule. Estimated Hot Water Level may be viewed through Iris®.

For safety reasons, your temperature setting through Iris® cannot exceed the temperature that is programmed into your water heater's user interface.

For example, if the user interface on the water heater is set at 120°F, the set point range in Iris® would be 80°F to 120°F. 120°F would be the Maximum Set Point.

**⚠ WARNING!** Even if the water heater's temperature control is set to a relatively low temperature, hot water can scald. Install thermostatic mixing valves at each point-of-use to reduce the risk of scalding. Read and follow all of the instructions, cautions, and warnings in your water heater's use and care guide.

### Parameter List

When you change any of the following parameters, the new values will only display on the web user interface. The remote settings will not be displayed on the water heater's user interface, but this will not effect your intended settings.

#### Mode

Standard, Energy Smart and Schedule

#### Set Point

Temperature setting range: 80°F to 150°F (27°C to 65°C).  
NOTE: Your temperature setting through Iris® cannot exceed the temperature that is programmed into the water heater's user interface.

#### Heating Schedule

This parameter allows you to set water heating schedules through Iris®.

#### Estimated Hot Water Level

The estimated hot water level may be viewed through Iris®. This parameter is not configurable.

# TROUBLESHOOTING

## Frequently Asked Questions

- Q. The power to my house went out. When it came back on, I couldn't control my water heater through Iris®. What's wrong?**
- A. In the event of a power outage, the Grid Enabled Button will turn OFF automatically. When it does, the controller is disabled and your water heater cannot be controlled through Iris®. To restore functionality, follow the instructions in the *Enabled* section, page 6.
- Q. I'm trying to increase the water temperature setting though Iris®. It doesn't work. Why won't it work?**
- A. For safety reasons, your temperature setting through Iris® cannot exceed the temperature that is programmed into your water heater's user interface. For example, if your water heater itself is set to 110°F, then 110°F is the highest temperature setting allowed in Iris®. Check your water heater's temperature setting and adjust as necessary.

- Q. One of the parameters shown in Iris® is different than what is displayed on the water heater's user interface. Is this okay?**
- A. Yes. The controlling parameters are displayed in Iris®. See *Parameters* on page 6.

*Continued on the next page.*

## Status LED Flash Codes

Status LED:	<b>Brief flash On/Off</b>
Description	Power Up
Beeper	One Brief Beep
Reset Button Effect	N/A
Notes / Remedy	This flash code occurs when the controller is powering up. See Note 1 at the end of the troubleshooting section.

Status LED	<b>3 Seconds On, 3 Seconds Off</b>
Description	Controller Disabled
Beeper	None
Reset Button Effect	A reset will change the controller's state to Access Point (AP) mode. To reset the controller, press the reset button 8 times with a paper clip (about once per second) until the controller beeps.
Notes / Remedy	<p>This flash code indicates that the controller is disabled. (This may occur following a power outage.) To enable the controller, unlock the water heater's user interface and touch the Grid Enabled button. The Grid Enabled button LED will turn on. See Figure 9.</p> <p>NOTE: When unlocking the user interface, you must touch the lock button for at least 5 seconds. The Lock icon will disappear from the screen.</p> <p>The following status LED codes <b>will not display</b> when the wireless controller is disabled:</p> <ul style="list-style-type: none"> <li>• <i>Steady On, Brightens Briefly (Connected &amp; Posting).</i></li> <li>• <i>Steady On (Connected &amp; Waiting).</i></li> <li>• <i>Brightens Gradually, Dims Gradually (Search Mode).</i></li> <li>• <i>Brightens Gradually, Dims suddenly (Access Point [AP] Mode).</i></li> <li>• <i>2 Flashes, PAUSE, 3 Flashes, PAUSE, 3 Seconds On, Off (No Connectivity).</i></li> </ul>

Continued on the next page.

## Status LED Flash Codes (Continued)

<b>Status LED:</b>	<i>Brightens gradually, dims suddenly.</i>
<b>Description</b>	Access Point (AP) Mode
<b>Beeper</b>	None
<b>Reset Button Effect</b>	<p>A reset will cause the controller to re-scan the WiFi networks.</p> <p>To reset the controller, press the reset button 8 times with a paper clip (about once per second) until the controller beeps.</p>
<b>Notes / Remedy</b>	This state occurs when a new controller is powered up. It will also occur after the wireless controller has been reset. In this mode, the wireless controller will operate as an access point to connect to a WiFi local network. See Note 2 at the end of the troubleshooting section.

<b>Status LED:</b>	<i>Steady on, brightens briefly when posting.</i>
<b>Description</b>	Connected & Posting
<b>Beeper</b>	None
<b>Button Press Effect</b>	<p>To change the controller's state to Access Point (AP) mode, press the reset button 8 times with a paper clip (about once per second) until the controller beeps.</p> <p>To restart the controller, press and hold the reset button down until you hear a beep (about 12 seconds), then release. The controller will reconnect to web server.</p>
<b>Notes / Remedy</b>	Normal Operation

Continued on the next page.

## Status LED Flash Codes (Continued)

<b>Status LED:</b>	<b>Steady On</b>
<b>Description</b>	Connected & Waiting (No Internet Connectivity)
<b>Beeper</b>	None
<b>Button Press Effect</b>	<p>To change the controller's state to Access Point (AP) mode, press the reset button 8 times with a paper clip (about once per second) until the controller beeps.</p> <p>To restart the controller, press and hold the reset button down until you hear a beep (about 12 seconds), then release. The controller will reconnect to web server.</p>
<b>Notes / Remedy</b>	This state occurs when the internet connection drops while the controller is Connected & Posting. The controller is still connected to the local WiFi network. Check your router's internet access.

<b>Status LED:</b>	<b>2 Flashes, PAUSE, 3 Flashes, PAUSE, 3 Seconds On, Off. (Repeats.)</b>
<b>Description</b>	No Connectivity
<b>Beeper</b>	None
<b>Button Press Effect</b>	None
<b>Notes / Remedy</b>	Call 855-469-IRIS. Help is also available at <a href="http://www.lowes.com/iris/support">www.lowes.com/iris/support</a> .

<b>Status LED:</b>	<b>Brightens Gradually, Dims Gradually.</b>
<b>Description</b>	Search Mode
<b>Beeper</b>	None
<b>Button Press Effect</b>	To change the controller's state to Access Point (AP) mode, press the reset button 8 times with a paper clip (about once per second) until the controller beeps.
<b>Notes / Remedy</b>	<p>This state occurs when the WiFi connection drops while the controller is Connected &amp; Posting. (Example: Router power turned off, etc.)</p> <ul style="list-style-type: none"> <li>• Verify that the router is powered.</li> <li>• Verify that the controller is enabled. See "Install the Controller" on page 2 (steps 6 through 9).</li> </ul>

Continued on the next page.

<b>Status LED:</b>	<b>OFF</b>
<b>Description</b>	Power OFF
<b>Beeper</b>	None
<b>Button Press Effect</b>	None
<b>Notes / Remedy</b>	See Note 1.

#### NOTES:

1. If power is lost and then turned back on again (power OFF/ON), the controller will be disabled and the water heater will be controlled locally. (The LED status will be “3 seconds On, 3 seconds Off”.) To re-establish remote control and monitoring, enable the controller. To enable the controller, unlock the water heater’s user interface and touch the Grid Enabled button. The Grid Enabled button LED will turn on. See Figure 9.

NOTE: When unlocking the user interface, you must touch the lock button for at least 5 seconds. The Lock icon will disappear from the screen.

2. While in AP mode, certain conditions can interfere with connecting your WiFi device to the controller. Some of the things that may inhibit connection are multiple/strong WiFi signals, long distances, working microwave ovens, and walls between the router, controller, and WiFi device.

These and other conditions may make connecting to a network problematic. In such cases, reset the controller by pressing the reset button 8 times with a paper clip (about once per second) until the controller beeps. This will prompt it to find better broadcasting parameters. Also, changing the location of the WiFi device can improve this process.

## REGULATORY NOTICES

### FCC (United States)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, (2) This device must accept any interference received including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician.

CAUTION: Changes or modifications to this equipment not expressly approved by the party responsible for compliance (A.O. Smith Corporation) could void the user’s authority to operate the equipment.

### ICES-003 (Canada)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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