



## **INSTALLATION INSTRUCTIONS & HOME OWNERS MANUAL**

**ECO 36**

### **IMPORTANT SAFETY INFORMATION**

As when installing or using any high voltage electrical appliance, basic safety precautions should always be followed. Under no circumstances should attempt to clean, install, inspect, repair, disassemble or otherwise service this water heater without first shutting off **all** power to the unit directly at the breaker box. **SERIOUS BODILY INJURY OR DEATH COULD OCCUR IF YOU IGNORE THIS WARNING.**

THIS PRODUCT MUST BE INSTALLED BY A QUALIFIED ELECTRICIAN & PLUMBER IN ACCORDANCE WITH ALL NATIONAL, STATE, PROVINCIAL AND LOCAL ELECTRICAL & PLUMBING CODES.

PLEASE READ THESE INSTRUCTIONS THOROUGHLY AND COMPLETELY PRIOR TO INSTALLATION & USE. FAILURE TO DO SO COULD CAUSE PROPERTY DAMAGE OR SERIOUS INJURY OR DEATH & VOID YOUR WARRANTY

**This manual should be given to the homeowner after installation and should be retained for future reference.**

**Please note:** Installations in the commonwealth of Massachusetts and state of Kentucky requires a pressure relief valve.

**THIS WATER HEATER WAS TESTED WITH BOTH WATER AND ELECTRICAL CONNECTIONS SIMULATING A STANDARD INSTALLATION PRIOR TO SHIPPING.**



## **ABOUT YOUR TANKLESS WATER HEATER**

Congratulations on the purchase of your Electric Tankless Water Heater! You have purchased the most technologically-advanced tankless water heater on the market today.

Your new electric tankless water heater features advanced water flow rate and temperature sensors designed to modulate power to the heating elements to maintain a precise user-selected output water temperature between 85F and 140F (subject to incoming water temperature and power selected model).

To get the best performance and energy savings from your tankless water heater, it is important that it be installed in accordance with our instructions and the electrical and plumbing codes applicable to your area, and that you read this manual thoroughly for important operating instructions and tips.

At any time, if you have any questions, please contact us directly at:

**Ecosmart Green Energy Products Inc.**

**3315 NW 167<sup>th</sup> Street, Miami Gardens, FL, 33056**

**Toll Free: 1-877-474-6473, or 305-623-7900 Fax: 305-623-7923**

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## **(1) BEFORE YOU INSTALL THIS PRODUCT**

**PLEASE READ THESE INSTRUCTIONS THOROUGHLY AND COMPLETELY BEFORE INSTALLATION AND BEFORE USE. FAILURE TO DO SO COULD CAUSE PROPERTY DAMAGE OR SERIOUS PERSONAL INJURY OR DEATH & VOID YOUR WARRANTY.**

By installing this product, you acknowledge the terms of the manufacturer's warranty and your Authorized Dealer's return policies. Once heater is installed do not return product to the place of purchase. If you have any questions regarding the warranty or product return policies, please contact Ecosmart at 877-474-6473.

Open the box and carefully unpack the water heater. Inspect all components. The contents of your box should include one:

**Model: ECO 36**

## **(2) SELECTING A LOCATION TO INSTALL**

This product is designed to be installed indoors only. You may be able to install your unit in an outdoor location as long as it is mounted in a suitable enclosure that protects it from rain, splashed water, direct sunlight, debris, and insects. This product should NOT be installed in a location where it may be subject to freezing temperatures. If the water inside your tankless water heater freezes, it can cause severe and permanent damage that is not covered under your warranty. If you suspect that your tankless water heater may have frozen, do not turn on the heater until it has thawed and you have inspected that system for leaks. We highly recommend that you contact us if you suspect that your tankless water heater may have been frozen with water inside it.

When selecting an installation location, give consideration to your existing plumbing configuration, location of your main electrical panel, and location of your bathrooms, kitchen, and laundry area. Try to choose a location that does not require you to make major plumbing alterations, that is close to your main electrical panel (this will reduce the amount of wire that you need to install), and that is physically close to the hot water applications (faucets) that you use most often. By locating the heater close to the points of use, you will reduce the amount of time it takes for the hot water to travel from the water heater to your faucet. You should also give consideration to future servicing. Do NOT locate the water heater in a location that is difficult access. In most cases, installing your tankless water heater in the same location as your old conventional tank-type water heater will make the most sense.

Regardless of your installation location, your water heater should be installed in a manner that will NOT allow combustible materials to come in contact with the water heater or outlet water pipe. Combustible materials should be kept at least 24 inches away from your water heater and the output hot water pipe. Make sure that the water heater and outlet hot water pipe are out of the reach of children so they cannot tamper with the temperature controls or injure themselves by touching the hot water outlet pipe. The outlet water pipe can get very hot.

This product does NOT require venting.

You should avoid installing your tankless water heater in a location prone to excessive humidity, moisture, or dust, or in an area where it may be splashed with water or other liquids. Do NOT install under water pipes or air conditioning lines that might leak or condense moisture that could then drip onto the heater. Do NOT install above electrical boxes or junctions.

If you plan to install your water heater on a second floor or in a heated attic space, make sure that you follow all code requirements for such installations as required for your area. We recommend that you install a drip pan (connected to a safe drain) below the water heater to avoid property damage in the unlikely event of a leak. Alternatively, you can install an active water leak detector and shutoff valve designed to turn off your water supply in the event that a leak is ever detected.

### (3) MOUNTING YOUR WATER HEATER

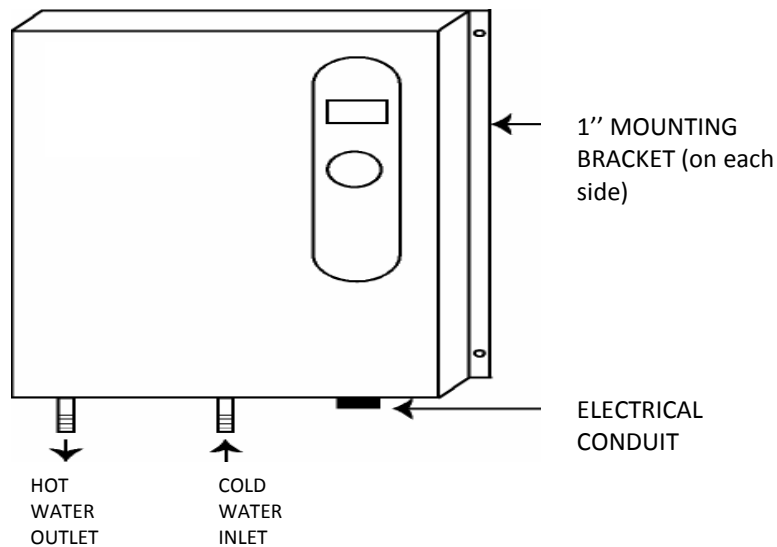
Your Tankless Water Heater should be secured to the mounting surface with 4 screws (minimum 1 inch long) using the built-in mounting brackets on each side of the heater. Make sure that the mounting surface is solid and secure, and ensure that the unit is level prior to securing the screws. For ease of installation and servicing, we recommend that this product be installed in an upright position with the inlet and outlet water connections at the bottom of the unit.

#### Recommended Clearances:

**CAUTION: Combustible materials should be kept at least 24 inches away from your water heater and the outlet hot water pipe.**

12 inches above and below the heater

6 inches in-front of and to the sides of the heater



Model Number	Depth (including temp adjustment knob)	Width (including brackets on the side)	Height (including water connections)
ECO 36	4.5 inches	21 inches	17.75 inches

## **(4) PLUMBING INSTALLATION**

**PLEASE READ THESE INSTRUCTIONS THOROUGHLY AND COMPLETELY BEFORE INSTALLATION AND BEFORE USE. FAILURE TO DO SO COULD CAUSE PROPERTY DAMAGE OR SERIOUS PERSONAL INJURY OR DEATH, AND VOID YOUR WARRANTY.**

Please follow all plumbing instructions carefully. We recommend that this product be installed by a licensed and qualified plumber in accordance with all applicable national, state, provincial, and local plumbing codes.

### **IMPORTANT NOTES:**

- 1. DO NOT SOLDER ANY PIPES WITH UNIT CONNECTED TO PIPES – IF YOU DO, YOU MAY DAMAGE THE FLOW SENSOR AND VOID THE WARRANTY. WE RECOMMEND USE OF THE WATER HEATER FLEX HOSES FOR EASE OF INSTALLATION**
- The Ecosmart Tankless Water Heater is equipped with both computer-controlled and electro-mechanical auto-resetting thermostat switches for high-limited temperature protection. Since this product does not use a storage tank, the use of a temperature pressure relief valve (T&P) is not required for installations. UL Standard 499 does NOT require that a pressure relief valve be used. However, a T&P valve may be required to meet installation codes in your area. If one is required, install the pressure relief valve in accordance with your code and ensure that it operates correctly and that air is purged from the valve prior to installing your water heater. When connecting to Flex or High Temperature CPVC pipe, we recommend that a T&P valve be used for added safety. If a pressure relief valve is used, it should be connected to a drain.  
**Please note: Installations in the Commonwealths of Massachusetts and Sate of Kentucky require a pressure relief valve.**
- The maximum recommended operating water pressure is 150 PSI. If your water pressure is higher than this, we recommend that a pressure reduction valve be installed on your main incoming water supply line prior to installing your tankless water heater.
- Flexible water heater hoses can and are recommended to be used with your water heater as part of the installation. WHEN CONNECTING THE INLET WATER TO THE UNIT MAKE SURE YOU USE A WRENCH TO HOLD THE UNITS CONNECTION AND ANOTHER WRENCH TO TIGHTEN SO THE FLOW SENSOR ON THE UNIT IS NOT LOOSEMED OR DAMAGED.** Serious internal damage to your water heater can occur of you over-tighten the water heater inlet connections at the unit or if you solder any pipe to the inlet and outlet connections. Such damage is NOT covered under the warranty.
- We recommend that all water pipe within 3 feet of the inlet and outlet hoses be copper, although other forms of plastic tubing are acceptable as long as they are rated for high temperature applications.

**Step 1** Bring the HOT WATER and COLD WATER lines to the heater. We recommend that a manual shut-off valve (ball valve) be installed on the inlet and outlet of the water heater so there is a convenient shut-off point available in the event that future maintenance or servicing is required. Before connecting these pipes to the water heater hoses if used, it is extremely important to FLUSH the lines to eliminate all plumbing paste or residue in the lines caused by any welding or soldering. We recommend using flex water heater hoses for ease of installation.

**Step 2** Connect the HOT WATER line to the water heater marked HOT WATER OUT located on the left side of the heater when facing the unit. Connect the COLD WATER line to the water heater marked COLD WATER IN on the right side when facing the unit. DO NOT USE TEFLON TAPE OR PASTE on fittings.

**Step 3** After tightening both fittings at the water heater, open several hot water faucets and allow water to run through the water heater for at least 2 to 3 minutes. This process purges all the air from the water lines and MUST be performed prior to turning on the power at the unit. FAILURE TO FOLLOW THIS STEP CAN CAUSE PERMANENT DAMAGE TO THE HEATING ELEMENTS. When any maintenance is performed on the water heater or the home’s plumbing system that may introduce air into the plumbing pipes, it is important to turn the power off to the water heater and purge the air out of the lines before allowing the unit to power up.

**Step 4** Carefully inspect all connections, unions, and the pressure relief valve (if installed) for leaks.

**Step 5** If your water heater is installed on a second floor, heated attic, or other location where water damage could occur a water pan is recommended.

## **(5) ELECTRICAL INSTALLATION**

**PLEASE READ THESE INSTRUCTIONS THOROUGHLY AND COMPLETELY BEFORE INSTALLATION AND BEFORE USE. FAILURE TO DO SO COULD CAUSE PROPERTY DAMAGE, SERIOUS PERSONAL INJURY, DEATH AND VOID YOUR WARRANTY.**

This product **is recommended to be installed by a licensed and qualified electrician** in accordance with all applicable national, state, provincial, and local electric codes. **As with all electrical appliances, under no circumstances should you attempt to install, repair or disassemble this water heater without first shutting off all power to the unit directly at the fuse or breaker box. SERIOUS BODILY INJURY OR DEATH COULD OCCUR IF YOU IGNORE THIS WARNING.**

All wiring (wire gauge) and circuit protection (breakers) must comply with the U.S. National Electrical Code (NEC) in the U.S.A., or the Canadian Electrical Code (CEC) in Canada. Failure to do so could result in property damage and/or personal injury, and void your warranty. Note: the Canadian Electrical Code generally requires that all supply wires and corresponding circuit protection (breakers) used for domestic hot water heating and hydronic heating applications be sized to a minimum of 125% of the maximum current rating of the heater (see model specifications below for details).

Before installing this product, ensure that the home has sufficient electrical power available to handle the maximum amperage load of the applicable model.

**Figure #1**

**Electrical Specifications**

MODELS	ECO 36
ELEMENTS	4
VOLTAGE	240 v
MAX KILOWATTS	36.0
WATTS	36,000
kW PER ELEMENT	9 kW
MAX AMPERAGE DRAW	150 AMPS
RECOMMENDED HOUSE ELECTRICAL SERVICE	200 AMPS

**INSTALLATION:**

**STEP 1**

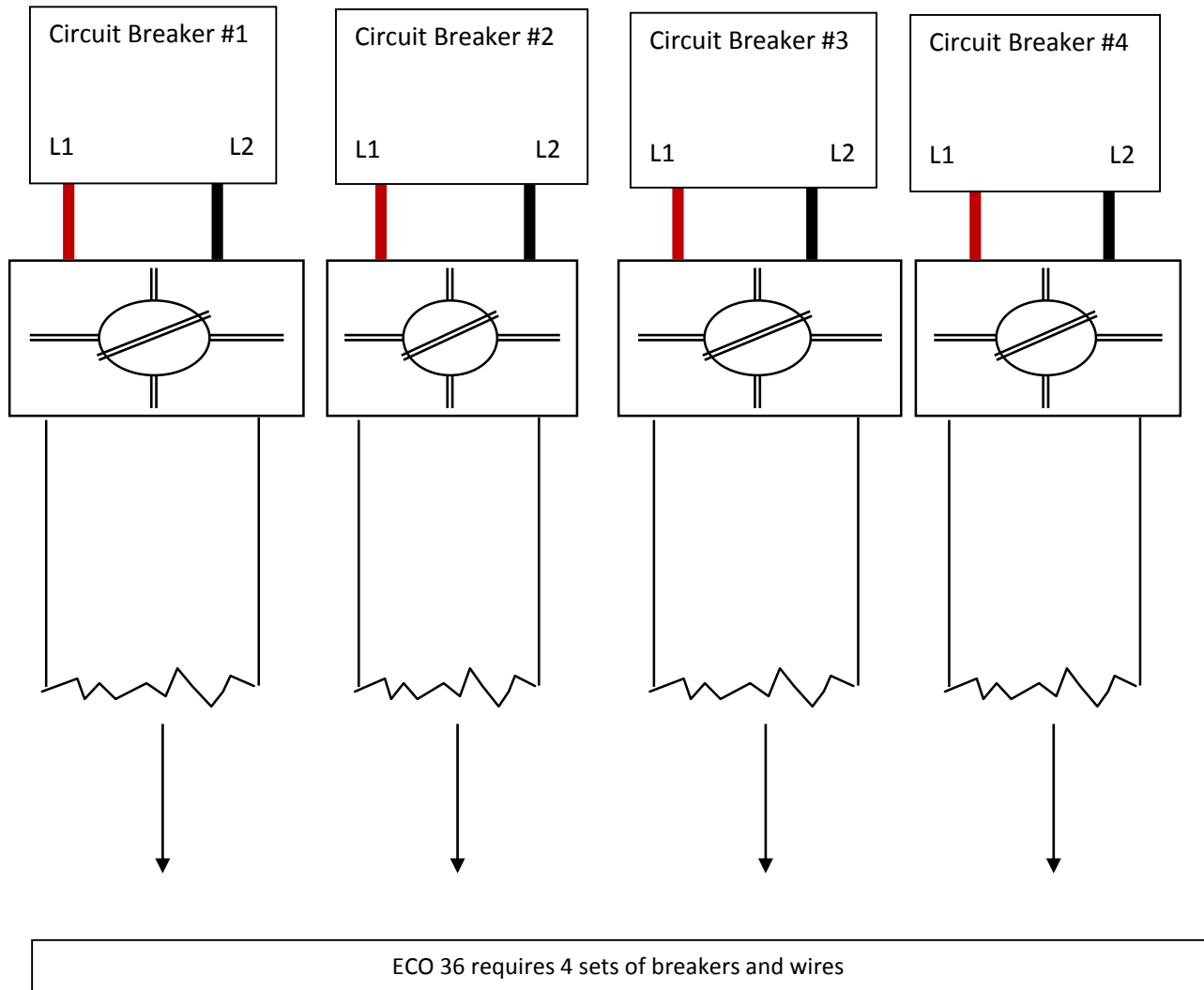
Model ECO 36 requires 4 sets of wires and ground (see wiring diagram)

**Step 2**

Take each wire pair and connect them to one breaker (see wiring diagram). Make sure that each breaker has one wire pair-black wire connected to it and one red wire.

**CAUTION:** Ensure that you have made the correct connections. You must follow the wire connection as shown in Figure 2 & 3 to ensure proper operation of the unit. If you cross a set of wires, the unit will not operate correctly even though it turns on and otherwise appears to function properly.

**Figure #2**



## Number of breakers needed based on model being installed

MODEL	ECO 36
QUANTITY	4
MIN. AMP RATING	40
TYPE	DOUBLE POLE

### STEP 1

Using a suitable wire gauge that meets all applicable electrical codes for the size of the breakers used, run the correct sets of wire from the home's main breaker panel to the tankless water heater.

### STEP 2

A separate ground conductor for each incoming circuit is required.

### STEP 3

DOUBLE CHECK the electrical connections to make sure they are correct and that all wire connections are tight and secure. Also confirm that the correct breaker size and wire gauge has been used and confirm that the unit has been connected to a ground in accordance with applicable codes.

### STEP 4

Confirm that the plumber has purged all the air out from the water lines prior to turning on power to the unit. Refer to STEP 3 in the plumbing installation section.

The water heater is now installed and ready to use! Follow the **General Operating Instructions** below to complete the set up. We highly recommend that this is done in conjunction with the homeowner.

## (6) General Operating Instructions

For the most part, operating your new electric tankless water heater is very similar to using any traditional water heating system. However, it is very important that you carefully read all of the set-up procedures and operating instructions and tips to ensure the maximum performance and energy savings from your new water heater. We recommend that all members of the household read these General Operating Instructions.

**How your new water heater works:** Your Electric Tankless Water Heater does not store hot water like a conventional tank-type water heater. It contains very high powered heating elements that are capable of heating water instantly on-demand as you need it. As soon as you turn on a hot water faucet, a sophisticated flow sensor recognizes that you have turned on the water. This sensor measures the water flow rate while another sensor measures the incoming water temperature. This information is transmitted continually to the computer logic controls which decide how much power to send to the heating elements to heat the water to your desired temperature.

Since your new water heater works on a demand basis, it will absolutely never run out of hot water no matter how many back to back showers you run!

It is important to keep in mind that all tankless water heaters are subject to a maximum flow rate that they can handle all at once. If you exceed this flow rate, the heater will not be capable of fully heating the water. How much water you will be able to demand from your water heater at any given time will depend on the model you have selected and your incoming water temperature. **If you live in an area of the country where inlet water temperatures average 55°F or you have cold winters, you will probably NOT be able to run multiple large water demands at the same time, however, you will be able to run all your hot water applications back to back without ever having to wait. You will enjoy UNLIMITED HOT WATER. SEE CHART ON NEXT PAGE.**

Moreover, since a tankless water heater eliminates the ongoing thermal losses caused by storing hot water in a tank, you will enjoy significant energy savings over a conventional water heater.



When you use hot water in your home with a conventional water heater, you need to mix a considerable volume of cold water to cool the hot water down to a safe, comfortable level for showering and bathing, etc. You need to do this with a traditional tank-type water heater because they are set at extremely high temperature setting to prevent them from running out of hot water quickly. With our tankless water heater, you will generally set the temperature at a much lower level since it is capable of heating your water on demand. This level will be much closer to the actual temperature at which you feel comfortable showering or bathing. Accordingly, when you use your faucet controls to run a shower or bath, you will no longer have to mix as much cold water, in fact, you may mix very little or no cold water. This is perfectly normal and means that you are no longer wasting energy and water by overheating your water.

**Figure #4 Maximum flow rates in gallons per minute at 105°F output temperature (based on 240V input power)**

Incoming Water Temperature	ECO 36
40F	3.8
45F	4.1
50F	4.5
55F	4.9
60F	5.5
65F	6.1
70F	7.0
75F	8.2
80F	9.8

#### **Setting the output water temperature:**

The user controls on your new tankless water heater are very easy to operate. The digital display will show your current set water temperature at all times that the water heater is running.

To set the temperature, start by turning on any water faucet. The digital display will light up and give you the current temperature setting of the unit. To increase this setting, turn the control knob to “Increase” or “Decrease” your temperature setting. You can set the temperature at any level between 80F (27C) and 140F (60C). To change the digital display from Fahrenheit to Celsius, simply press the control knob for 3 seconds.

Most people feel comfortable showering or bathing at a temperature between 98 and 105F (37 to 41C). We recommend that you set the output water temperature of your water heater at either 105 or 110F (approx. 41-43C). This will ensure you have adequate hot water to meet all of your household needs while also maximizing your available water flow rate, reducing the risk of scalding to children and the elderly, and increasing the energy savings you achieve.

Note: All newer model dishwashing machines are normally equipped with an internal heating element, and most clothes washing detergents are now designed for use in cold or warm water. There is no longer a need to set your water heater to a temperature above 125F. Temperatures above this level (which most traditional water heaters are set to deliver) can cause serious scalding injuries to small children or elderly persons in your home.

If you ever detect a water leak from your water heater, turn off the water supply at the shut-off valve on the inlet side of the water heater, turn off the power to the heater and call us for technical assistance.

## **(7) Maintenance**

Your new electric tankless water heater requires no maintenance performance of your water heater and to reduce the risk of a water leak, we do recommend the following maintenance:

You should inspect the CONNECTIONS on the inlet and outlet of the water heater at least on an annual basis for any signs of damage or failure. Any signs of damage, cracks, leakage or weakness should be replaced. Take care not to over-tighten the connections. Serious internal damage to your water heater can occur if you over-tighten the water heater connections at the unit.

### **IMPORTANT NOTES:**

**As with all electrical appliances, under no circumstances should you attempt to install, repair or disassembled this water heater without first shutting off all power to the unit directly at the fuse or breaker box. SERIOUS BODILY INJURY OR DEATH COULD OCCUR IF YOU IGNORE THIS WARNING.**

**When any maintenance is performed on the water heater or the home's plumbing system that may introduce air into the plumbing pipes, it is important to turn the power off to the water heater and purge the air out of the lines before allowing the unit to power up. FAILURE TO DO SO COULD CAUSE PERMANENT DAMAGE TO THE HEATING ELEMENTS.**

**If you have a water supply with a high level of mineralization (hard water), you should increase the frequency of your maintenance.**

## **(8) TROUBLESHOOTING GUIDE**

### **Are you having problems with your water heater?**

Do not return your heater to your Authorized Dealer. Please call our customer service department

**TOLL FREE 1-877-474-6473**

All units are thoroughly tested before they leave our factory. In rare instances, your unit could arrive with internal or external damage that may affect its performance. All units are factory tested as follow:

#### **PRESSURE INTEGRITY TEST**

Each unit is pressure tested to insure against leaks. We test at 180 psi of water pressure which is much greater than the unit will experience in a typical residential installation.

#### **ELECTRICAL INTEGRITY TEST**

Each unit is tested to verify that there are no short circuits and that the unit's circuitry is properly configured (Dielectric voltage test)

#### **SPECIFICATIONS LEVEL TEST**

Each unit is temporarily attached to a testing station that duplicates the conditions present in a typical residential installation. The unit is turned on and the temperature of the water produced by the unit is measured at several flow rates to insure that the proper temperature rise specifications are met and that the unit self-regulates with the varying flow rates.

The following table represents some of the most common technical support questions we receive. Before calling us, please read thoroughly to see if your question or problem is addressed.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Water heater is not heating at all (water is flowing but the unit is not heating at all – the outgoing water temperature is the same as my cold water supply) – the digital display does NOT light up.	No power or incorrect wiring.	Make sure the breakers at main electrical panel are ON. You may have a faulty breaker or unit may be wired incorrectly.
	Flow rate is too low/water pressure is too low.	Your water heater has an activation flow rate of approximately 0.25 GPM. If your water flow rate is less than this level, your unit will not activate. Increase the flow rate.
Water heater is not heating at all (water is flowing but the unit is not heating at all – the outgoing water temperature is the same as my cold water supply) The digital display DOES light up.	Internal part failure.	Please call us for technical assistance.
Water heater is heating but the water temperature is not hot enough.	User temperature setting too low.	Turn up the temperature setting on the unit (see <b>General Operating Instructions</b> section of this manual)
	Flow rate is too high.	Depending on your incoming water temperature and the power output of your model, your water flow rate may exceed the physical heating capacity of your water heater. Reduce the flow rate at the faucet or slightly close the shutoff valve installed on the inlet side of your heater to reduce the inlet water flow rate. (see <b>General Operating Instructions</b> section of this manual)
	Crossed wires.	If it's new installation, have your electrician double check the wiring. It is possible that the wiring is incorrect.
	Voltage less than 240 volts.	The heating elements on your water heater are designed for 240 Volts. When using a lower voltage, they produce less heating power. You may need to upgrade to a larger model.
	Mixing too much cold water.	You do not need to mix as much cold water with your tankless water heater compared to when using a conventional tank-type water heater. You may also have an anti-scald feature on your faucet that is mixing cold water. These types of faucets can usually be adjusted to reduce the amount of cold water mixed. (see <b>General Operating Instructions</b> )
The water temperature at my faucet is less than the temperature setting of my water heater.	Voltage less than 240 volts.	The computer chips in your tankless water heater are programmed with the expectation that your incoming line voltage is 240 volts. If you have less than 240 volts, it may affect the reading on your water heater's digital display and cause it to read slightly higher than the actual output temperature. To compensate, increase the setting on your water heater.
	Anti-Scald pressure/balancing valve or tempering valve.	Your faucet may have an anti-scald feature. These types of faucets can usually be adjusted to reduce the amount of cold water mixed. (see <b>General Operating Instructions</b> )
	Thermal loss due to long pipe run	As the hot water from the heater runs through the hot water delivery system to your faucet, some heat will be lost especially if it has a long distance to travel or the pipes are cold. This is normal. You can compensate for this by increasing the setting on your water if you need/want hotter water.