



Installation Manual

Energy Controller Model EC

PLEASE READ INSTRUCTIONS CAREFULLY BEFORE INSTALLING

The design anticipates the proper installation and care in use of the product. There is risk of property damage and personal injury inherent in the use of any hot water system. The Company cannot supervise the installation and therefore makes it a specific condition of the warranty that the customer will supervise the installation and use of this product to be sure they are performed in accordance with safe guidelines and proper local or national codes.

Generalized instructions and procedures cannot anticipate all situations. For this reason, only qualified installers should perform the installation. A qualified installer is a person who has licensed training or a working knowledge of the applicable codes, regulations, tools, equipment and methods necessary for safe installation of an electrical component on a residential water heater.

If questions regarding installation arise, check with your local plumbing and electrical inspectors for proper procedures and codes. Local codes take a precedent over instructions in this manual.

Basic installation of Energy Controller

The energy controller is very easy to install on all water heaters.

The water heater has three wires going to it from the circuit breaker box. Two of these wires are power and the third is the ground. The energy controller is basically a switch that breaks one of these power lines going to the water heater and hence turns off the water heater.

The first thing to do is decide on the location of the energy controller. The controller is designed to be attached to a conventional electrical junction box. The junction box can be attached to the water heater or on the wall.

The energy controller has four wires coming out of the box. Two of these wires (18 awg black and red) power the energy controller and are connected to the two power leads from the breaker box. The other two wires (12 awg blue and red) are effectively the switch legs and are used to break one of the wires going to the water heater.

Important:

This installation is the same for single or double element tanks.

If the elements are to be controlled independently, then the water heater (not the Energy Controller) requires special wiring.



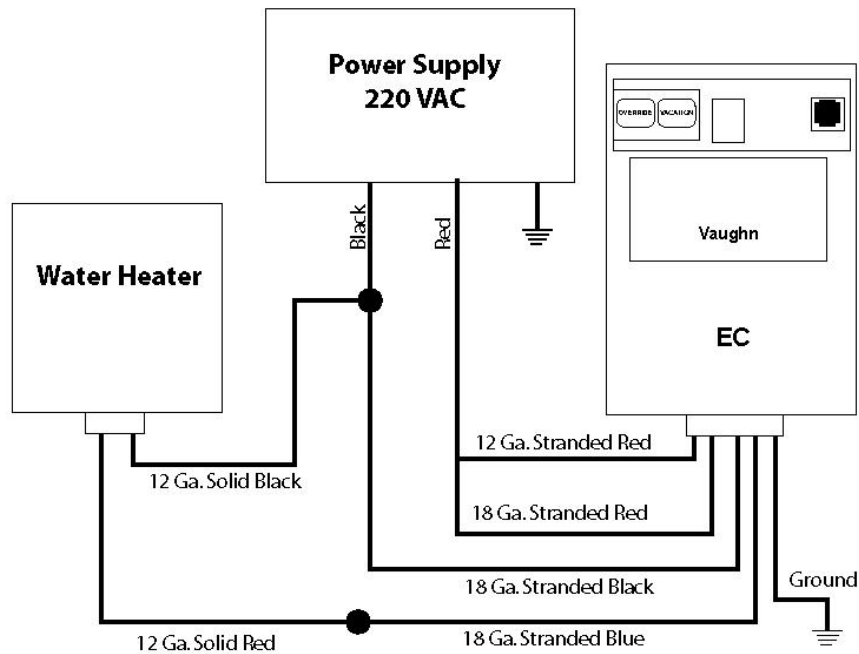
A. INSTALLATION

- ❑ Shut off power to water heater before installation.
- ❑ The EC should be mounted to a junction box using the included lock nut.
- ❑ A screw may be used in the top mounting hole for additional support.
- ❑ Tighten wire nuts very securely.

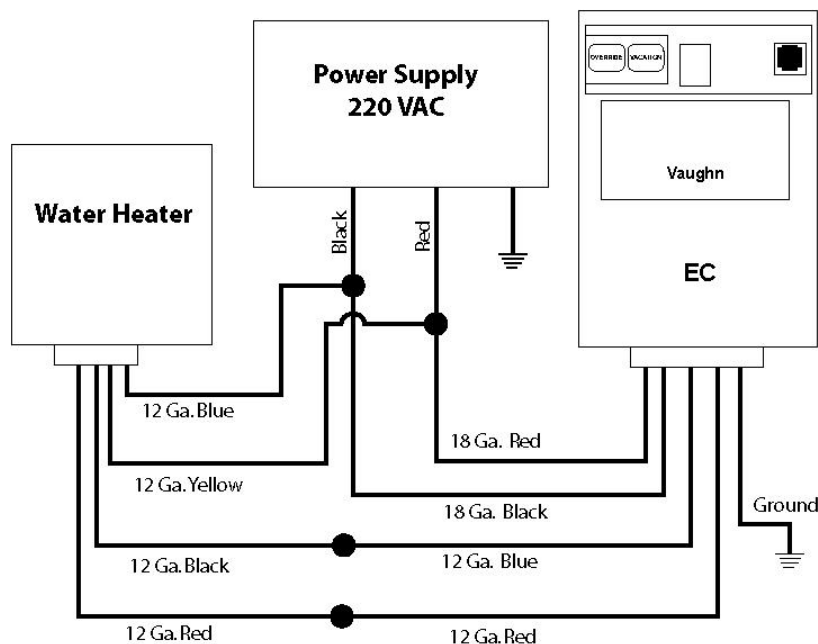
WARNING: Loose connections in high current circuits may cause fires.

B. WIRING DIAGRAMS

- ❑ Verify the wiring diagram used matches the wiring of the water heater.
- ❑ FOR CONTROL OF UPPER & LOWER ELEMENTS (#1 diagram)



- ❑ FOR CONTROL OF LOWER ELEMENTS ONLY (#5 diagram)



The following is a list of the digital displays provided by the "Electric Eye" and an explanation of their meaning.

“.O” = Off-Peak.

Off-Peak is an uncontrolled state. The EC relay is closed, thereby energizing the lower element of the water heater. Note that the "Power Pulse" will be ON when the relay is closed and BLINKING when the elements are heating.

“P” = Peak.

Peak is the controlled state. The EC relay is open, thereby preventing power to the lower element of the water heater.

“.S” = Start-Up Override.

The Start-Up Override is activated after the initial installation. Pushing the Start-Up Override will allow the heating elements to be energized for up to 5 hours to fully heat the initial fill of water stored in the heater. The Start-Up Override may also be used after the energy controller has been reprogrammed or after the energy controller has been without electrical power for over 72 hours. Note: The Start-Up Override button must be pushed after the 72 hour loss of power to initiate the 5 hour warm-up period. Should a newly installed tank not automatically go into "Start-Up Override" mode upon energizing, simply reprogram the EC using the VP unit.

“.C” = Customer Override.

Pressing the Override Button activates the Customer Override function. Only one Customer Override is allowed per day, allowing the bottom element to be energized for up to one hour. Note that the "Power Pulse" will be ON when the relay is closed and BLINKING when the elements are heating. It is important to note that should the top element already be in an energized state, the bottom element will not operate until the top thermostat is satisfied. This feature is best used before actually running low of hot water, or after a one hour recovery period following exhausting of the hot water supply.

“U” = Vacation Lockout.

Vacation Lockout occurs when the Vacation Button is pressed. Once in Vacation Lockout, the EC will stay there until the Vacation Button is pressed again. When the Vacation Lockout is terminated, the EC will not automatically go into a Start-Up Override mode. The Override button must be pushed to begin the 5 hour warm-up period after a Vacation Lockout exceeding 72 hours.

“L” = Cold Load Pickup

Cold Load Pickup automatically delays powering of the water heater (7 to 15 minutes) any time the EC starts up in an energized state (Off-Peak, Override or Holiday). Once Cold Load Pickup is completed, the EC will return to whatever energized state that it was in. Pushing the Override Button can terminate a Cold Load Pickup.

“.H” = Holiday.

Holidays are the same as an Off-Peak Mode and are active from midnight to midnight. Note the "Power Pulse" will be ON when the relay is closed and BLINKING when the lower element is heating.