

Vaughn Thermal Corporation



## 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.

The energy controller (EC) is basically a timed switch that interrupts power going to the controlled elements of the water heater based on the control program. The EC does not control the temperature of the water heater.

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# Basic installation of Energy Controller



## A. INSTALLATION

- Shut off power to water heater before installation.
- Mount the EC to a junction box using the included lock nut. The junction box may be on the water heater or wall mounted.

## B. WIRING DIAGRAMS

- Verify the wiring diagram used matches the wiring of the water heater.
- Connect the red and black 18 awg wires to the line power leads.
- Connect the red and blue 12 awg wires according to the desired wiring diagram.
- Tighten wire nuts securely.

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

### Important:

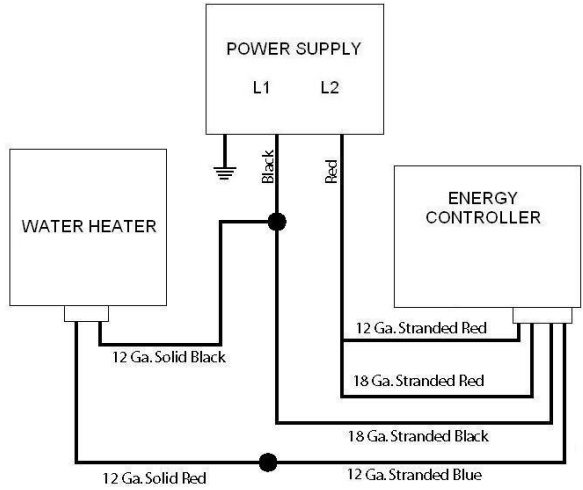
The wiring diagram being followed must match the wiring of the tank. In the BIW and #5 diagrams, the wires connected to L1 and L2 must be the wires that would be connected to L1 and L2 if the EC were not being used.

## C. STARTUP

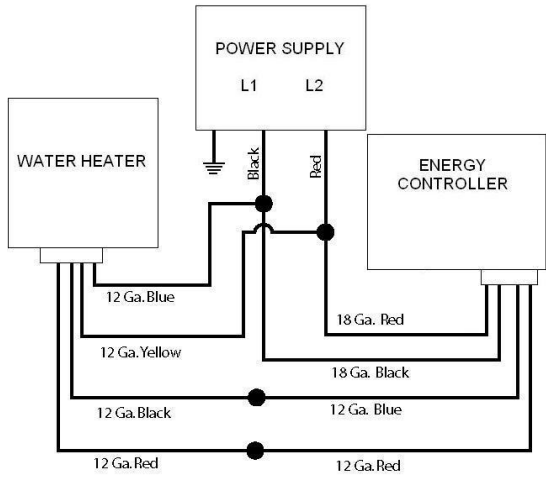
- When first powering up the water heater with the EC, press ON to go into Override Mode to allow immediate heating. The EC will follow the control program otherwise.

**Note:** Pressing OFF will put EC into Vacation Mode. This should be canceled by pressing ON to cancel Vacation Mode. If Override Mode is desired, press ON again if Override wasn't already selected.

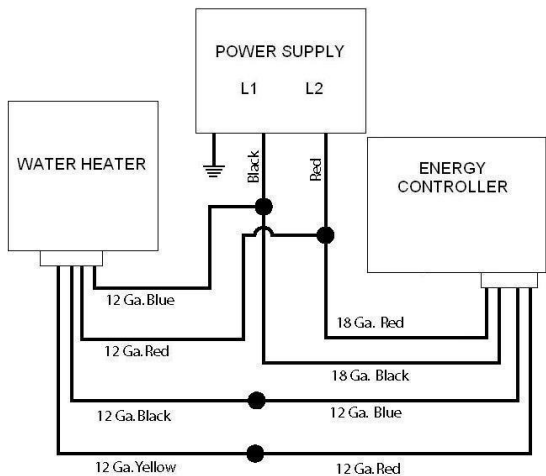
- FOR CONTROL OF UPPER & LOWER ELEMENTS (#1 diagram)



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



- FOR CONTROL OF LOWER ELEMENTS ONLY (BIW diagram)



## *Energy Controller display/information panel*

### Off-peak Mode



**Water heater is not being controlled by the EC.**

**Green element, SOLID** - water heater has full power available but is not currently heating.

**Green Element, FLASHING** – water heater is heating.

### Peak Mode



**Water Heater is being controlled by the EC.**

**Red Crossout – Controlled elements do not have power available for heating.**

Which elements are being controlled depends on the water heater and EC wiring.

### Override Mode

Press ON to enter Override Mode. This cannot be cancelled, but will time out.



**Green check will be visible.**

**Green element, SOLID** - water heater is not heating.

**Green element, FLASHING** – water heater is heating.

### Vacation Mode

Press OFF to enter Vacation Mode. Cancel Vacation Mode by pressing ON.



**Red X and red Crossout will be visible.**

Controlled elements will not have power available for heating until Vacation Mode is canceled by pressing ON. If Override Mode is desired after canceling Vacation Mode, press ON again.