



## OPERATING AND MAINTENANCE MANUAL

# HUBBELL Endurance CE 2.5

9/6/23



**-IMPORTANT-**

Always reference the full model number and serial number when calling the factory.

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 **WARNING / CAUTION**

1. Please read all instructions prior to installing the water heater.
2. Tank is to be completely filled with water and all air is to be vented before energizing.
3. Due to the rigors of transportation, all connections should be checked for tightness before the heater is placed in operation.
4. Safety relief valve must be installed in tapping provided.
5. The refractory material used in heating elements may absorb some moisture during transit, periods of storage, or when subjected to a humid environment. This moisture absorption may result in a cold insulation resistance of less than one (1) megohm. If this heater has been subjected to the above condition, the heating element must be checked for insulation resistance before energizing. A low megohm condition can be corrected by removing the terminal hardware and baking the element in an oven at 350°F - 700°F for several hours or until the proper megohm reading is obtained.
6. KEEP AWAY FROM LIVE ELECTRICAL CIRCUITS.  

Do not perform any maintenance or replace any components inside the control panel with the high voltage power supply turned on. Under certain circumstances, dangerous potentials may exist even when the power supply is off. To avoid casualties, always turn the power supply safety switch to off, turn the charge or ground the circuit before performing any maintenance or adjustment procedure.
7. This appliance is designed to store water heated only by the electrical elements provided, at temperature of not more than 194°F and pressures of not more than 150 psi. Heat input from any external or additional source will void the warranty.
8. The design anticipates the proper installation and care in use of the product. There is a risk of property damage and personal injury inherent in these or any hot water system. The Company cannot supervise the installation and therefore make 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 installations. A qualified installer is a person who has licensed training and a working knowledge of the applicable codes, regulations, tools, equipment, and methods necessary for safe installation of an electric resistance water heater. If questions regarding installation arise, check your local plumbing and electrical inspectors for proper procedures and codes. If you cannot obtain the required information, contact the company.

The following information should be noted at time of installation and retained for future reference.

Serial No.: \_\_\_\_\_

Date Installed: \_\_\_\_\_

Dealer's Name: \_\_\_\_\_

Address: \_\_\_\_\_

City and State: \_\_\_\_\_

## SECTION I - GENERAL INFORMATION

### **GENERAL DESCRIPTION**

This manual describes a packaged electric water heater that is a stationary, self-contained unit. The complete assembly consists of the storage tank, immersion electric heating element, digital controller, hi-limit thermostat with manual reset, safety relief valve, and any other required electrical operating control. An exploded view of the assembly, calling out the major components, can be found in Figure 1. Optional equipment may be supplied with your unit. Please consult the product drawing or visit our website, listed at the end of this manual, for details specific to your assembly. The unit is factory assembled, insulated, jacketed, wired, tested, and ready for electrical and plumbing service connections.

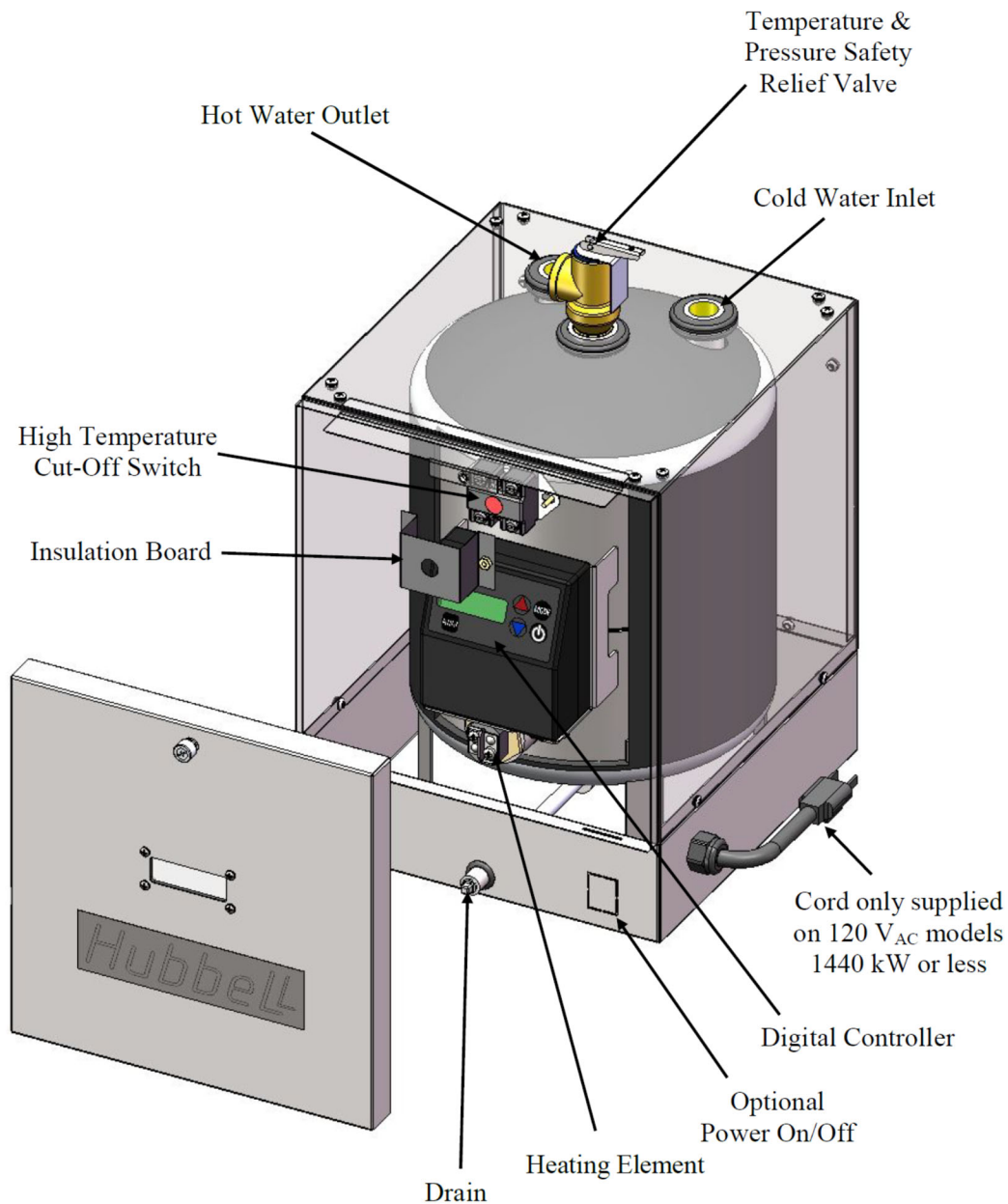


Figure 1: Part Locations

## **CONSTRUCTION**

### **TANK**

The 2.5-gallon storage tank is constructed of 304 stainless steel and is designed for a maximum allowable working pressure of 150 psi (300 psi TP).

### **TANK CONNECTIONS**

The heater is supplied with separate ½” FNPT cold water and hot water connections. A ¼-inch FNPT connection is located on the top of the heater for mounting a combination safety temperature and pressure relief valve. A drainage system, consisting of 1/8” NPT piping, connects from the bottom of the tank and runs out of the front of the enclosure. See the drawing for locations and sizes.

### **HEATING ELEMENT**

The water heater is supplied with a heating element, shown in [Figure 2](#), with energy ratings specific to its model number, composed of a copper sheathed element with a 1”-11 ½ NPSM brass plug. The energy ratings specific to the individual heating element can be found in Table 1.

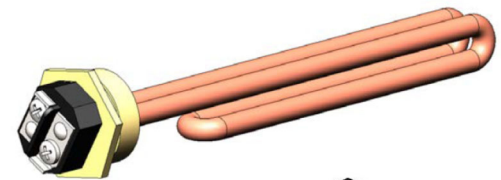


Figure 2: Heating Element

### **ELECTRONIC TEMPERATURE CONTROLLER**

The temperature of the water in the heater is regulated by the adjustable, digital control, shown in [Figure 3](#), located behind the enclosure’s front cover. The controller is set at the factory to maintain a water temperature of 120°F to reduce the risk of scald injury. The controller has a settable range from 50oF (10oC) to 160oF (71oC). See Section III for a complete description of the controller operation.



Figure 3: Electronic Temperature Controller

### **HIGH TEMPERATURE CUT-OFF SWITCH**

The high temperature cut-off switch is a surface mounted safety device that is factory set at 190°F.

In the event of an over-temperature condition, the thermostat will disengage the power from the system. If this switch operates, refer to Section V for troubleshooting. If a dangerous situation is indicated, a qualified service person should be called to find the source before the unit is operated again.

### **SAFETY RELIEF VALVE**

The Safety Relief Valve is a safety device mounted on the top of the water heater. In an over temperature or over pressure situation, the valve opens up and allows the water to escape to prevent physical damage to the unit. Ensure the relief valve discharge pipe is aimed towards a drain and away from contact to prevent injury.

### **OUTER SHELL AND INSULATION**

The tank body is enclosed in 1/4-inch-thick closed cell insulation. The tank and insulation is protected by the enclosure assembly.

### **WALL BRACKETS (OPTIONAL)**

Wall support rails, shown in [Figure 4](#), are available for easy wall mounting of the heater.

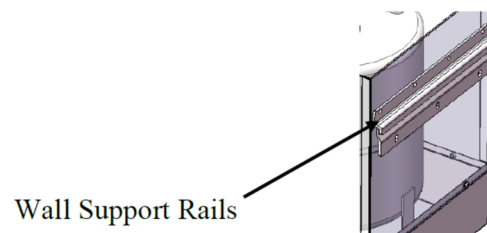


Figure 4: Support Rails

**COVER LEGS (OPTIONAL)**

Adjustable, stainless steel cover legs, shown in Figure 5, are available in lieu of wall support rails.



Figure 5: Cover Legs

**ON/OFF POWER SWITCH (OPTIONAL)**

Rocker switch is available to power the unit down externally, shown in Figure 1.

**ELECTRIC CORD (OPTIONAL)**

For 120V models 1440W or less, an electric cord can be installed and plugged into a standard 15A wall socket.

**TEMPERATURE MIXING VALVE (TMV) (OPTIONAL)**

The temperature mixing valve is an extension to the top of the Standard water heater unit, enclosed in a stainless-steel housing, shown in Figure 6. The valve mixes the hot water from the tank with cold water from the inlet to maintain the temperature set by the end user. The outlet temperature can be set anywhere between 80°F and 120°F. The mixing valve is listed under ASSE 1017.

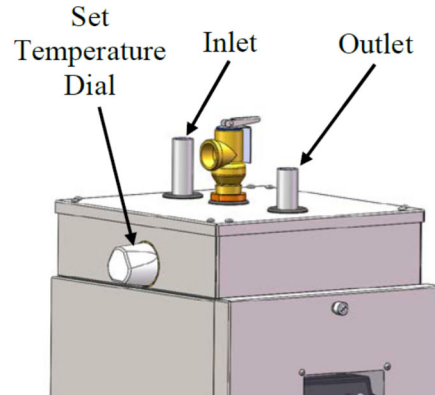


Figure 6 - Temperature Mixing Valve



## SECTION II – INSTALLATION AND GUIDELINES

### **WARNING / CAUTION**

DO NOT TURN ON THE ELECTRIC POWER SUPPLY to this equipment until the heater is completely filled with water and all air has been released. *If the heater is NOT filled with water when the power is turned on, the heating elements will burn out.*

For protection against excessive pressures and temperatures, local codes require the installation of a temperature-and-pressure (T&P) relief valve, certified by a nationally recognized laboratory, that maintains periodic inspection of production of listed equipment of materials, meeting the requirements for Relief Valves and Automatic Gas Shutoff for Hot Water Supply Systems. ANSI Z21.22-1971. A relief valve is designed to discharge excessively hot water. THE CUSTOMER IS RESPONSIBLE TO PROTECT PROPERTY AND PERSONNEL FROM HARM WHEN THE VALVE FUNCTIONS.

All water heaters have a risk of leakage at some unpredictable time. IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE A CATCH PAN OR OTHER ADEQUATE MEANS, SO THAT THE RESULTANT FLOW OF WATER WILL NOT DAMAGE FURNISHINGS OR PROPERTY.

The warranty provided assures replacement within its terms, but specifically does not warrant against consequential damage caused by failure to follow these instructions.

### **UNPACKING AND INSPECTING THE HEATER**

1. Remove the model CE25 from the shipping carton and visually inspect for any sign of damage. A damaged unit should not be installed but returned to the factory for replacement.

### **WATER HEATER PLACEMENT**

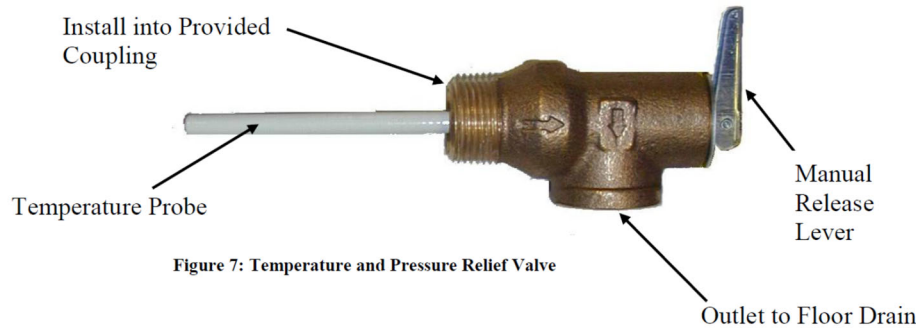
- Locate the heater in a clean, dry location nearest to the point of most frequent hot water use.
- Secure the water heater. Optional wall support rails or cover legs may be utilized if supplied.
- The water heater should be protected from freezing and waterlines should be insulated to reduce energy and water waste.
- Leave sufficient room to service the heater.
- Do not install in an area where flammable liquids or combustible vapors are present.

### **PIPING INSTALLATION**

**NOTE:** The most effective means for preventing deterioration from accelerated corrosion due to galvanic and stray current, is the installation of dielectric fittings/unions. The installation of these fittings is the responsibility of the installation contractor.

1. Connect the cold-water inlet and hot water outlet to the appropriate connections; refer to Figure 9.
2. Provide a shut off valve in the cold-water line. Mark for future emergency use.
3. If pressure reducers or any other restrictions are put in the cold-water line, special precautions should be taken. Consult your local plumbing inspector.

4. Install the combination temperature and pressure safety relief valve, shown in Figure 7, in the tapping provided. Note that this is required by law for safety considerations.



5. Install a relief valve overflow pipe to a nearby floor drain.

**CAUTION:** No valve of any type should be installed between the relief valve and tank or in the drain line.

### **FILLING THE HEATER**

1. Completely close the drain valve.
2. Open the highest hot water faucet to allow all air to escape from piping.
3. Open the valve to the cold-water inlet and allow the heater and piping system to completely fill, as indicated by a steady flow of water from the open faucet.

### **ELECTRICAL INSTALLATION**

**NOTE: THESE INSTRUCTIONS ONLY APPLY TO MODELS WITHOUT AN ELECTRICAL PLUG**

1. Enter the electrical service entrance with properly sized feeder leads, conforming to the voltage stamped on the rating plate. Note: A separate fused branch circuit, conforming to local or National Electric Codes, must be provided by a qualified electrician.
2. Connect these power leads to wires enclosed in junction box with wire nuts. Refer to Figure 8 before wiring.  
**CAUTION:** There is a risk of electric shock in an ungrounded service. It is critical that this unit be wired with a power supply that has a service ground wire available. Be sure to connect the ground wire to the ground lug provided inside the enclosure.
3. Mark the electrical shut off clearly for future emergency use.
4. Field connections with aluminum conductors must use connectors approved for copper to aluminum connection.
5. All other electrical connections are made at the factory; therefore, no other electrical connections are necessary.

### **FINAL CHECKS**

1. Check all connections for tightness.
2. Complete the following checklist to ensure that all the above steps are completed:
  - a. \_\_\_\_ Unit unpacked and checked for damage.
  - b. \_\_\_\_ Heater properly located.
  - c. \_\_\_\_ Heater properly secured to wall (If option was chosen).
  - d. \_\_\_\_ Cold water line connected to cold water inlet on tank.
  - e. \_\_\_\_ Shut-off valve installed in cold water line.

- f. \_\_\_\_ Hot water line connected to hot water outlet on tank.
- g. \_\_\_\_ Temperature and pressure relief valve installed.
- h. \_\_\_\_ Relief valve overflow line installed.
- i. \_\_\_\_ Water heater filled with water.
- j. \_\_\_\_ Power cord plugged into properly rated and grounded outlet. (For 120V models 1440kW or less)
- k. \_\_\_\_ Power leads connected inside electrical enclosure from separate fused circuit. (For all 208/240V and 277V models as well as 120V models above 1440kW)
- l. \_\_\_\_ Ground wire connected.

3. After the water is heated for the first time, monitor the water temperature as described in Section IV, Quarterly Inspection.

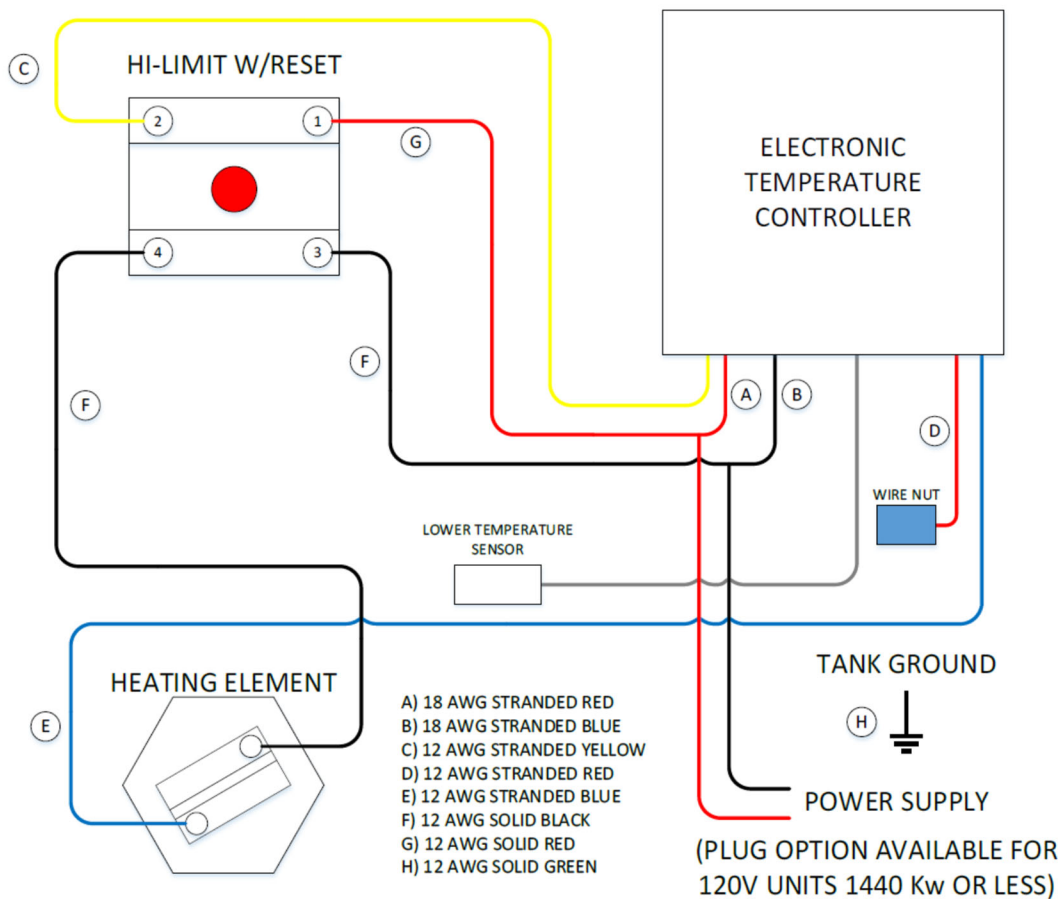


Figure 8 – Wiring diagram

Heating Element Part Number	Volts	Watts	Watt Density
C1315-750A	120	750	32
C1315-1000A	120	1000	42
C1315-1440A	120	1440	60
C1315-2000A	120	2000	84
C1315-1000S	240	1000	42
C1315-1500S	240	1500	63
C1315-2000S	240	2000	84

Table 1: Heating Elements

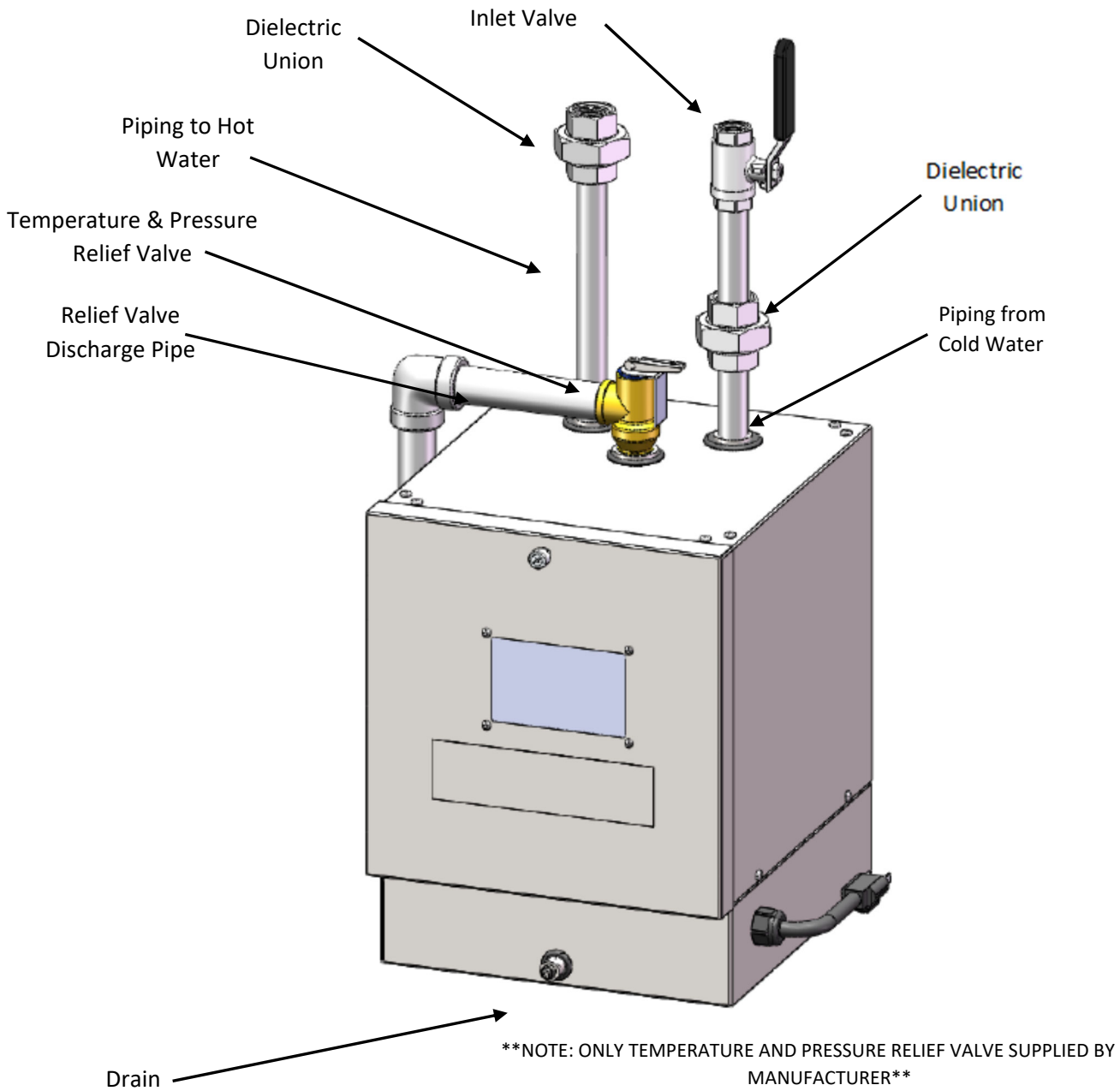


Figure 9: Recommended Installation Diagram

## SECTION III – CONTROLLER OPERATION

### **ABOUT THE CONTROLLER**

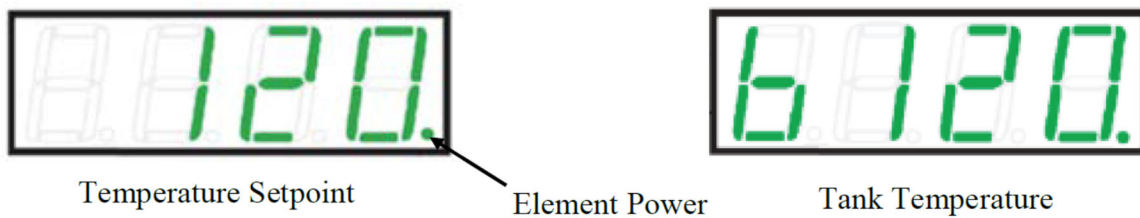
The Hubbell Electronic Temperature Controller provides the user with the ability to control and customize the operation of their water heater. The 4-digit display shows the status of the water heater and can display useful information such as current temperature conditions inside the tank, error notifications, and more. It allows basic customization, such as mode and temperature differential, and display options. Once the setup is complete, the water heater is automatic in operation and will maintain a full tank of water at the temperature setting of the controller.

### **POWERING UP YOUR WATER HEATER FOR THE FIRST TIME**

When the unit is first powered up, the default home screen is shown. This screen shows the temperature setpoint (e.g., 120).







### **THE HOME SCREEN**

The home screen provides a quick reference to the status of the water heater, showing either the setpoint temperature or the actual temperature of the tank, denoted by “b” preceding the temperatures. The temperature readouts can be displayed in Fahrenheit or Celsius. There is a power indicator to show if the element is on. This indicator blinks when the element is heating properly.



### **BUTTON OVERLAY**

The button overlay provides the user with a means to alter the configuration settings and control the operation of the water heater. To access the button overlay, the front cover of the unit must be removed. **WARNING:** Button overlay will be operated while circuits are live. A brief description of the basic functionality of each button is provided below. Detailed descriptions of how to use the buttons to perform certain functions is provided throughout this manual.

-  Power: Used for putting the water heater into standby mode,  will be displayed. Used in the operations menu to navigate backwards. Used to cancel setpoint selection without saving.
-  Mode: Used for navigating the options menu. Serves as a cancel button in certain menus.
-  Up: Used for increasing numeric settings. Can also be used to scroll up when changing options. Can be held for auto scroll.
-  Down: Used for decreasing numeric settings. Can also be used to scroll down when changing options. Can be held for auto scroll.
-  Away: Used for entering / exiting vacation override. Can also be used to set / unset user lock.

A-07

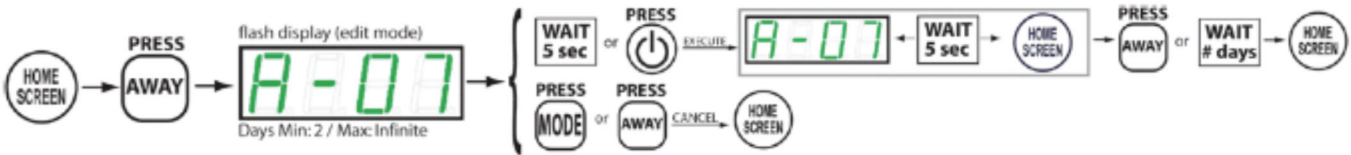
### VACATION OVERRIDE

Vacation mode deactivates the water heater for extended periods of time by overriding the current mode the water heater is set to. This is useful for saving energy when the water heater will not be used for a period of several days. The unit will maintain a water temperature of 50°F to prevent freezing.

To activate vacation override, press the **AWAY** button on the controller. The display will show “A-07”, indicating the default vacation length of 7 days. The minimum vacation length is 2 days, and the maximum is 99 days. Use the **▲** or **▼** buttons to adjust the desired length of time to use vacation mode. The water heater will exit vacation mode automatically one day before the specified time period has elapsed. It is designed this way such that when the user returns from being away, hot water will be available.

Once the desired time period is displayed, press the **EXECUTE** button to save the selection. The water heater will now be in vacation mode. The display will show “A-##”, where “##” is the number of days remaining in vacation mode period.

To manually cancel or end vacation mode, press the **AWAY** button once.

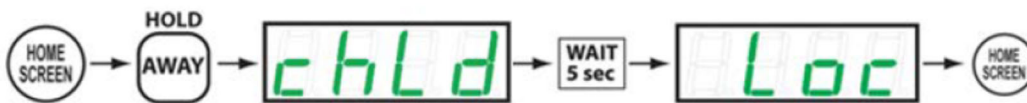


chLd

### CHILD LOCK

Child Lock is essentially a button locking mechanism. If the user wishes, they may set the child lock, which will disrupt any future attempt to change modes, change the setpoint, etc. The user will be locked out of performing any function on the device until the child lock is released.

To activate the Child Lock feature, press and hold the **AWAY** button until “chLd” is displayed screen. The controller is now locked.



To deactivate the Child Lock, press and hold the **AWAY** button until “un” is displayed. You will be returned to the home screen.



## CONTROLLER SETTINGS

The Hubbell Electronic Temperature Controller is equipped with various customizable options and settings. A brief overview of each option / setting is listed below:

### TEMPERATURE SETTING

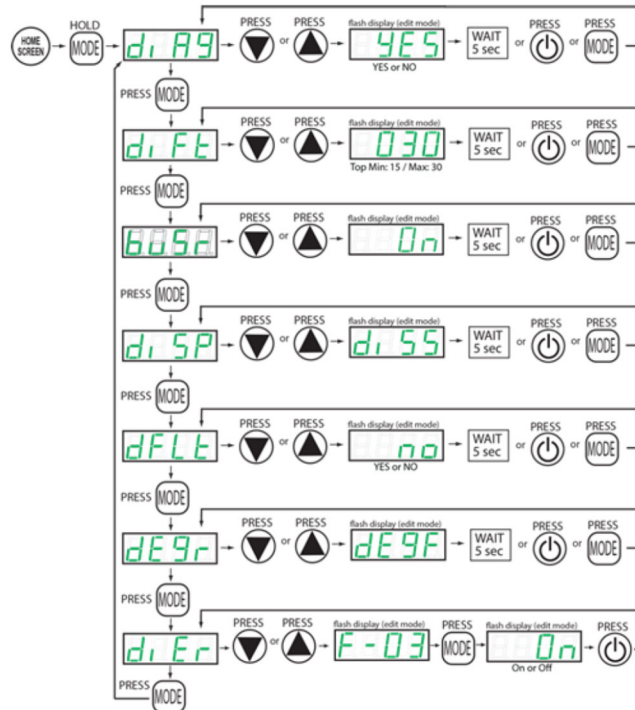
The temperature setpoint represents the desired approximate temperature of the water inside the heater. The setpoint may be adjusted to your liking. There are pre-defined temperature limits to prevent extremely hot or freezing water in the unit and surrounding piping.

To change the temperature setpoint for hot water output, from the home screen, press the ▲ AND ▼ buttons on the controller. The display will flash the new temperature setpoint as the ▲ AND ▼ buttons are pressed. Once the desired temperature setting has been reached, allow the screen to time out after 5 seconds. The new setpoint can also be saved by pressing the ▲ AND ▼ buttons. Pressing ⏻ will cancel the changes without saving. The display will now show the newly set temperature (e.g., “116”).



To access the options menu, from the home screen, press and hold the MODE button until the display reads “diF” (differential), this is the first selection in the options menu.

To navigate the options menu, continue to press the MODE button to cycle through the available options until the desired option is displayed. When the option to be changed is displayed, press the ▲ or ▼ buttons to enter the edit mode. When the display is flashing, the option may be altered by pressing the ▲ or ▼ buttons until the desired choice is displayed. To set the change, press the MODE button, or press the ⏻ button. The change will be made, and the controller will return the user to the options menu. To exit the menu at any time, let the display time out after 5 seconds or press the ⏻ button.



### DIAGNOSTICS

Enabling this option causes the controller to perform various checks, including making sure each element works correctly. Any errors will be displayed after all the tests are complete. The software version, such as , is displayed before normal operation resumes.

### DIFFERENTIAL

A temperature differential represents how far the water temperature can fall before the water heater must call for heat again. For example, if the setpoint is 120°F and the differential is 10°F, then after satisfying at 120°F, the water temperature must fall to 110°F before the water heater will call for heat.

### AUDIBLE ALARM

The audible alarm beep is programmed to sound every 30 seconds whenever an error has been detected. To turn the audible alarm on or off, in the edit mode press the or buttons to alternate between “On” and “OFF”.

### DISPLAY

The display setting provides the ability to select whether the home shows the setpoint temperature (diSS) or the measured temperature (diSt) inside the tank.

### DEFAULTS

Enabling this option will reconfigure the controller to factory defaults. The factory defaults are shown below.

Temperature Setpoint: 120°F

Differential: 30°F

Audible Alarm: Off

Display: Show Temperature Setpoint

Degrees: Fahrenheit

Disable Errors: All Enabled

To set the unit back to factory defaults, in the edit mode press the or buttons to alternate between cancelling the operation, “no” or resetting to defaults, “YES”.

### DEGREES

The degrees option provides the user with the ability to switch between standard and metric temperature readings. The “dEgF” choice will set the temperatures to be displayed in Fahrenheit, and the “dEgC” choice will set the temperatures to be displayed in Celsius.

To change the display units, in the edit mode press the or buttons to alternate between degrees Fahrenheit, “dEgF” or degrees Celsius, “dEgC”. To set the change, let the display time out after 5 seconds, press the button, or press the button.

### DISABLE ERRORS

The disable errors option allows for the use of external timer controllers to inhibit operation of the elements during certain times without removing power to the controller or otherwise affecting operation. If no external control is used, these errors should remain enabled.



## **PEAK DEMAND ENERGY CONTROL**

Hubbell has been designing and programming streamlined and sophisticated energy controllers in conjunction with electric utility thermal storage programs for over 30 years, satisfying the utility's need for peak control while also offering a great deal of flexibility for the end user. Programs for the ETC are determined by the electric utility. Once programmed, the ETC automatically controls the water heater, saving energy without any worry or inconvenience to the user. If for some reason the user wishes to override the system, an override may be accomplished with the simple push of a button.

During Peak Demand time periods, "P" will be displayed before the setpoint temperature. The controller could be programmed with a customer override allowing the peak period to be temporarily overridden for a predetermined duration. If the customer override is available simply press the MODE button to allow full operation. "C" will be displayed while in override mode.



Peak Mode



Customer Override

## **TROUBLESHOOTING**

CAUTION: Make certain power to heater is OFF before removing jacket access panel(s) for any reason.

**FOR QUALIFIED SERVICE PERSONNEL ONLY.**

## **ERROR CODES**

When the Hubbell Electronic Temperature Controller detects an abnormal condition, the display will alternate between the home screen, ERR, and then the error code below.

<b>Error Code</b>	<b>Possible Cause</b>	<b>Possible Service Required</b>
<b>ETC-H20</b> (Temperature Sensor)	<ol style="list-style-type: none"><li>1. Temperature sensor issue</li><li>2. Controller sensing issue</li></ol>	Check wire connections Replace or repair probe Replace or repair controller
<b>F-02</b> (Temperature Sensor)	<ol style="list-style-type: none"><li>1. Temperature sensor issue</li><li>2. Controller sensing issue</li></ol>	Check wire connections Replace or repair probe Replace or repair controller
<b>F-04</b> (Heating Element)	<ol style="list-style-type: none"><li>1. Heating element malfunction</li><li>2. Controller output issue</li></ol>	Check wire connections Replace heating element Replace or repair controller

CAUTION: For your safety, DO NOT attempt repair of electrical wiring, thermostat(s), heating elements or other operating controls. Refer repairs to qualified service personnel.

## SECTION IV - SCHEDULED MAINTENANCE AND OPERATION

### **WARNING / CAUTION**

Before performing any maintenance procedure, make certain power supply is **OFF** and cannot accidentally be turned on.

Exposure to 125°F or hotter water can cause scalding injuries. Appropriate caution must be taken when using hot water. Special supervision must be given to those who cannot react quickly such as children, invalids, or elderly persons.

#### **OPERATION OF HEATER**

The water heater is automatic in its operation. It will maintain a full tank of water at the temperature setting of the thermostat. The water heater should not be turned on without first making sure that the tank is full of water and that all air has been released.

#### **FREEZING**

The tank should be fully drained in the event the electricity has been turned off and there is a danger of freezing.

#### **DRAINING TANK**

1. Drain Tank as follows:
  - a. Shut off power to water heater.
  - b. Close the valve on the cold-water line to the heater.
  - c. Remove drain plug attach a hose to the drain coupling at the base of the water heater, see Figure 1 for drain location. Direct hose towards a drain.
  - d. Open hot water faucet or lift the test lever on the Pressure Relief Valve to admit air into the tank.

**NOTE: Teflon tape (NOT PIPE DOPE) should be used when reinstalling the drain plug**

#### **QUARTERLY INSPECTION**

1. Water temperature regulation.
  - a. Let the water heater completely heat to a designated thermostat setting.
  - b. After the thermostat satisfies (i.e., when the decimal before the temperature display on the controller is not blinking), draw water from heater.
  - c. Measure the maximum temperature with an accurate thermometer.
  - d. If the temperature is above the safe limits for your circumstances call a service man to adjust or replace the control.
2. Lift test lever on relief valve and let water run through valve for a period of approximately 10 seconds. This will help flush away any sediment that might build up in water passageways.
3. Inspect element flange for leakage as follows:
  - a. Shut off the Power Supply.
  - b. Remove element housing cover.
  - c. Visually inspect the heating element for evidence of leaks.
  - d. Rub your finger around the heating element and check for any evidence of moisture. If moisture is present or a water drip is observed, follow the procedure outlined in Section VI.
4. Check for loose electrical connections. Tighten as necessary.

## **ANNUAL INSPECTION**

1. Flush tank as follows:
  - a. Shut off power to water heater.
  - b. Close the valve on the cold-water line to the heater.
  - c. Remove drain plug and attach a hose to the drain coupling at the base of the water heater, refer to Figure 1 for drain location. Direct hose towards a drain.
  - d. Open hot water faucet or lift the test lever on the Pressure Relief Valve to admit air into the tank.
  - e. Install drain plug.
  - f. Open valve on cold water line to heater.
  - g. Monitor water flow from hot water faucet. Once a steady flow is established, indicating air is removed from system and tank is completely filled, close hot water faucet.
  - h. Turn the power supply on.

**NOTE: Teflon tape (NOT PIPE DOPE) should be used when reinstalling the drain plug**

## **LONG TERM SHUT DOWN**

1. If the water heater is to remain idle for an extended period of time, the power and water to the heater should be turned off to conserve energy.
2. The water heater and piping should be drained if they might be subjected to freezing temperatures.
3. After a long shutdown period, the heater's operations and controls should be checked by qualified service personnel.
4. Make certain the water heater is filled before placing it in operation.

## **EMERGENCY**

1. Should the heater be subject to flood, fire, or other damaging conditions, turn off the power and water to the heater.
2. DO NOT place the water heater in operation again until it has been thoroughly checked by qualified service personnel.

## SECTION V - TROUBLESHOOTING

Symptom	Probable Cause	Corrective Action / Remedy
No hot water	Circuit breaker tripped at source	Reset circuit breaker.
	High limit switch tripped	Reset high limit switch.
	Loose wires	Tighten wires.
	Heating element inoperable	Check heating element operation by clamping an ammeter around each wire to the element. The ampere reading should agree with the nameplate 'AMP' figure.
	Low line voltage	Have source electrical system checked by an electrician.
	Faulty thermostat	If controller display is not lit and power is available at the controller, check wire connections then replace controller.
	Faulty temperature sensor / controller	If the temperature indicated by the controller when set to display the tank temperature does not match the actual temperature of the water (within $\pm 5^{\circ}\text{F}$ ), replace controller and/or temperature sensor.
	Incorrect setpoint (too low)	Increase the setpoint.
Water temperature always below setpoint temperature	Faulty temperature sensor / controller	If the temperature indicated by the controller when set to display the tank temperature does not match the actual temperature of the water (within $\pm 5^{\circ}\text{F}$ ), replace controller and/or temperature sensor.
	Heating element inoperable	Check heating element operation by clamping an ammeter around each wire to the element. The ampere reading should agree with the nameplate 'AMP' figure.
	Low line voltage	Have source electrical system checked by an electrician.
	Incorrect setpoint (too low)	Increase the setpoint.
	Heater improperly sized	Verify heater is properly sized for the flow rate and temperature rise of your system. Replace elements with proper size as necessary.
Relief valve discharges continuously	Excessive temperature or pressure in tank	Temperature and pressure relief valves are made to operate if the water temperature exceeds $210^{\circ}\text{F}$ or water pressure exceeds the pressure rating of the safety relief valve. If trouble is excessive temperature, then thermostat is not shutting off at the right setting and thermostat must be replaced.

## SECTION VI – SERVICING AND REPLACEMENT OF PARTS

### **WARNING / CAUTION**

Before servicing or replacing any part, make sure to turn the power supply switch to the **OFF** position.

#### **HIGH TEMPERATURE CUT-OFF SWITCH**

1. Disconnect power from unit.
2. Remove access cover.
3. Remove insulator board by removing two (2) mounting nuts.
4. Disconnect the four (4) 12-gauge wires from the high temperature cutoff switch.

**NOTE: Tag wires with corresponding terminal of high temperature cut-off switch to facilitate wire installation on replacement switch.**

5. Remove switch from assembly.

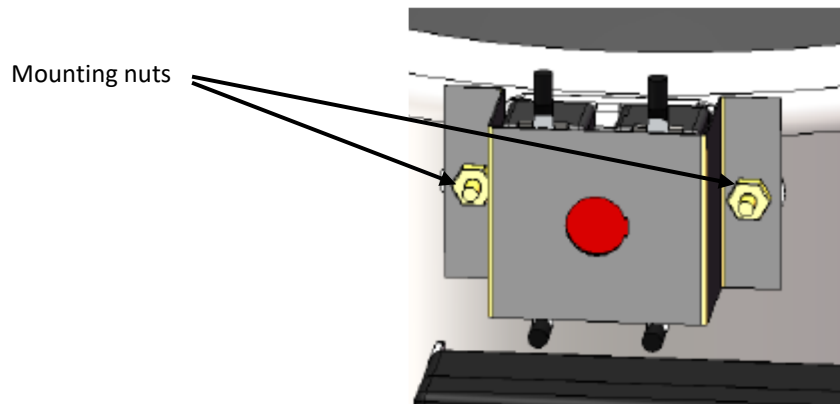


Figure 10: Hi- Limit Switch

6. Install new high limit temperature cut-off switch by performing above steps in reverse order; refer to Figure 7 in Section II.

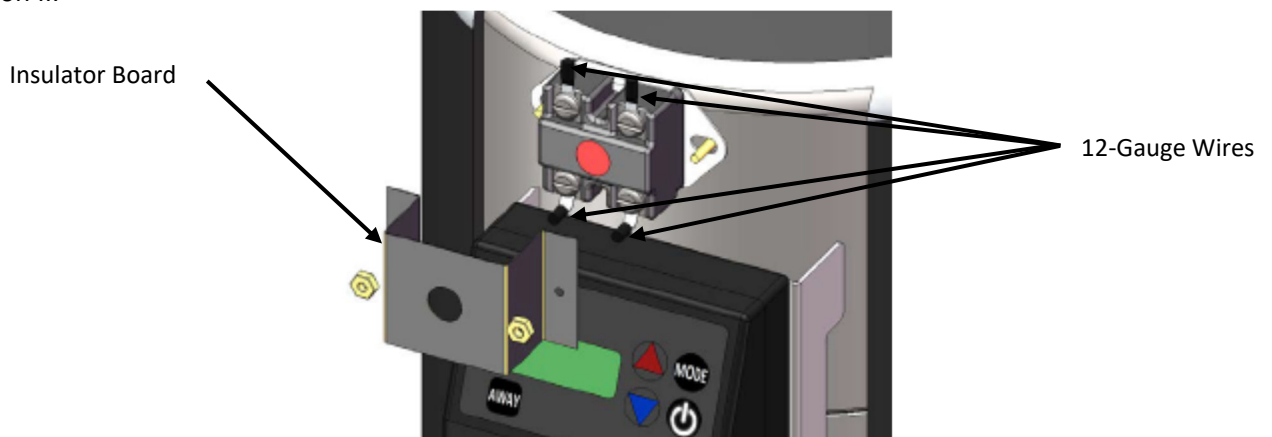


Figure 11: Hi-Limit Replacement

## **HEATING ELEMENT**

1. Disconnect power from unit.
2. Shut off incoming water supply.
3. Attach hose to drain connection.
4. Lift manual release lever on relief valve to let air into system or break union on outgoing water line.
5. Drain water from tank.
6. Remove enclosure front cover.
7. Disconnect the wires from the heating element terminals.

Heating Element  
Terminals

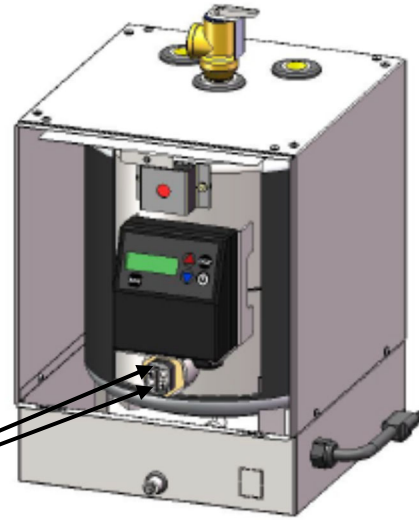


Figure 12: Heating Element Terminal

8. Unscrew heating element from tank coupling.
9. Withdraw element assembly.
10. Ensure there is an O-ring on the new element and the tank connection is clean and free of debris.
11. Insert new heating element. Thread sealant not required.
12. Rewire element; refer to Figure 7 in Section II.
13. Reinstall enclosure front cover.
14. Install drain plug.
15. Fill the tank and check around element for any leaks.

Element Assembly

Tank Coupling

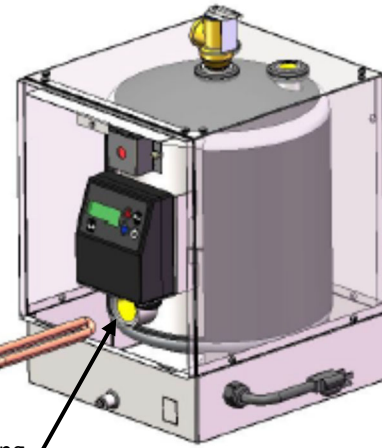


Figure 13: Remove Heating Element

## **RELIEF VALVE**

1. Disconnect power from unit.
2. Shut off incoming water supply.
3. Lift test lever on relief valve to relieve pressure in tank.
4. Disconnect overflow piping.
5. Unscrew relief valve, remove assembly, and replace with new one.
6. Connect overflow piping.
7. Turn on incoming water supply and check for leaks.

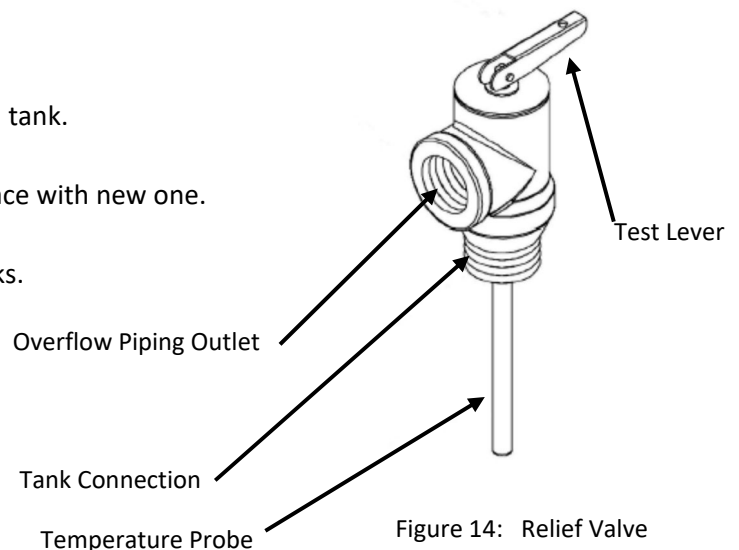
Overflow Piping Outlet

Tank Connection

Temperature Probe

Test Lever

Figure 14: Relief Valve



### **ELECTRONIC TEMPERATURE CONTROLLER (ETC)**

1. Disconnect power from unit.
2. Remove enclosure front cover.
3. Disconnect wires from the heating element and high temperature cut-off switch. Be sure to tag wires to ensure they are reconnected in the same configuration. Refer to Figure 7 for wiring diagram.
4. Loosen lock nut from the base of the ETC and slide the controller off the base, See Figure 15 below.
5. Slide the new ETC onto the base.
6. Tighten lock nut to secure the ETC in place.
7. Reconnect the wires to the heating element and high temperature cut-off switch. Refer to Figure 7 for wiring diagram.
8. Reinstall enclosure front cover.
9. Power unit on.

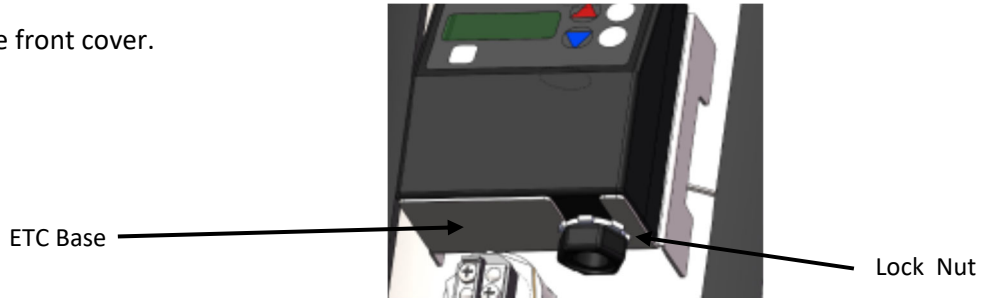


Figure 15- Electronic Temperature Controller

## SECTION VII – WARRANTY

### LIMITED WARRANTY AND TANK REPLACEMENT POLICY

The Electric Heater Co., (hereinafter called, the "Company"), offers the following warranty to the purchaser/owner of this electric water heater. Carefully read the entire warranty. Once you buy this product, the Company assumes you agree with the conditions and limitations of this warranty, and you accept the purchaser's/owner's responsibility for installation and care of the heater.

#### **LIMITED WARRANTY - TEN YEAR**

This section outlines the terms of the LIMITED WARRANTY on workmanship and material including merchantability and fitness for the intended use.

**Duration:** The warranty is effective for ten years, beginning with the date of original installation or ten years and 30 days from date of manufacture, whichever is sooner.

**Coverage:** The warranty covers any part proven to be defective in workmanship or material. In addition, it covers any part that fails due to the corrosive effect of water. Recovery under the terms of this agreement is subject to prior approval by the Company.

**Company Obligations:** Repair or replacement is at the option of the Company. The purchaser must pay for transportation, service, labor, reinstallation, or other costs involving the repair or replacement of such part.

**Limitations:** All repairs or replacements will be made F.O.B. the Company. The purchaser must pay for transportation, service, labor, reinstallation, or other costs involving the repair or replacement of such part.

**Your Action:** When you discover a defect, immediately notify the dealer from whom the heater was purchased. If you cannot locate the dealer, contact an authorized Hubbell dealer who stock heater parts and who has trained service personnel, or contact the Company.

#### **TANK REPLACEMENT POLICY - TEN YEARS**

This section outlines the ten-year (limited) replacement policy for tanks that fail due to the corrosive effects of water.

**Duration:** Ten years from date of original installation or ten years and 30 days from date of manufacture, whichever is sooner.

**Coverage:** Replacement Policy covers the storage tank only, and only for leaks caused by corrosive effects of water under normal and proper domestic use. Recovery under the terms of this agreement is subject to prior approval by the Company.

**Company Obligation:** Repair of the original tank or replacement of the entire heater with a new comparable model is at the option of the Company and constitutes the fulfillment of ALL the obligations of the Company hereunder.

**Replacement:** When a replacement is made under the terms of this policy, the replacement unit will have a policy of replacement only for the remaining time under the original policy. The Company reserves the right to require the return of the defective unit at the expense of the purchaser.

**Limitation:** All repairs or replacements will be made F.O.B. the Company. The purchaser must pay for transportation, service, labor, reinstallation, or other costs involving the repair or replacement of such part.

**Your Action:** When you discover a defect, immediately notify the dealer from whom the heater was purchased. If you cannot locate the dealer, contact an authorized Hubbell dealer who stock heater parts and who has trained service personnel, or contact the Company.



## **CONDITION AND LIMITATIONS**

Limited Warranty and tank Replacement Policy are valid only if you comply with the following conditions and limitations. It is not possible for the manufacturer to supervise the installation and use of this product. Therefore, it is a necessary and specific condition of this Limited Warranty and Tank Replacement Policy that the manufacturer relies on the diligence of the purchaser/owner in the installation and future use. Diligence on the part of the user is essential to reduce the risk from known hazards associated with water heaters.

**Installation:** The heater must be installed in accordance with established codes and the manufacturer's guidelines. It must not be removed from the place of original installation.

**Complete Contract:** This warranty and replacement policy is not complete without the installation manual attached, included, and made a part of this agreement.

**Specific Limitations:** Parts not manufactured by us carry only the original manufacturer's warranty. This warranty and replacement agreement contains a number of provisions, each one of which stands on its own merits. If any provision or part thereof shall be declared invalid, the remaining provisions (or parts thereof) shall remain in full force and effect. This is the only warranty for this heater made by the Company. It does not authorize Company representatives or any other persons to vary the terms of this warranty or to assume for the Company any other obligations or liabilities with respect to this product. Any implied warranty is limited to the warranty term of this agreement and will not extend beyond that one-year limitation. The parts of this warranty (including the incorporated user's manual) that speaks specifically to terms and conditions are deemed specific and not to be implied in contradiction.

## **HOW TO OBTAIN SERVICE ASSISTANCE**

Should you have any questions about your new water heater concerning service adjustment, repair, or routine maintenance, first contact your installer, plumbing contractor, or service agency.

In the event that the firm, for whatever reason, is unable to help, refer to the telephone directory commercial listing for local utility or qualified service assistance.

If neither action has solved your problem, contact The Electric Heater Company as follows:

HUBBELL ELECTRIC HEATER COMPANY  
45 SEYMOUR STREET  
STRATFORD, CT 06615

PHONE: (203) 378-2659  
FAX: (203) 378-3593  
[Hubbellheaters.com](http://Hubbellheaters.com)

### **When contacting The Electric Heater Co., The following information should be made available:**

1. Model and serial numbers of the water heater as listed on the front cover of this manual or on the rating plate on the heater.
2. Address where water heater can be seen.
3. Name and address of dealer from whom the heater was purchased and installer's name and address.
4. Date of original installation and any service work performed since then.
5. Details of the problems as you can best describe.
6. List of people who have been contacted regarding the problem.