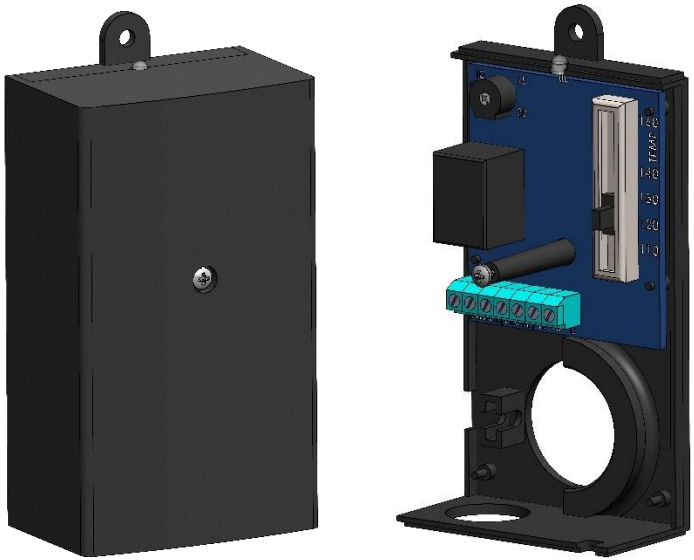
VAUGHN
a nudyne company

Operation and Installation Manual



ETC102

Thermostat Control

GENERAL INFORMATION

PLEASE READ INSTRUCTIONS COMPLETELY
BEFORE INSTALLING WATER HEATER CONTROL

IMPORTANT OWNER'S RESPONSIBILITY

Vaughn Thermal Corporation (herein called the Company) specifically does not expressly or impliedly warrant the merchantability or the fitness for any particular purpose or the performance of the heater within that system, nor does it assume liability for any consequential damage to general property or other components of the system.

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 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 these instructions, as well as safe industry 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 licensed person who has appropriate training and a working knowledge of the applicable codes, regulations, tools, equipment, and methods necessary for safe installation of an electrical resistance water heater.

An installation guideline has been provided to help the customer ensure that all procedures for a safe installation have been followed.

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

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

INSTALLATION

A. Attaching the ETC102 to a Tank with an Immersion Well

- Place the ETC102 onto the tank jacket with the hole in the cover over the immersion well (See FIGURE 1 on page 7).
- If the ETC102 can fit flush against the tank jacket without the immersion well protruding beyond the top of the ETC102 case, the ETC102 can be mounted using the self-tapping screw provided.
- If the ETC102 cannot fit without the immersion well protruding beyond the top of the ETC102 case, it can be mounted directly onto the immersion well itself by placing the square nut in the retaining well on the ETC102 box and using the proper machine screw provided to tighten against the immersion well.

B. Attaching the ETC102 to a Tank without an Immersion Well

- Place the ETC102 onto the tank jacket with the sensor lead protruding through the hole in the cover (See FIGURE 2 on page 8).
- Use the self-tapping screw provided to attach the ETC102 directly to the tank.

C. Inserting the Temperature Sensor

- Only for tanks with an immersion well.
- For tanks with an immersion well, slide the temperature sensor all the way into the immersion well until it contacts the end (See FIGURE 1 on page 7). Connect the probe to the ETC102 “PROBE” terminals using a small screwdriver.
- The sensor will measure temperature adequately by resting against the bottom of the immersion well.
- NOTE: Sensor does NOT need to make full contact with the entire well surface to work properly

D. Wiring the ETC102

- NOTE: ETC102 TR/TW/C terminals are rated 24VAC, 1 Amp Resistive.
- NOTE: ETC102 SWITCH terminals are rated 120VAC, 10 Amp Resistive.
- **WARNING: Do Not Use TR/TW/C terminals with 110V circuits. For Switching 110V, use the SWITCH terminals and supply 24VAC to the TR and C terminals.**
- Run all 24VAC wiring through the square notch on the bottom right of the ETC102 case (See FIGURE 3 on page 9).

- ❑ Connect thermostat wiring to the switch or TR+TW. (See FIGURE 3 on page 9 and FIGURE 4 on page 10).
- ❑ For controlling zone valves, multi-zone controllers, and switching relays, follow applicable wiring diagrams for low voltage thermostat circuits (See FIGURE 3 on page 9).
- ❑ For Newer Switching Relays:
    - Some models don't work with "Power Stealing" thermostats. The ETC102 is a power stealing thermostat (using only the TR and TW terminals) unless powered separately (using the 24V TR and C terminals). Connect 24VAC Power from the switching relay board (See manual for that product for details) or from a step-down transformer to the screws to the right of the "Probe Connector."
- ❑ For Direct Connection to Newer Boilers:
    - Some models require dry contact thermostats only. For these, the switch terminals must be used and 24VAC must be connected to the TR+C terminals.

E. ETC102 Cover:

- ❑ Install the ETC102 cover and secure using the black screw provided (See FIGURE 4 on page 10).

OPERATION

A. Indicator Light Operation

- The ETC102 has an indicator light at the top of the case (See FIGURE 4 on page 10, or Inside cover of ETC102).
- When the ETC102 is calling for heat, the indicator light will blink **GREEN**.
- When the ETC102 is satisfied, the indicator light will be solid **GREEN**.
- If the ETC102 detects no probe, the indicator LED will be **RED** (Ensure connections are tight).

B. Adjusting the Temperature Setting

- The temperature setting slide is on the right-hand side of the ETC102 (See FIGURE 4 on page 10, or Inside cover of ETC102).
- The ETC102 comes with a factory preset temperature setting of 125°F.
- To adjust the temperature setting, slide the lever to the desired setting using the indicator scale.
- The ETC102 has a normal temperature-setting range from 110°F to 160°F.
- **CAUTION: IT IS NOT RECOMMENDED TO SET TEMPERATURE ABOVE 140°F. (SEE SCALD WARNING BELOW)**
- **To set the temperature above 140°F (NOT RECOMMENDED), the SCALD DANGER label attached to the temperature slide must be removed.**

C. Adjusting the Differential

- The differential setting is on the upper left-hand side of the ETC102 (See FIGURE 4 on page 10, or Inside cover of ETC102).
- The ETC102 comes with a factory set differential setting of 10°F.
- The ETC102 will call for heat when the tank temperature has fallen to 10 degrees below the temperature set point.
- To adjust the differential setting, turn the dial to the desired number using the indicator scale.

D. First Powerup Operation

- On the installation of a new ETC102, the controller will run a diagnostic calibration check where it will shut off for several minutes after heating to 98 degrees. After that period, it will function normally and continue heating to the setpoint.

WATER TEMPERATURE REGULATION

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

The input of heat into the tank is controlled by an immersion thermostat. These automatic controls are set at the factory to maintain a water temperature of 125°F.

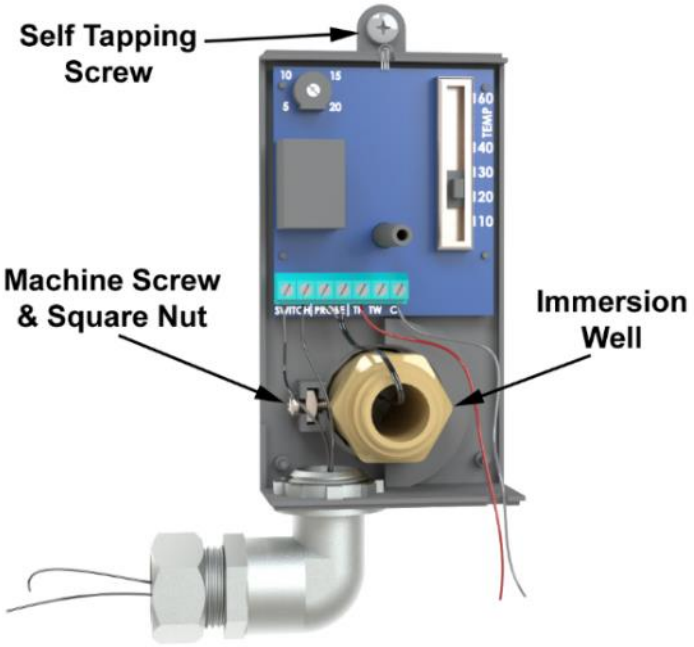
Although these thermostats are designed to meet industry standards, they can fail to control temperature properly without any notice, and therefore should be tested periodically for your protection.

DANGER: IF YOU DISCOVER EXTREME HOT WATER COMING FROM THE FAUCET, IMMEDIATELY SHUT OFF THE MAIN SWITCH TO THE BOILER AND CALL COMPETENT SERVICE PERSONNEL. OVERHEATED WATER IS A POTENTIAL HAZARD TO LIFE AND PROPERTY. DO NOT OPERATE UNTIL THE SOURCE OF THE PROBLEM HAS BEEN DETERMINED AND ELIMINATED.

- ❑ Water temperature over 125° F can cause severe burns instantly or death from scalds.
- ❑ Children, disabled, and elderly are at the highest risk of being scalded.
- ❑ See instruction manual before setting the temperature at the water heater.
- ❑ Feel water before bathing or showering.

FIGURE 1

For Tanks with An Immersion Well



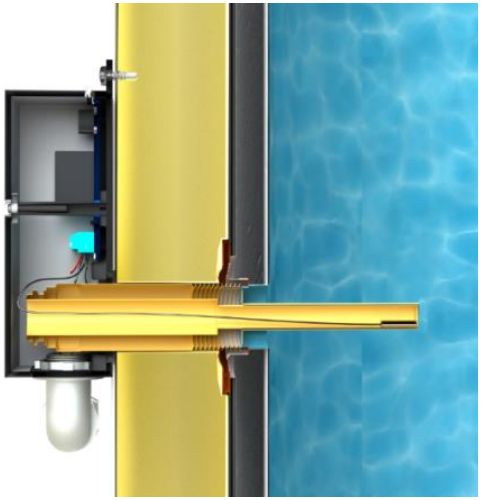


FIGURE 2

For Tanks without An Immersion Well

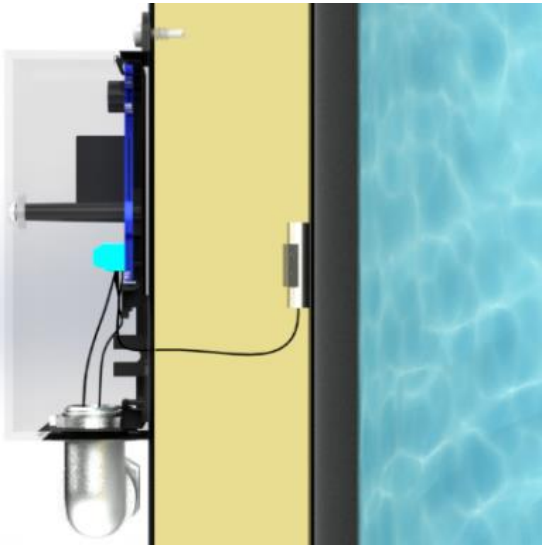
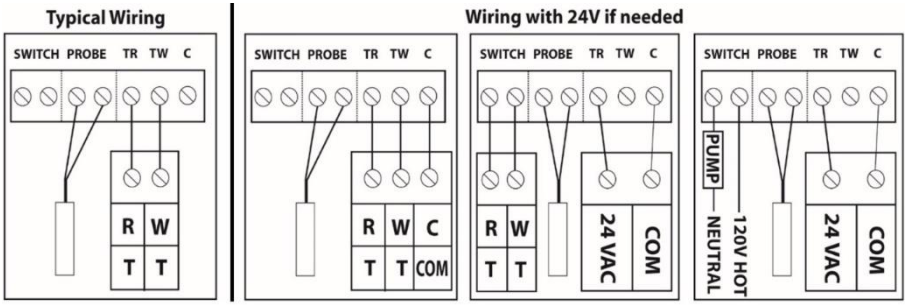
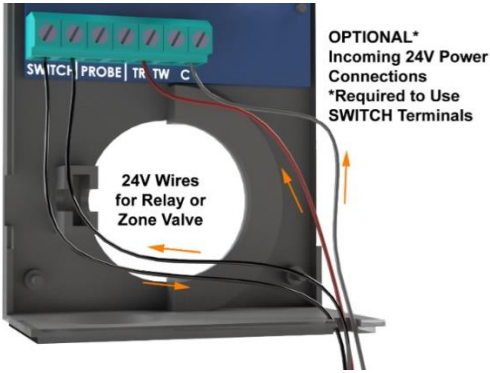


FIGURE 3

ETC102 Wiring





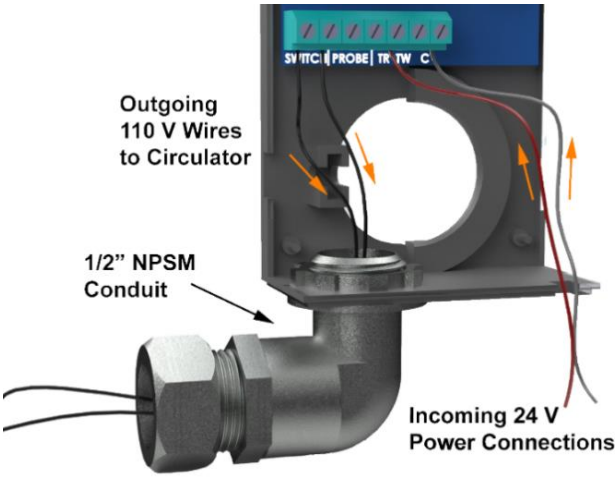
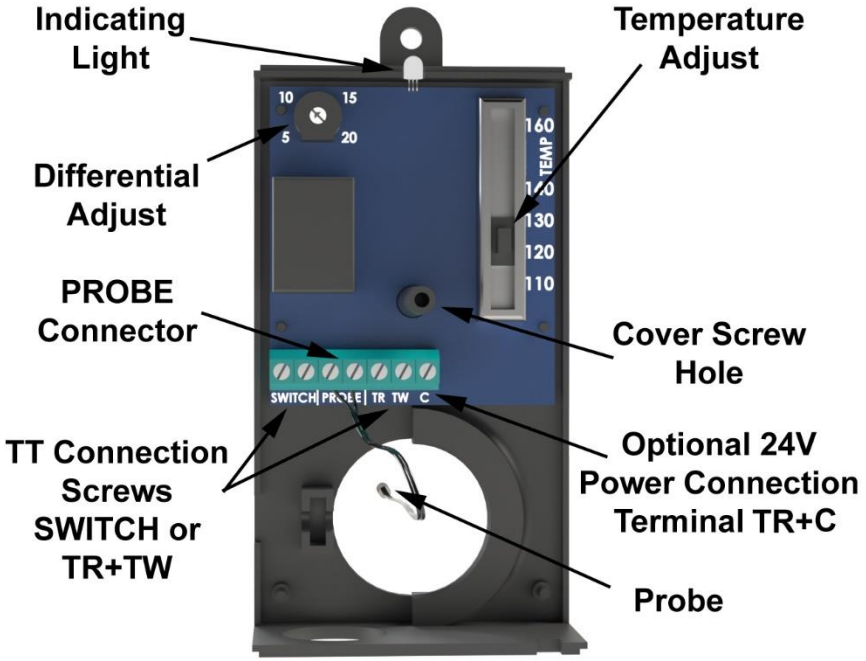


FIGURE 4

ETC102 Layout



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

Model No: _____

Serial No: _____

Date Installed: _____

Dealer's Name: _____

Address: _____

City: _____

State: _____Zip: _____

VAUGHN
a nudyne company

26 Old Elm Street
P.O. Box 5431
Salisbury, MA 01952-5431
978.462.6683

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