

FeelsWarm® Outdoor Installation Instructions

Low-Voltage Outdoor Countertop Heaters

Thank you for purchasing a FeelsWarm® patented (pending) heater to eliminate the cold feel of stone countertops and to create a soothing and calming feel to accompany the elegance and beauty of stone. FeelsWarm heaters can be utilized for both indoor and outdoor applications. Outdoor applications often involve unique cabinet and countertop designs which require a custom heater. Therefore, involvement by FeelsWarm in the design phase of the cabinetry is recommended to ensure a heating solution is properly integrated.

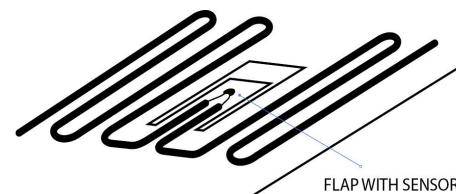
All **outdoor heating applications must be 100% encased** to ensure all forms of precipitation do not gain access to the heater. Typically, this involves the cabinetry having a full substrate surface completely under the stone top. The heater will then be placed onto the substrate and the stone will sit directly on top of the heater, compressing the heater in all areas. The perimeter of the stone must be designed to prevent moisture from directly entering the heater through the edges.

FeelsWarm heaters are designed to utilize 24 volts of power and will deliver up to 45°F of incremental warmth so that the countertops can be comfortable for use on days as low as 50°F. Contact FeelsWarm if you have countertop applications that require warming in below freezing applications or if snow/ice removal is desired.

As opposed to indoor heaters, outdoor applications require the use of a temperature sensing system to control the temperature of the countertop due to the varied outdoor environment the counter is exposed to.

1. Each heater is outfitted with a closed-loop controller that has three cables:
 - One cable to connect to the input power from the 24 transformer (bottom).
 - Two cables (top) that mate to the heater. One is for the sensor and the other is the power to the heater. These two connectors are polarized and can only be plugged into their respective cables, avoiding the potential to mix them up.

2. A sensor is mounted onto a short flap located near the tail. The thickness of the sensor requires a recessed cavity to be created in the substrate to allow the flap/sensor to rest in the cavity and to not be crushed from the weight of the stone. As described below, a small packet of thermal grease is included with the heater and is to be applied over the sensor prior to the stone being set onto the heater. This thermal grease provides improved sensing of the stone temperature.



The heater also has a self-resetting fuse mounted onto a flap to provide protection for any overheating condition. This flap should also be laid into a cavity in the substrate. No thermal grease is needed for this fuse. The low-voltage transformer provided with the heater also has integrated thermal overload and maximum current breakers.

ELECTRICAL INFORMATION

_____ Wattage _____ Voltage _____ Current Draw (amps) _____ Approximate Current Draw on household 110/120V



Serial Number: _____

IMPORTANT: NEVER SUBSTITUTE AN ALTERNATIVE POWER TRANSFORMER THAN THE ONE PROVIDED WITH THIS HEATER.

Package Contents:

Heater, Closed-Loop Thermal Control Unit, mounting screws, transformer (with power cord), thermal grease, velcro, transformer mounting strap w/screws, and instruction manual.

Recommended Tools:

- Electric drill with 1" - 1.5" spade bit
- Router with 1/8" or 1/4" bit
- Phillips Screwdriver
- Pencil
- Standard Packaging Tape (or similar)

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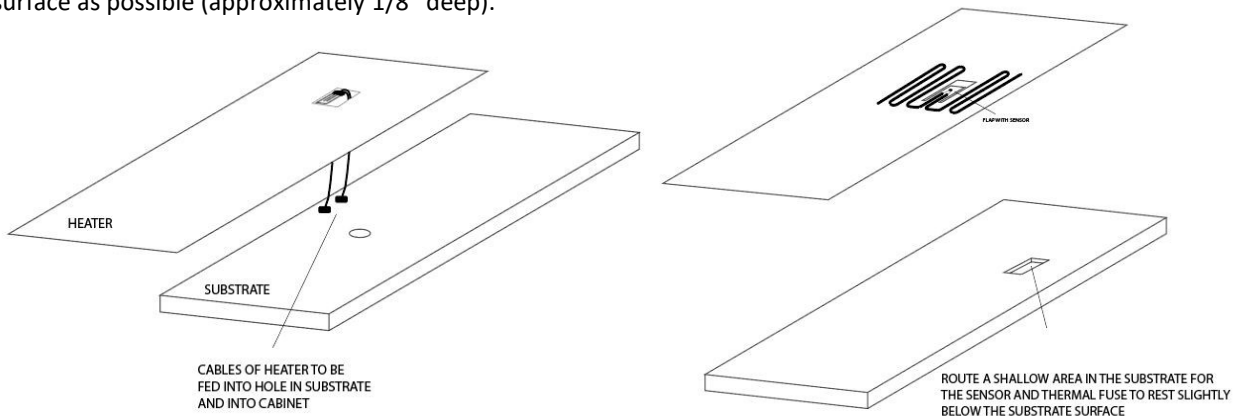
1 PERFORM A 'DRY' TEST INSTALLATION OF THE HEATER BEFORE STARTING.

- A. Conduct a preliminary fit by lying the heater onto the wood substrate to ensure the fit is what is expected. The front edge of the heater should be mounted between 1/4 and 1/2 inch from the substrate edge. Precision is not critical.
- B. Using a pencil, mark on the wood surface the location of the heater tail, the sensor tail, and the fuse tail, indicating where you need a hole or routed cavity. After it is marked, move the heater out of the way so that no drilling happens near the heater. The FeelsWarm heater has the tail pre-located to fit your cabinet so that the cable will go down into the hole to enable it to connect to the thermal control unit and transformer.

IMPORTANT: Do not drill into the heater during and after the installation from top down or from bottom up.

2 PREPARE THE SUBSTRATE.

For the heater cables, use a 1" - 1.5" spade drill bit to drill a hole in the wood substrate. For the sensor and fuse flaps, route a shallow channel in the substrate so that the flaps will lie into the channel while remaining as flush to the wood surface as possible (approximately 1/8" deep).



3 PLACE THE HEATER.

- A. If the heater has adhesive (not present on all heater designs), remove the release liner on the back of the heater to expose the stick-back adhesive. Note: The function of this adhesive is to only hold the heater in-place temporarily. It will not stick well to the wood but helps to keep the heater from shifting, particularly for large heaters. Alternatively, use general tape to stick the heater in-place if desired.
- B. Place the heater onto the substrate in its general location. Ensure that the sensor and fuse flaps are correctly placed so that they dip into the pre-routed cavities. Tape down the heater so that it does not shift from its position.
- C. Tape the flaps into their cavity and apply tape over the thermal fuse to hold it down. Do the same with the sensor, but don't tape over the sensor component itself. Just tape the flap to hold it.

4 APPLY THERMAL GREASE TO SENSOR.

Using thermal grease (supplied), apply an ample amount of grease directly onto the sensor and flap, filling in the cavity. Apply tape over the entire cavity to generally contain it. It is OK that the grease squeezes out of the tape area.

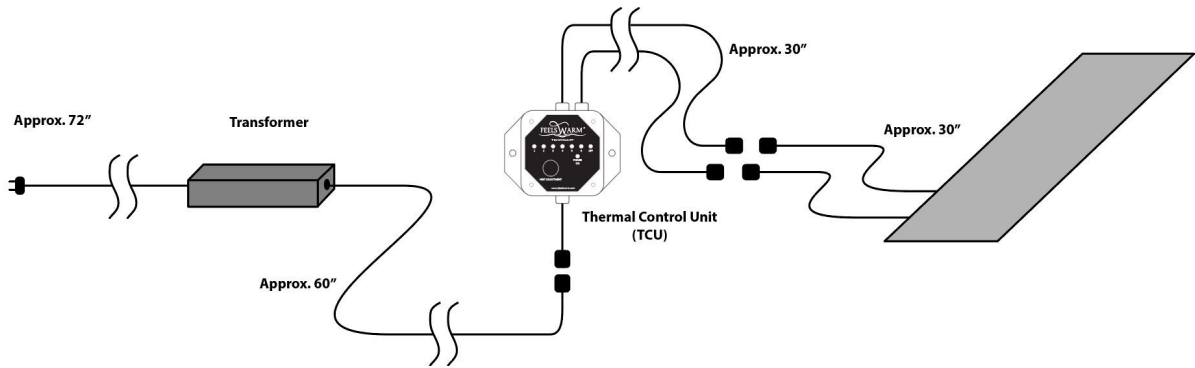
After the heater has been positioned, gently feed the heater cords through the drilled hole without pulling the cord.



5 INSTALL POWER SUPPLY.

Connect the heater, Thermal Control Unit, sensor cable, transformer, and power cord together using the diagram on the following page. If the FeelsWarm system involves multiple transformers, it is **extremely important** that the correct transformer is plugged into its correlating heater.

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It is common to put the Thermal Control Unit within a cabinet or out of normal visibility but still accessible for periodic use. The Thermal Control Unit can be mounted onto the inside wall of a cabinet with the screws and strap provided. The transformer typically lies in a cupboard or in the bottom of the cabinet. The transformer may feel warm to the touch (or a bit hot in some cases)—this is normal.

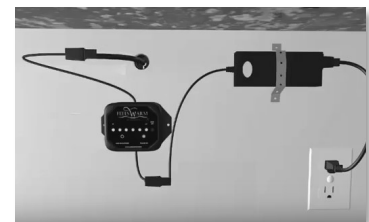
The transformer must be kept dry and out of weather conditions and is to be above 20° F during operation. Do not cover the transformer with anything to keep the heat from escaping.

The heater will draw between 1/2 and 2 amps at 120V depending upon the size of the heater. For reference, a toaster typically will draw up to 12.5 amps. Traditional home circuit lines will be wired for 15 amps. If the outlet that the heater plugs into also has significant current-drawing devices that will exceed the circuit breaker limit, consult a licensed electrician for a permanent solution. It is recommended to use GFCI controlled outlets per local codes and regulations.

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SECURE WIRES.

Your FeelsWarm heater is supplied with a packet of Velcro patches, a strap, and screws to use to secure the various wires inside the cabinet and to mount the transformer on a side wall if you do not wish to have it on the floor of the cupboard. Often, there is an excess supply of wire provided so keeping the wires out of the way of normal activity is suggested. Peel the clear release liner off one half of the Velcro patches and stick it onto the cabinet wall or use traditional cable clamps (not included). Secure the wires using the mating Velcro piece. If the Velcro patches do not stick to your cabinet wall, use the strap included. Cut the strap to the desired length and drill the screws into the cabinet wall to secure your transformer.



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TURN HEATER ON.

You can turn on your heater immediately by plugging in the transformer to your outlet. Each outdoor heater installation is slightly different from a thermal performance standpoint so users should expect to experiment with the Thermal Control Unit somewhat over time to determine the optimal setting for their particular countertop/cabinet construction.

Once the transformer is plugged into your outlet, the TCU will light up. Use the button on the TCU to change the settings. The red light indicates the heater is OFF. The single green light indicates the heater is receiving power. The yellow lights indicate what level of temperature the heater is set at.

To avoid thermally shocking the stone and risking damage to the countertop, the stone is heated with low power, therefore, the temperature of the stone will take hours to increase to its stabilizing temperature. It is recommended that the heater remains "ON" so that the stone is constantly at its holding temperature. If a timer is added to the power line, remember to anticipate the multi-hour warm-up cycle of the countertop when establishing the timer cycle.

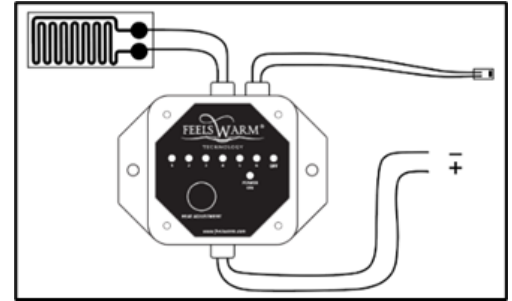
Closed Loop Controller CLTC-5000 User Information

Input power: 5 volts to 24 volts DC | Input current: 10 amperes maximum

GENERAL FUNCTION

The FeelsWarm CLTC-5000 controller provides single button thermal adjustment and control when connected to a FeelsWarm heater. The controller utilizes the input power to the heater without a separate power source.

The controller provides 6 temperature settings that correlate with the HIGH to LOW / left-to-right yellow LED's. The temperature settings are pre-set based upon the customer application. Pre-programmed temperature setting levels cannot be modified by customers. Contact FeelsWarm if temperature settings need to be altered.



The FeelsWarm CLTC-5000 is for control of heat only (peak temperature threshold). The controller operates with a FeelsWarm heater that has an integrated sensor, typically used for higher temperature countertop applications, outdoor countertops, or de-ice or freeze protection projects.

Customers are responsible to test and validate temperature results based upon their specific thermal package and stack-up. Actual results may vary from programmed temp levels. Operating range: -20°F to 250°F. Upon power loss, the controller retains its last setting.

INSTALLATION

1. Mount device onto a sturdy surface using side flanges (hardware included).
2. Connect the heater to mating plug of the connection wire exiting the controller (center top of the unit).
3. Connect the sensor cable to the mating plug of the connection wire exiting the controller (top right of the unit).
4. Connect input power to the mating plug of the connection wire (bottom of the unit).

As soon as power is introduced to the unit, the device will present an electronic serial code for 5 seconds. Each of the 7 LEDs will either be ON, OFF, or FLASHING. Record each LED function (1-7) in the chart below for future reference. The 7 LED serial code represents the temperature setting combination of the 6 yellow LEDs stored in the controller and is registered at the factory.

	LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	LED 7
Flashing							
Solid							
Off							

USER INSTRUCTIONS

Users are to push the single button to advance to the next temp level from HIGH to LOW with position #7 being an OFF position. Continuing to push the button cycles the level back to the HIGH position. The green POWER ON LED will light when there is input power to the device regardless of the setting.

If the red LED 7 flashes during normal use, this indicates that the temperature sensor has been disconnected and the heater will be deactivated until the sensor is reconnected. When any of the 6 yellow LED light are flashing, this indicates that the setting is active and the heater is engaged with power to bring the unit up to that temperature setting. Once the temperature has been reached, the LED will stop flashing.

WARRANTY AND DISCLAIMER

This device comes with a Two-Year Limited Warranty. Purchasers are responsible to determine fitness of use and the desired temperature settings. The stated claims of this product are general performance guidelines. FeelsWarm's sole responsibility under this warranty, at FeelsWarm's option, is limited to replacement or repair, with the purchaser responsible for the cost of shipping any returned product. No claims will be allowed for direct or indirect damages beyond the cost of this product.