STEP warmfloor®

Installation & Operation Manual

Do not use this equipment before reading this manual!

The New Step® Touch Thermostat

The Ideal Way to Control Your Warmfloor

The new Step Touch thermostat from Electro Plastics is the elegant way to control your Step Warmfloor system. Perfectly suited and designed from the ground up to work seamlessly with all Step Systems.

Features:

- Clean, simple two control design for ease of operation
- Three digit auto-dimmable LED Display
- Touch sensor controls that are maintenance free
- Clear, totally flat acrylic surface for a clean contemporary look that works well with any decor
- Elegant stainless steel perimeter housing
- Displays in Fahrenheit or Celsius
- Interfaces to an external temperature sensor
- Works with Step Warmfloor, Step Snowmelt and Step Deicing systems
- Standard colors: black and white. Custom colors available at additional cost
- Capable of interfacing with smart home systems
- No batteries needed. All settings are stored in permanent memory for instant recovery in the event of a power failure
- Step Warmfloor logo is lit when system is heating
- Green friendly low power design

Specifications:

Set Range: 40º to 90ºF • 4º to 32ºC
Internal Ambient Temp Range: 0º to 99ºF, +/-1ºF • -9º to 37ºC, +/-0.5ºC
External Sensor Temp Range: 0º to 99ºF / -9º to 37ºC
Power: 9-24 VAC/VDC @ <10mA (without external temperature sensor)

Note: This manual contains important warnings and instructions. Please read and retain for reference.

Model Number: EPI-LX-TC

Printed in the U.S.A.

Physical Description

The New Step® Touch Electronic Thermostat is a zone control device specially designed for use with the STEP Warmfloor™ radiant heat system. The Step® Touch provides a pulsed output that complements the self-regulating nature of the STEP Warmfloor™ heating elements to offer the homeowner the highest energy efficiency while providing better zoned control over personal comfort.

Thermostat

The thermostat is the operator interface for the Step Warmfloor System. It is designed to be flush wall mounted in a place that will be most representative of the zone it controls.
The thermostat consists of a digital display that indicates the measured air temperature or set temperature, touch sensitive switches for control of the set point, the air temperature sensor and indicators for the external sensor mode, snowmelt mode and logo illumination.

Regulator

The regulator is an intelligent switch that enables/disables the line voltage in such a way that does not harm the transformer(s) and gently applies the load to the power system. It is designed to be surface mounted adjacent to the transformer(s) that it controls. The regulator consists of a printed circuit board mounted inside the power supply housing or in a junction box w/ heat sink. Each regulator is designed to handle up to 1,500W of load.

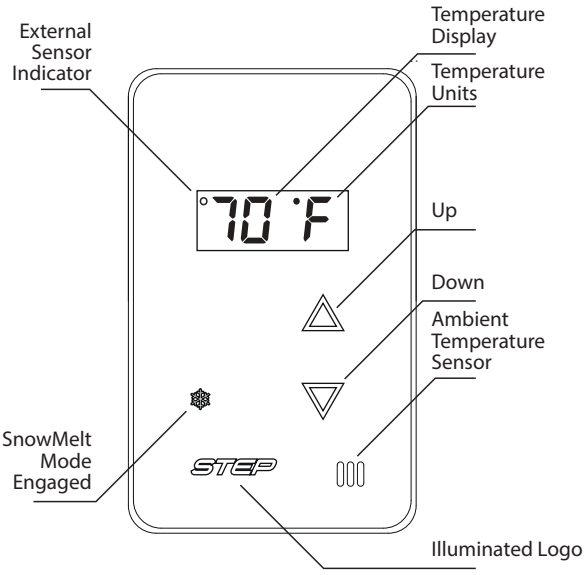

Illustration 1 - Thermostat Features

The thermostat and power supply are connected together using a 20 foot length of 3 conductor shielded cable. For control of a zone with a load larger than 1,500W, up to 20 power supplies can be connected to one thermostat for a total controlled load of 30,000W.

Functional Features

Interface:

UP/DOWN capacitive sensing proximity switches (no membrane switches)

These switches are used to modify the "Set Temperature". Normally the display will show the ambient temperature, however when any switch is pressed, the Set Temperature is displayed for 3 seconds and the units (F or C) digit is flashed. If a switch is pressed again, while the Set Temperature is displayed the Set Temperature is modified.

If both the UP/DOWN switches are held for more than 4 seconds, the unit will go into shutdown mode and completely turn the system off. While these switches are held the display will count down, ie: "3", "2", "1", "OFF". During this time all setting information is saved in memory and recovered on power-up. To re-activate, the switches must be held down again for 4 seconds.

All settings are permanently stored in flash memory (no batteries) so that in the case of a power failure, there will be no need to modify any settings. This also includes shutdown mode, ie: if you are out of town and the unit is in shutdown mode a power fluctuation will not cause the unit to re-enable.

Output:

When the temperature measurement from either the ambient sensor or the floor sensor (depending on the mode of operation) is below the Set Temperature, the unit will trigger the system to activate and the Step logo will illuminate indicating heat is being called for.

Internal Temp Sense:

Ambient temperature is sensed via the three vent slots on the front panel**.**

External Temp Sense:

The unit also provides for the sensing of temperature externally via the EPI-LX-TS sensor supplied. This could be necessary**,** if the thermostat is located in an area that has a falsely high temperature (ie: near a large piece of machinery on a factory floor) or can be used as a floor temperature sensor. It would also be used in the case of SnowMelt mode where the sensor would need to be installed in the concrete that is being sensed.

This connection is made via a very common 6 position 4 contact modular connector and allows the sensor to be extended to a maximum distance of 50 feet. Try doing that with a platinum RTD? The external sensor has a small micro-controller built in and digitally transmits the temperature data so there is no loss in accuracy with distance.

Home Control Shutdown:

It is also possible, via the modular jack on the rear of the unit, that the unit can be shut down via a relay closure from an external Home Control system. If Pins 1 and 6 are shorted together the unit will shutdown.

Dip Switches:

FACEPLATE REMOVAL: The faceplate is retained via high power magnets. Illustration 2 shows proper technique to remove the faceplate and gain access to the dip switches and connections. In order to remove, first grasp the top edge of the acrylic faceplate with your first three fingers, with your thumb on the bottom edge of the faceplate, rotate the display away from the housing until it is free.

Dip switches are extremely easy to access via the magnetically attached front panel. No fasteners or annoying plastic clips. Electrical connection between the front panel and the base are made via gold-plated, spring-loaded contacts ensuring extremely long life. The 4 position dip switch is located on the inside of the front panel PCB.

1. C/F:

Simply changes the units of measurement between Fahrenheit and Celsius.

2: AUTODIM MODE:

Many people do not like a bright LED display to be on all the time, especially at night. The AutoDim feature simply dims the display when the unit is not being modified. If a switch is pressed, the display is brightened and stays bright for several seconds after modifications have been completed. When AutoDim mode is not enabled, the display is bright all the time**.**

3. EXTERNAL TEMPERATURE SENSOR:

When this switch is enabled the unit will make decisions based on the temperature reading from the external sensor. The display will always show the temperature of the external temp sensor, however if the user wishes to check the ambient temperature, they can simply press and release both the UP/DOWN switches within 1 second and the ambient temperature will be displayed for several seconds after which it will revert to the temperature of the external sensor. If, by mistake, both the External Temperature Switch and the SnowMelt switch are activated, the SnowMelt switch is dominant and this mode will be enabled. Whenever the external sensor is active the dot in the upper left-hand corner of the display will be illuminated.

4. SNOWMELT MODE:

This mode is enabled when the thermostat is being used with the snowmelt elements. The external temp sensor is installed in the concrete and the Set Temperature is adjustable between 32-41F/0-5C. This value is maintained in flash memory. The display will show this measurement and, as with external mode, when both the UP/DOWN switches are pressed and released within 1 second, the display will show the ambient temperature for a short period after which it will revert to the external temperature sensor. When in SnowMelt Mode, the snowflake logo on the front panel will glow blue.

Illustration 2 - Faceplate Removal

Installation

The Step® Touch thermostat can be used in conjunction with all the EPI-LX-R power supply series and the STEP DC Controllers. Be sure to install the thermostat on an interior wall away from direct sun and drafts. Measure the distance from the power supply to the thermostat to identify the length of the thermostat wire. The low-voltage (24) thermostat is connected to the power supply using a 3-conductor shielded cable and can control up to 20 power supplies or 20 DC Controllers.

The process of installing the EPI-LX-TC involves preplanning of mounting locations and roughing in of the necessary hardware. The installation of the EPI-LX-TC typically occurs during new construction or a remodel project where access to the walls is possible for the rough in work. If access to the walls is not possible, as during some remodel projects, the EPI-LX-TC installation may require the use of surface mounted raceway products such as those manufactured by Wiremold® (www.wiremold.com).

Plan mounting Locations

Thermostat – Locate the thermostat approximately 60" off the floor in a location that is most representative of the zone that it controls. Do not install where exposed to direct sunlight or drafts.

Rough In

The thermostat is designed to be flush mounted on a single gang junction box. Install such a box at the desired mounting location.

Install the supplied 3-conductor shielded cable between the housing and the power supply. The cable can be installed in the wall without the use of conduit as it only carries a low voltage signal. If the cable is not long enough, acquire a suitable length of an equivalent cable sufficient to run the full length between the boxes. Do not splice the cable – only use a full new length. If an additional power supply will be connected, install the supplied 3-conductor shielded cable between the supplies.

Thermostat

Terminate the 3-conductor shielded cable to the thermostat. Trim back the shield flush with the outer cable jacket and do not ground the drain wire at the thermostat. Only ground the drain wire at the regulator. Remove the face plate from the housing to expose the mounting holes. Push the excess cable into the box and install the Thermostat using the screws provided. Reinstall the face plate on to the housing.

Operation

Normal Operation

The Step Touch digital display indicates the measured room temperature during normal operation.

Set-point change

The set-point is modified by using the "Up" and "Down" switches located on the thermostat faceplate. The first press of the switches will cause the digital display intensity to increase and to display the present set-point. Subsequent pressing of the switches will allow you to change the set temperature to the desired setting. After a few seconds of inactivity, the digital display will dim back to its original intensity and will return to displaying the measured room temperature.

Mechanical Features

External		3 digit auto-dimmable LED display (ie: 70 'F)
	(Front)	UP touch switch (not membrane switch)
		DOWN touch switch (not membrane switch)
	External	3 position terminal block (AC/DC, TRG, COM)
	(Rear)	6 position 6 contact modular jack
	Internal	Fahrenheit/Celsius switch
	(dip switch)	AutoDim switch
		External Temperature Sensor Mode switch
		Snowmelt Mode Switch

Specifications:

Internal Ambient temp Range:	0-99˚F/-9-37˚C
External Sensor temp Range:	0-99˚F/-9-37˚C
Internal Sensor Mode Set Temp Range:	40-90˚F, 4-32˚C
External Sensor Mode Set Temp Range:	40-90˚F, 4-32˚C
Snow Melt Mode Set Temp Range:	32-41˚F, 0-5˚C
Power:	9-24 VAC/VDC @ 12mA max

Physical Dimensions