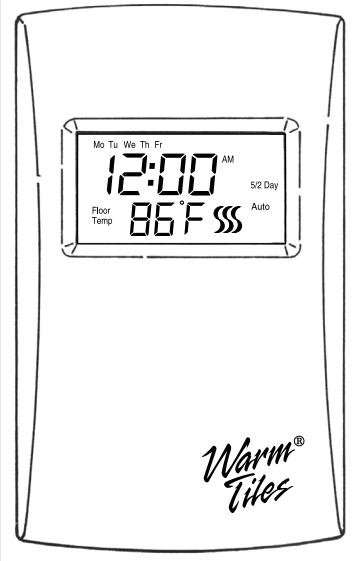


Easy Heat Programmable Thermostat

Models FTS-1 (120VAC) & FTS-2 (208/240VAC)
Operating & Installation Instructions



Package Contents

- 1 Thermostat
- 1 Door without Display Window
- 3 Wire Connectors
- 2 Cable Guards
- 1 Screwdriver
- 2 #6-32 x 1" screws
- 1 Sensor / Wire Assembly — 10' long
- 1 Pull-Cord
- 3 "DO NOT REMOVE" Warning Tags
- 1 Door Label

Electrical installation must be in accordance with all applicable national electrical codes (NEC, CEC) as well as local electrical and building codes, regulations and inspection procedures. Electrical inspection of the installation may be required before, during, and after installation. Check with your local electrical inspection department before beginning installation. Per U.S. National Electrical Code – Installation in a bathroom requires that the Thermostat / Equipment Ground Fault Protection Device be installed on a circuit protected by a separate Ground Fault Current Interrupter (GFCI).

Installation New Construction Rough-In

- Fasten electrical connection box (as required per local electrical code) at desired position on side of stud.
- Drill one 1-inch hole in base plate for single-cable installation and two 1-inch holes for two-cable installation.
- Thread **pull-cord** through hole(s) in base plate and in corresponding holes in electrical box. Secure the pull cords in the electrical box. Tie floor ends of pull-cord together with **Warning Tags** and fasten to floor.
- Install the guard plate over the hole for the cold leads and sensor wire before dry-walling.
- Install guard plate as shown in Figure 1.

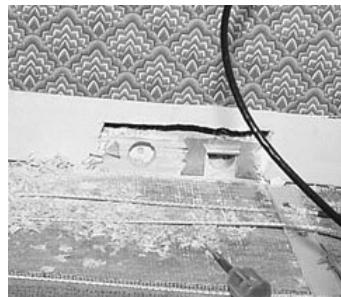


Fig. 1

Thermostat Installation

- Pull sensor wire into ECB and secure to the floor. See Figure 2. The sensor must not cross or overlap any other cable on the floor AND must be embedded in the cementitious based mortar in the same manner as the heating cables.
- **Ensure the supply branch circuit has been disconnected / de-energized.**
- Prepare the thermostat for installation:

 1. Remove the thermostat, wire connectors and screws from packaging.
 2. Pop out the Screw Cover by gently pushing from behind, with the enclosed screwdriver, see Figure 3.
 3. Trim excess length of supply branch circuit, cold lead and temperature sensor cables, as necessary, leaving about 6" projecting from the Electrical Connection Box (ECB), see Figure 4.

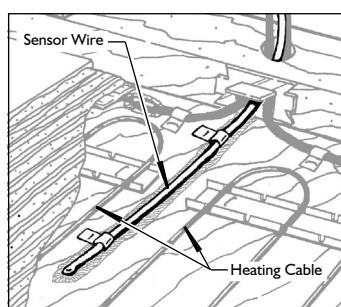


Fig. 2

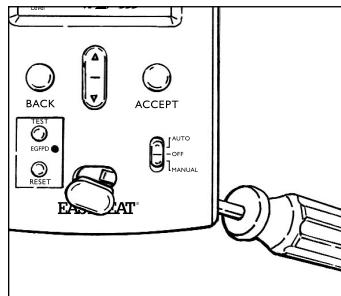


Fig. 3

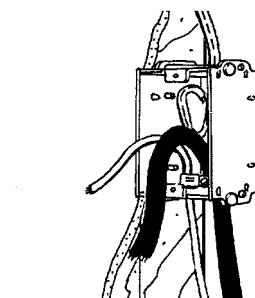


Fig. 4

4. Prepare each heating cable / cold lead for connection / splicing and connect per Figure 5 or Figure 6, as applicable. Use **Screw driver** for connection to the Power Supply cables and the sensor wire connections.

5. Neatly fold all wiring into ECB and fasten thermostat with #6-32 screws provided. Do not apply excessive force to the thermostat. Apply firm but continuous force until the screws can be fully seated.
6. Align the thermostat, then finish tightening the two screws.
7. Snap the Screw Covers over the screw heads.

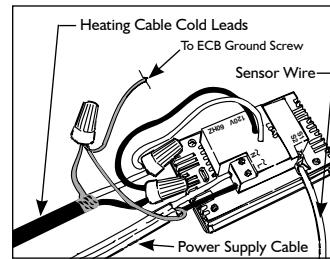


Fig. 5

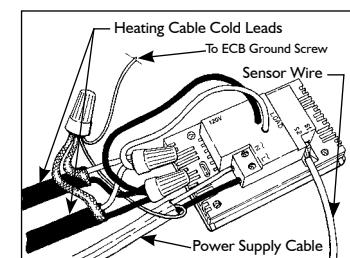
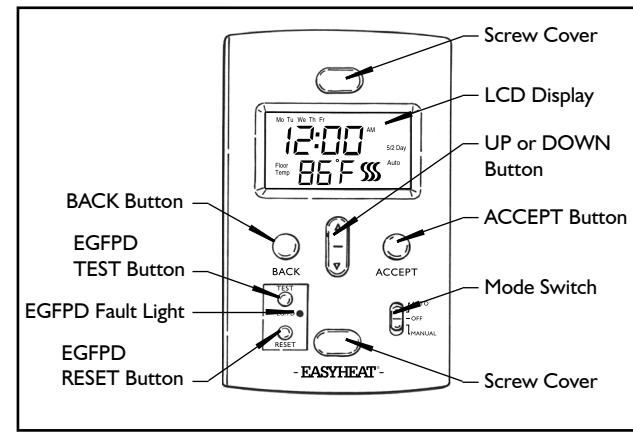


Fig. 6

A Button Explanation



Screw Covers - Decorative covers which conceal the screws securing the thermostat, easily removable.

LCD Display - Large scale readout which indicates the operational status of thermostat

Mode Switch - Allows easy selection of Manual, Off, or Auto (programmed) modes.

Up/Down Button - Used during programming to move values up or down (if held down for 2 seconds, values will change rapidly).

Back Button - Used during programming to go back to the previous program step.

Accept - Used during programming to accept the setting, and to advance to the next program step.

EGFPD Test Button - Used to simulate a ground fault, tests the EGFPD circuitry and activates EGFPD Fault Light.

EGFPD Fault Light - Turns on when a ground fault is detected.

EGFPD Reset Button - Resets a simulated, or repaired EGFPD fault, and deactivates EGFPD Fault Light.



B LCD Explanation

Note – Not all display elements will appear simultaneously.



Wake – The time in the morning when you want the floor to start warming up, about one hour before you wake-up.

Leave – The time when you leave for work or school, and want the floor to start cooling down to save energy.

Return – The time in the afternoon when you want the floor to start warming up to a comfortable temperature, about one hour before you return home.

Sleep – The time at night you want the floor to start cooling down to save energy.

Auto – Automatic Mode.

Indicates the thermostat is operating with one of the automatic temperature adjusting programs, the floor temperature is adjusted according to programmed instructions. Either **5/2 Day**, or **7 Day** will also be shown on the display when in automatic mode

5/2 Day – Indicates the thermostat is operating in the 5/2 Day program selection within the automatic mode, with separate programming for Monday through Friday (5 day), and Saturday and Sunday (2 day).

7 Day – Indicates the thermostat is operating in the 7 Day program selection within the automatic mode.

Manual – Manual Mode

Indicates the thermostat is operating in the manual mode, temperature is maintained at all times at the selected level.

Sensor – Flashes when the Floor Sensor is malfunctioning.

Floor Temp – The floor temperature readings may be represented in either °F or °C. The operating floor temperature range is from 61°F (16°C) to 104°F (40°C). The displayed floor temperature range is from 32°F (0°C) to 120°F (49°C). The thermostat only functions in the operating floor temperature range (from 61°F/16°C to 104°F/40°C).

– Indicates that the floor heating is energized, flashes slowly during 3 minute standby cycle.

C Energizing the Thermostat

When power is first connected to the thermostat, the LCD Display flashes as shown below. After 90 seconds the display will stop flashing and go to the default time setting of Monday, 12:00AM and display the Floor Temp. The display will also stop flashing if a program button is pressed, or the mode switch is moved to another position.



D Setting the Time and Day

- Move the mode switch to the **Off** position; the actual Floor Temp and current time are displayed.



- To enter the time setting program, simultaneously press and hold the **BACK** and the **ACCEPT** buttons for 3 seconds. The Day symbol flashes. Press the **UP** or **DOWN** button to adjust the Day. Press the **ACCEPT** button once to accept the Day setting.



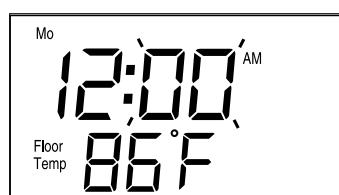
- After accepting the Day setting, the **AM** or **PM** symbol flashes. Press the **UP** or **DOWN** button to set **AM** or **PM**. Press the **ACCEPT** button once to accept the **AM/PM** setting.



- After accepting the **AM** or **PM** setting, the Hour digits flash. Press the **UP** or **DOWN** button to set the Hour. Press the **ACCEPT** button once to accept the Hour setting.



- After accepting the Hour setting, the Minute digits flash. Press the **UP** or **DOWN** button to set the Minute. Press the **ACCEPT** button once to accept the minute value and exit the time setting program.



During the previous steps, if no key input is received for 90 seconds or the mode switch is moved to other position, the program will exit the time setting mode and reset to the Default value of 12:00 AM, Monday.

The time is now set, the thermostat clock will start running.

E Selection of the Temperature Scale (Fahrenheit or Centigrade)

- Move the mode switch to the **MANUAL** position; the Floor Temp and current time are displayed.
- To enter the temperature scale selection; simultaneously press and hold the **BACK** and the **ACCEPT** buttons for 3 seconds. The "F" or "C" digit flashes.
- Press the **UP** or **DOWN** button to toggle between F and C.
- Press the **ACCEPT** button once to accept the F or C scale and exit the setting.

F Quick Start

The thermostat is pre-programmed for immediate use. To begin setback operation in the 5/2 mode, move the Mode switch to the Auto position; the thermostat will control the floor temperature to a moderate temperature (86°F/30°C) such that the cables are only energized in the morning and the evening, and off during the day and the night. The exact schedule of operation is as follows:

If setback operation is not required, move the Mode switch to the Manual position. The floor temperature is preset to 86°F (30°C), and can be adjusted

	Automatic Program for Weekdays	Automatic Program for Weekends		
	Time	Floor Temp	Time	Floor Temp
Wake	6:00 AM	86°F/30°C	6:00 AM	86°F/30°C
Leave	8:00 AM	61°F/16°C	8:00 AM	86°F/30°C
Return	5:00 PM	86°F/30°C	5:00 PM	86°F/30°C
Sleep	10:00 PM	61°F/16°C	10:00 PM	61°F/16°C

up or down by simply pressing and holding the **UP** or **DOWN** switch for 3 seconds and then setting the desired temperature. Press **ACCEPT** to confirm the new temperature and begin operation.

If floor heating is not required at this time, set the Mode switch to **OFF**. The display will continue to show the time and the floor temperature.

G Personalizing Your Floor Comfort Schedule

The FTS series thermostats offer two programming modes to personalize your floor comfort and maximize energy savings. The first program mode is the **5/2 Day** mode, which groups Monday – Friday as the "5" group and Saturday and Sunday as the "2" group. The second program mode is the **7 Day** mode, which allows you to program each day individually to suit your specific schedule. Each program mode allows four unique time/temperature settings ("events"). Usually, you would select the program mode that best suits your schedule. (Hint: It is easier and quicker to modify the **5/2 Day** program than the **7 Day** program, so choose the **5/2 Day** if it better suits your schedule.)

Both the **5/2 Day** and **7 Day** modes are pre-programmed, as noted in "Quick Start" above. These programs are easily modified, as explained in the appropriate sections below.

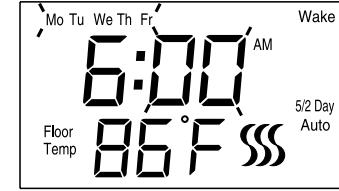
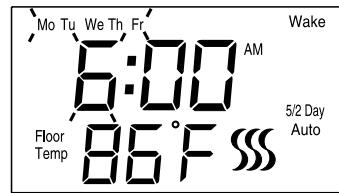
Prior to modifying these programs, you should consider that floors take time to heat up and cool down to their set temperatures. Keep in mind that you may want to set the Floor Temp about one hour before you want the floor to be warm, this allows adequate heat up time. Conversely, you can set the Floor Temp to decrease about one hour before you want the floor to reach its cool down temperature.

Most floors feel comfortable between 80° (27°C) and 85°F (30°C). For a variety of reasons, in certain installations the comfortable temperature may be above or below this range; this is normal. The maximum setting on the thermostat is 102°F (40°C) and in most installations it is unlikely that the floor will ever reach this temperature; this, too, is normal.

H Modifying / Viewing the 5/2 Day Mode

To access the **5/2 Day** program, the thermostat must be in the **5/2 Day** program mode. The program mode (either **5/2 Day** or **7 Day**) is shown on the display when the Mode switch is in the Auto position. If the **5/2 Day** mode is not shown on the display (**7 Day** shown), hold the BACK and ACCEPT buttons for 3 seconds, and use the UP button to change to the **5/2 Day** mode, then ACCEPT to activate this mode. The program can then be changed as follow:

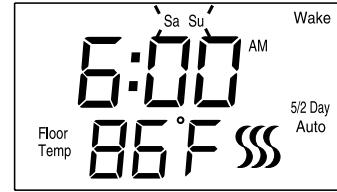
1. To enter the **5/2 Day** program, press and hold the ACCEPT button for 3 seconds. The common Wake settings for the Weekdays are displayed. 'Mo Tu We Th Fr' flashes on the display and continues to flash throughout the weekday programming sequence.
2. To simply view the program settings, just press the ACCEPT button to toggle through the Wake, Leave, Return and Sleep screens for the weekdays and weekend. The thermostat returns to normal operation after the "Weekend - Sleep" setting has been viewed. The thermostat will also return to normal operation if no button input is received for 90 seconds.
3. To begin programming, press the UP or DOWN button once, the 'AM' icon flashes, press the UP or DOWN button to toggle between AM or PM. Press the ACCEPT button to confirm acceptance of the AM/PM setting.
4. The 'Hour' digits flash. Press the UP or DOWN button to change the Wake Hour. Press the ACCEPT button once to accept the Wake Hour setting.
5. The 'Minute' digits flash. Press the UP or DOWN button to set the Wake Minute. Press the ACCEPT button once to accept the Wake Minute setting.
6. The 'Floor Temp' digits flash. Press the UP or DOWN button to set the Floor Temp. Press the ACCEPT button once to accept the Floor Temp setting.
7. The program will then advance to the Leave settings. The steps for programming the Leave, Return and Sleep settings are the same as for the Wake settings. Repeat steps 3 - 6 for each.



8. The program will then advance to the Wake setting for the Weekend Days ("Sa Su" flush on the display). Programming for the Weekend value of the Wake, Leave and Sleep follow the same patterns as described in steps 3 - 6 above.

9. At the completion of the 'Week - Sleep' settings, the thermostat automatically saves the entered values, and begins operating to the programmed time and temperature settings.

During any the above steps, if no button input is received for 90 seconds or the Mode switch is moved to another position, the program will exit the **5/2 Day** setting mode, saving any of the changes that have been "ACCEPTED".



6. The 'Floor Temp' digits flash. Press the UP or DOWN button to set the Floor Temp. Press the ACCEPT button once to accept the Floor Temp setting.

7. The program will then advance to the Leave settings. The steps for programming the Leave, Return and Sleep settings are the same as for the Wake settings. Repeat steps 3 - 6 above.

8. The program will then advance to 'Tu' and cycle through the Wake, Leave, Return and Sleep settings, continuing through the week sequentially until 'Su' settings are completed.

During the above steps, if no button input is received for 90 seconds or the Mode switch is moved to another position, the program will exit the **7 Day** setting mode, saving any of the changes that have been accepted.

J Modifying / Viewing the 7 Day Mode

If the **7 day** mode is not shown on the display (rather, **5/2 Day** appears), hold the BACK and ACCEPT buttons for 3 seconds and use the UP button to change to the **7 Day** mode, press ACCEPT to activate this mode. The program can then be modified or viewed as follows;

1. To enter the **7 Day** mode, press and hold the ACCEPT button for 3 seconds. The Wake setting for Monday is displayed, 'Mo' flashes on the display and continues to flash throughout the 'Mo' sequence.
2. To simply view the program settings, just press the ACCEPT button to toggle through the Wake, Leave, Return and Sleep screens for each day. The thermostat returns to normal operation after the "Su - Sleep" settings have been viewed. The thermostat will return to normal operation if no button input is received for 90 seconds.
3. To begin programming, press the UP or DOWN button once, the 'AM' icon flashes, press the UP and DOWN button to toggle between AM or PM. Press the ACCEPT button to confirm acceptance of the AM/PM setting.
4. The 'Hour' digits flash. Press the UP or DOWN button to set the Wake Hour. Press the ACCEPT button once to accept the Wake Hour setting.
5. The 'Minute' digits flash. Press the UP or DOWN button to set the Wake Minute. Press the ACCEPT button once to accept the Wake Minute setting.



9. At the completion of the 'Su - sleep' settings, the thermostat automatically saves the entered values, and begins operating to the programmed time and temperature settings.

During programming or viewing, use the BACK button to return to the previous program step. The program will automatically exit and return to normal operation if the BACK button is pressed at the Wake screen. Any program settings on that day, or sequence of days, will be lost.

K Temporary Adjustment of Floor Temp

When the thermostat is operating in the Auto mode (either the **5/2 Day** or **7 Day**), the floor temperature setting can be temporarily changed. Press and hold the UP button for 3 seconds until the Temp digits begin to flash. Then press the UP or DOWN buttons to set the desired temperature. Then press ACCEPT to confirm the setting. Note that if the ACCEPT button is not pressed within 90 seconds, the temperature will revert to the previous setting.

The Floor Temp stays at the adjusted temperature until the next program period begins (Wake, Return, Leave or Sleep), or the slide switch is set to another position.

L Ground Fault Interrupter (EGFPD)

The thermostat has an integral Equipment Ground Fault Protection Device (EGFPD) circuit to isolate faults on the heating cable load. This circuitry is active ONLY when the heating cable load is energized (the Heating icon is continuously displayed on the LCD). Test this circuitry monthly, as follows: Ensure the heating cables are energized (if the heating icon is not shown on the display or is flashing, increase the temperature setting of the floor to activate the cables.) Press the TEST button once to simulate a fault; the red EGFPD light will come on and the "GFI" symbol will flash on the display. Press the RESET button to restore power to the cables, and return the floor temperature setting to the original setting.

- If the EGFPD trips and can't be reset, turn the Mode switch to the **OFF** position, and have a qualified electrical technician check on the electrical circuit before energizing the system again.



- Under NO circumstances should the thermostat be bypassed, and the heating cables energized, when a fault condition exists.**

M Power Outage Recovery

Power interruptions to the thermostat will not affect the program settings. However, a power interruption of greater than approximately 10 minutes will require that the clock be reset (see "Setting the Time and Day" above). Of course, for extended power interruptions, the display will remain blank.

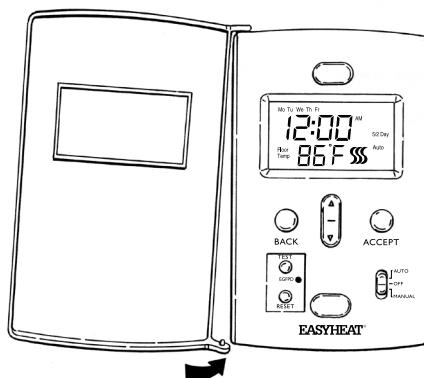
N Sensor Icon

If the thermostat detects a fault with the Floor Sensor, the **Sensor** icon will flash on the LCD display. The power to heating cable will be disabled.



O Changing the Door

The FTS series thermostats come with 2 doors, allowing you customize the look of your thermostat to best match the room décor. The doors remove easily. With the door halfway open, gently pull down at the bottom hinge point and twist the door away from the thermostat. Simply reverse the process to install the new door.



P Re-set to factory default values for 5/2 Day & 7 Day programs

Slide switch to OFF mode, press and hold BACK and DOWN and ACCEPT buttons for 3 seconds. The time schedules will be set to default values.

Troubleshooting

Problem	Possible Cause	Suggested Correction
Display is Blank	No power to the thermostat	Restore power supply
Er 02 on display	Program cannot run with time setting proposed due to conflict of time (e.g. Leave time occurs after Return time)	Adjust program time to eliminate conflict
EGFD test button won't cause thermostat to trip	Thermostat is in 'Standby' mode (Heating Symbol Flashing Slowly)	Wait for 3 minutes, until heating icon stops flashing and is on continuously
GFI flashing on LCD display	Ground Fault detected by thermostat	Press Reset button on thermostat, if fault does not clear, switch to Off mode call, service technician or contact Easy Heat Customer Service Center
Cold/Hot Floor	Floor Temp Set too low/high Clock not set properly	Increase/decrease Floor Temp Setting Check Time and Day settings, watch for AM/PM
Floor Temp won't reach set level	Program Set Time may be off Heat up time may be longer than one hour Cables may not be able to reach set level due to room heat loss Cable Problem	Check program settings, watch for AM/PM Set cables to come on earlier than current program Reduce source of heat loss, such as open windows, insulate floor directly under cables Cables must be checked
Floor Heating doesn't turn on	Thermostat in Off mode Power supply problem Problem with sensor wire, 'Sensor' flashing on LCD display Cable problem	Switch to Manual or Auto mode Check breaker panel and wiring Sensor and/or connections to thermostat must be checked Cables must be checked

Limited Warranty and Liability

Easy Heat warrants that if there are any defects in material or workmanship in any Warm Tiles thermostat during the first eighteen (18) months after the date of its purchase, we will replace the thermostat with an equivalent model, not including any labor or other installation costs.

Our obligation to replace the thermostat as described above is conditioned upon (a) the installation of the thermostat conforming to the specifications set forth in our installation instructions and (b) the thermostat not having been damaged by mechanical or electrical activities unrelated to the operation of the mat or cable.

A thermostat replacement as described above shall be your sole and exclusive remedy for a breach of this warranty. This limited warranty does not cover any service costs relating to the repair or replacement of any thermostat.

We shall not be liable for any incidental, special or consequential damages as a result of any breach of this warranty or otherwise, whether or not caused by negligence. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

We make no other express warranty regarding any Warm Tiles mat or cable. No affirmation of fact or promise made by us, by words or

action, shall constitute a warranty. If any model or sample was shown to you, the model or sample was used merely to illustrate the general type and quality of the goods and not to represent that the goods would necessarily be of that type or nature. **No agent, employee or representative of ours has authority to bind us to any affirmation, representation or warranty concerning the goods sold unless such affirmation, representation or warranty is specifically incorporated by written agreement.**

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE THAT MAY ARISE IN CONNECTION WITH THE SALE OF THIS PRODUCT SHALL BE LIMITED IN DURATION TO EIGHTEEN (18) MONTHS FROM THE DATE OF PURCHASE. WE DISCLAIM ALL OTHER IMPLIED WARRANTIES, UNLESS WE ARE PROHIBITED BY LAW FROM DOING SO, IN WHICH CASE ALL SUCH IMPLIED WARRANTIES SHALL EXPIRE AT THE EARLIEST TIME PERMITTED BY APPLICABLE LAW. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province.

To obtain a replacement under this warranty, please send a description of the defect and proof of purchase, postage paid, to Easy Heat at the addresses noted herein.