

# USER'S GUIDE

## STCP MULTIPLE PROGRAMMING ELECTRONIC THERMOSTAT FOR HEATING FLOORS



If you are viewing this guide online, please note that this product has been slightly modified since its introduction. To obtain the guide corresponding to your model (fabrication date at the back of the thermostat before January 2016), please contact customer service.



For further information or to consult this guide online, please visit our website at **www.stelpro.com**

INSSTCP5MA0116



## WARNING

Before installing and operating this product, the owner and/or installer must read, understand and follow these instructions and keep them handy for future reference. If these instructions are not followed, the warranty will be considered null and void and the manufacturer deems no further responsibility for this product. **Moreover, the following instructions must be adhered to in order to avoid personal injuries or property damages, serious injuries and potentially fatal electric shocks.** All electric connections must be made by a qualified electrician, according to the **electrical and building codes** effective in your region. Do NOT connect this product to a supply source other than 120 VAC, 208 VAC or 240 VAC, and do not exceed the specified load limits. Protect the heating system with the appropriate circuit breaker or fuse. You must regularly clean dirt accumulations on or in the thermostat. Do NOT use fluid to clean thermostat air vents. Do NOT use where exposed to water.

### Note :

When a part of the product specification must be changed to improve operability or other functions, priority is given to the product specification itself. In such instances, the instruction manual may not entirely match all the functions of the actual product.

Therefore, the actual product and packaging, as well as the name and illustration, may differ from the manual.

The screen/LCD display shown as an example in this manual may be different from the actual screen/LCD display.

## DESCRIPTION

The STCP electronic thermostat can be used to control heating floors with electrical current – with a resistive load – ranging from 0 A to 16 A at 120/208/240 VAC. It has an easy user interface and can manage up to four programming periods a day. It keeps the temperature of a room (≡ mode) and a floor (⌞ mode) at a requested set point with a high degree of accuracy.

**Floor Mode** ⌞ (factory setting): this control method is ideal in areas where you want a hot floor at any time and when the temperature of the ambient air can be high without causing discomfort. For example, in a bathroom.

**Ambient Mode** ≡ (you only have to press down the A/F button to switch from one mode to the other): this control method is ideal when you want a stable ambient air temperature (without fluctuation). Usually, this mode is used in large and often occupied rooms where temperature variations can be uncomfortable. For example, in a kitchen, a living room or a bedroom.

Some factors cause variations in ambient air temperature. They include large windows (heat losses or gains due to outside temperature) and other heat sources such as a central heating system, a fireplace, etc. In all these cases, the ≡ mode will ensure a uniform temperature.

### This thermostat is not compatible with the following installations:

- electrical current higher than 16 A with a resistive load (3840 W @ 240 VAC, 3330 W @ 208 VAC and 1920 W @ 120 VAC);
- inductive load (presence of a contactor or relay); and
- central heating system.

## Parts Supplied:

- one (1) thermostat;
- two (2) mounting screws;
- four (4) solderless connectors suitable for copper wires;
- one (1) floor sensor.

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## INSTALLATION

### Selection of thermostat and sensor location

The thermostat must be mounted on a connection box, at around 1.5 m (5 feet) above the floor level, on a section of the wall exempt from pipes or air ducts.

Do not install the thermostat in a location where temperature measurements could be altered. For example:

- close to a window, on an external wall, or close to a door leading outside;
- exposed directly to the light or heat of the Sun, a lamp, a fireplace or any other heat source;
- close or in front of an air outlet;
- close to concealed ducts or a chimney; and
- in a location with poor air flow (e.g. behind a door), or with frequent air drafts (e.g. head of stairs).

To install the sensor, refer to the installation guide of your heating floor.

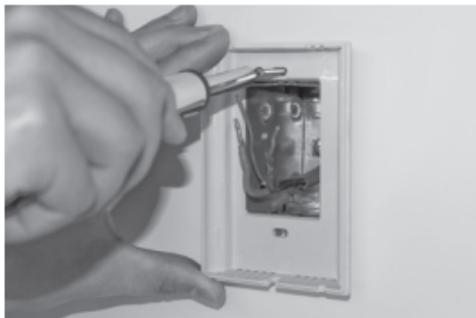
### Thermostat mounting and connection

-  **Cut off power supply on lead wires at the electrical panel in order to avoid any risk of electric shock; Ensure that the thermostat will be installed on a junction box located in an uninsulated wall;**
2. Ensure that the air vents of the thermostat are clean and clear of any obstructions;

- Using a screwdriver, loosen the screw retaining the mounting base and front part of the thermostat. Remove the front part of the thermostat from the mounting base by tilting it upward;



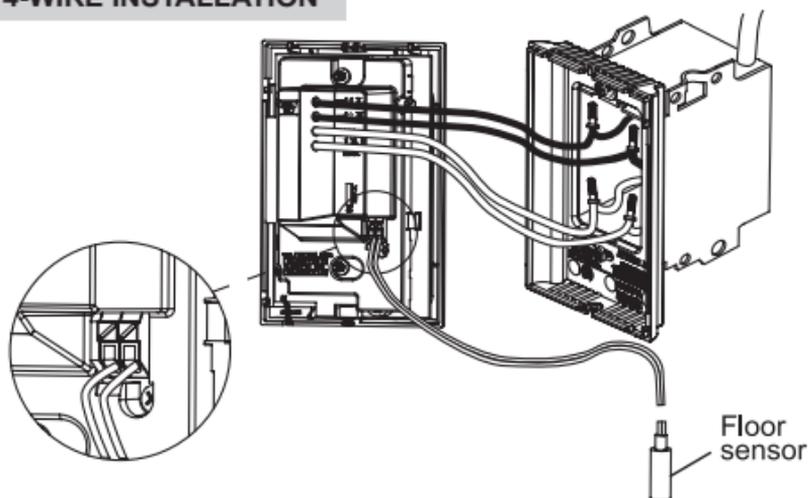
- Align and secure the mounting base to the connection box using the two screws supplied;



- Route wires coming from the wall through the hole of the mounting base and make the required connections using the "Four-wire installation" figure, and using the supplied solderless connectors. A pair of wires (black) must be connected to the power source (120-208-240 VAC) and another pair (yellow) must be connected to the heating cable (refer to the drawings displayed on the back of the thermostat). For connections with aluminum wires, you must use CO/ALR connectors. Please note that thermostat wires do not have polarity, meaning that any wire can be connected

to the other. Then, connect the wires of the floor temperature sensor at the indicated location behind the thermostat.

#### 4-WIRE INSTALLATION

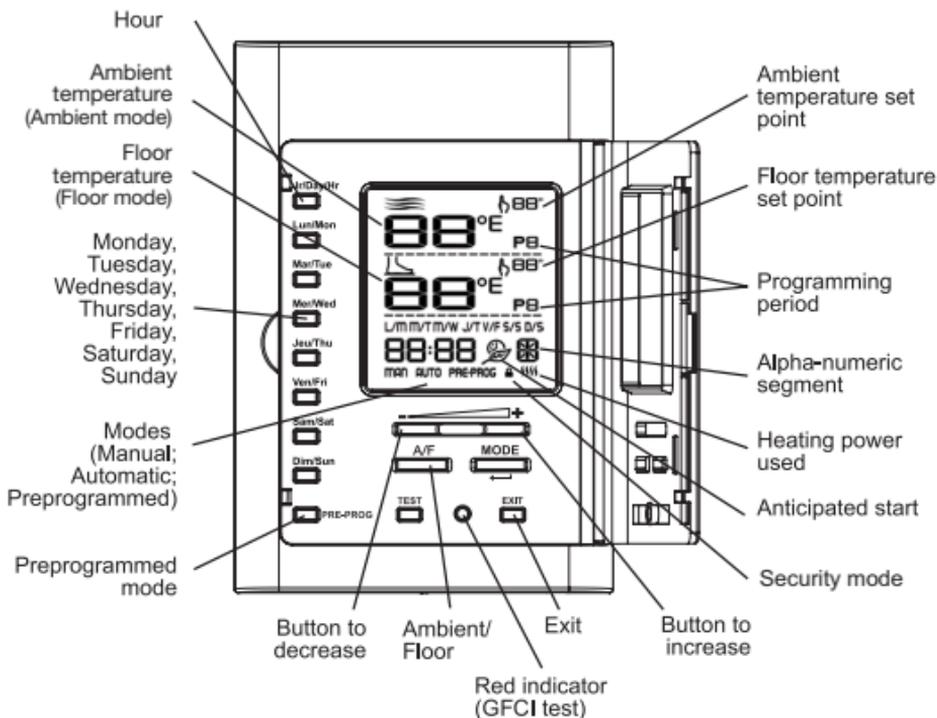


6. Reinstall the front part of the thermostat on the mounting base and tighten the screw at the bottom of the unit;



7. Turn on the power;
8. Set the thermostat to the desired setting (see the following section).

## OPERATION



### First Start-up

At the first start-up, the thermostat is initially in the Man (manual) and  modes. The temperature is displayed in degrees Celsius and the standard factory set point adjustment is 21°C. The hour displays --:-- and must be adjusted before switching to the Auto or Pre Prog mode. The maximum floor temperature is limited to 28°C.

### Ambient and Floor Temperature

The figures displayed below the  icon indicate the ambient temperature,  $\pm 1$  degree. The figures displayed below the  icon indicate the floor temperature,  $\pm 1$  degree. Both temperatures can be displayed in degrees Celsius or Fahrenheit (see "Display in degrees Celsius/Fahrenheit").

## Temperature Set Points

The figures displayed beside the  icon indicate the ambient () or the floor () temperature set points. They can be displayed in degrees Celsius or Fahrenheit (see “Display in degrees Celsius/Fahrenheit”).

Out of any adjustment mode, press down the + button to increase the set point, or the - button to decrease it. Set points can only be adjusted by increments of 1 degree. To quickly scroll through the set point values, press and hold down the button.

## Maximum Floor Temperature Limitation

At any time, the floor temperature (in  mode) is maintained at less than 28°C (82°F) in order to avoid overheating caused by an excessive heating request, which could damage some materials or be detrimental for health.

## Adjustment of the Hour and the Day of the Week

Adjustment procedure of the hour and the day of the week.

1. Press down the Day/Hr button, whether it is in Man, Auto or Pre Prog mode.
2. At this moment, the  icon and the day of the week blinks and you can adjust the day of the week using the + or - button and confirm your choice by pressing down the Mode or Day/Hr button. You can also press down the desired day of the week button without using the + or - button and confirm your choice using the Mode or Day/Hr button.
3. The two figures indicating the hour blink. You must adjust them using the + or - button and confirm your choice by pressing down the Mode or Day/Hr button.
4. The two figures indicating the minutes blink. You must adjust them using the + or - button and confirm your choice by pressing down the Mode or Day/Hr button. The adjustment is then completed and the thermostat returns to the previous mode.

At any time, you can exit the adjustment mode of the day and the hour by pressing down the Exit button or by not pressing any button during 1 minute.

In case of a power failure, the thermostat is self-sufficient for 2 hours. If the failure lasts less than 2 hours, the thermostat saves the adjustment of the hour and the day of the week. When the power is restored after an extensive failure (more than 2 hours), the hour and the day of the week are recovered, but you must update them.

### Display in Degrees Celsius/Fahrenheit

The thermostat can display the ambient temperature and the set point in degrees Celsius (standard factory setting) or Fahrenheit.

Adjustment procedure for degrees Celsius/Fahrenheit display.

1. To switch from the degrees Celsius to the degrees Fahrenheit, and conversely, simultaneously press down the + and - buttons for more than 3 seconds until the  icon blinks.
2. Press down the + button to switch from the degrees Celsius to the degrees Fahrenheit, and conversely. The degree Celsius or Fahrenheit symbol is displayed.
3. When the adjustment is completed, press down the Exit button or do not press down any button during 5 seconds to exit the adjustment function.

This adjustment can be done from any of the three principal modes.

### Manual Mode (Man)

From the Manual mode, you can manually adjust the thermostat set point by pressing down the + or - buttons to increase the value, or to decrease it. Please note that if the backlight is off, the set point will not change when you press down these buttons

for the first time instead, the backlight will be activated. To quickly scroll through the set point values, press and hold down the button. From  mode, the set points can range between 3 and 35°C and can only be adjusted by increments of 1°C (from 37 to 95°F; by increments of 1°F from the Fahrenheit mode). From  mode, the set points can range between 3 and 28°C (from 37 to 82°F). The thermostat will turn off if the set point is lowered below 3°C (37°F), and the set point value displayed will be --. The standard factory set point adjustment is 21°C ( mode). From this mode, the screen displays the / mode temperature, the / mode set point, the hour and the day of the week.

This mode is initially activated when the power is turned on for the first time. You must adjust the hour (as described in the section “Adjustment of the hour and the day of the week”) before switching to other modes by pressing down the Mode or Pre Prog button.

## Automatic Mode (Auto)

To switch from the Manual mode to the Automatic mode, and conversely, press down the Mode button. The Man or Auto icon is displayed at the bottom of the screen as applicable.

From the Automatic mode, the thermostat adjusts the set points according to the programmed periods. If no data is entered, the thermostat acts as in Manual mode and the standard factory set point adjustment is 21°C ( mode). It is always possible to manually adjust the set point using the + or - button. The selected set point will be effective until one period is programmed, which represents an hour and a day of the week. Note that, if the set point is lowered to off (--), the programming will not be effective. It is possible to program 4 periods a day, meaning that the set point can change automatically up to 4 times a day. The period order is not important.

From this mode, the screen displays the temperature, the set point, the hour, the day of the week and the current programmed period number (1 to 4; as applicable).

After programming a day of the week, you can copy this setting; see “Copy of the Programming”.

1. To access the Programming mode, press down the day of the week button that you want to program (Mon to Sun). Once you release the button, the selected day of the week is displayed, the  icon blinks and the period number 1 blinks too.
2. Select the period number (1 to 4) that you want to program using the + or - button. For each period, the hour and the set point are displayed. The hour displays --:-- and the set point displays -- if there is no programming for the period. You must confirm the period by pressing down the Mode button.
3. The two figures representing the hour blink to indicate that you can adjust them (from 00 to 23) using the + or - button. You must confirm the adjustment by pressing down the Mode button.
4. After confirmation, the figures representing the minutes (the last 2 figures) blink. You can adjust and confirm them in the manner described in point 3. Note that the minutes can only be adjusted by increments of 15 minutes.
5. The period set point blinks and you can adjust it using the + or - button. You must confirm the adjustment by pressing down the Mode button.
6. After set point confirmation, the programming is completed. The following period number blinks. For example, if the previously programmed period was 1, period 2 blinks. It is then possible to continue the programming of this period by pressing down the Mode button. You can also select another period using the + or - button.
7. At the end of period 4 programming, you automatically exit the Programming mode.

**At any time, you can exit the Programming mode using one of these 3 methods:**

- 1-Press down the button of the day you are adjusting.

2-Press down the button of another day to program it.

3-Press down the Exit button.

Moreover, if you do not press down any button for more than 1 minute, the thermostat will exit the Programming mode. In all cases, the programming is saved.

### Anticipated Start

This mode enables the room to reach the selected temperature at the programmed hour by starting or stopping the heating before this time. In fact, the thermostat estimates the delay required to reach the set point of the next period at the programmed hour. This delay is obtained by the observation of the temperature variations in the room and the results obtained during the preceding anticipated starts. Therefore, results should be increasingly precise day after day. From this mode, the thermostat displays at any time the set point (  ) of the current period. The  icon will blink when the anticipated start of the next period begins.

For example, if the requested temperature between 8h00am and 10h00pm is 22°C and between 10h00 pm and 8h00am is 18°C, the set point (  ) will indicate 18°C until 7h59am and will switch to 22°C at 8h00am. Thus, you will not see the progression carried out by the anticipated start, only the desired result.

To activate or deactivate the anticipated start, the thermostat must be in Auto or Pre Prog mode. Then, you must press down the Mode button for at least 5 seconds. The anticipated start icon (  ) is displayed or hidden to indicate the activation or the deactivation of the mode. This modification will apply to the Auto as well as the Pre Prog mode. If you modify the temperature set point manually when these modes are activated, the anticipated start of the next period will be cancelled.

N.B. Please note that the anticipated start is initially activated when you enter the Automatic or Preprogrammed mode. Thus, you must deactivate it following the above procedure if needed.

## Copy of the Programming

You can apply the programming of one day of the week to other days by copying the programming day by day or in block.

To copy the programming day by day, you must:

1. Press down the source day button (day to be copied).
2. Hold down this button and press down the destination days one by one. The screen displays the selected days. If an error occurs when you are choosing a day, press down the erroneous day again to cancel the selection.
3. After all selections are completed, release the source day button. The selected days have the same programming as the source day.

To copy the programming in block, you must:

1. Press down the source day button, hold it and press down the last day of the block you want to copy.
2. Hold down these two buttons for 3 seconds. After this time, the days of the block are displayed indicating that the copy in block is activated.
3. Release the buttons. The days of the block are not displayed anymore and the current day is displayed.

N.B. The block order is always increasing. For example, if the source day is Thursday and the destination day is Monday, the copy will only include Friday, Saturday, Sunday and Monday.

## Erasing of the Programming

You must proceed as follows to erase a programming period.

1. Access the Programming mode as described previously by pressing down the button corresponding to the day to modify. Select the period to erase using the + or - button.
2. You do not have to press down the Mode button to confirm the selection. However, doing so will not impact on the erasing.

3. Simultaneously press down the + and – buttons to erase the period programming. The hour displays --:-- and the set point displays -- to indicate that the programming is erased.
4. The erased period number blinks and you can select another period to be erased or exit the Programming mode following one of the 3 methods described above.

## Preprogrammed Mode

The Preprogrammed mode allows an automatic programming of the thermostat. 252 preprogrammings have been defined for  mode and 252, for  mode (A0 to Z1 and 0 to 9; see appendix 1 to consult the corresponding tables). This mode gives you the possibility to quickly program the thermostat using preprogrammings commonly used without having to do it manually.

As from the Automatic mode, it is possible, at any time, to manually adjust the set point. This set point will be effective until the next set point change anticipated by the preprogramming. Note that if the set point is lowered to off (--), the programming will not be effective.

From this mode, the screen displays the / temperature, the / set point, the hour, the day of the week and the letter and current number of the preprogramming (A0 to Z1 and 0 to 9; alpha-numeric segment displayed on the right-hand side of the hour; see appendix 1).

## Choice of the Preprogramming

You can only access the Preprogramming mode when the thermostat is out of any programming or adjustment function. Make sure to choose the preprogrammings corresponding to the right mode (/, according to the attached tables).

You must proceed as follows to access the Preprogramming mode:

1. Press down the Pre Prog button.

2. The Pre Prog icon and saved selected preprogramming are displayed. This preprogramming can range between 0 and Z1.
3. From the Pre Prog mode, you can choose the first 10 preprogrammings by pressing and releasing the Pre Prog button. Each time you press down the button, the preprogramming switches (from 0 to 9).
4. To choose advanced preprogrammings, (see appendix 1), press down the Pre Prog button during 5 seconds. The letter indicator blinks and you can adjust it by pressing down the + or - button. Once the letter is chosen, you must validate your choice by pressing down the Mode button. The letter ceases to blink and the figure starts to blink. The choice of the figure is made in the same way as that of the letter (using the + or - button). Once the figure is selected, you must validate your choice by pressing down the Mode button.

N.B. If you do not press down any button for more than one minute or press the Exit button, the thermostat exits the adjustment function and saves the current choice. Then, the icons cease to blink and the letter and the figure corresponding to the selected preprogramming blink alternately until you select another preprogramming. If the Pre Prog mode is activated and you successively press down the Pre Prog button, the preprogramming comes back to 0 and increases normally, as described above.

## View of the Preprogramming

The view of the selected preprogramming is made in a way similar to the Auto mode programming. However, it is impossible to modify the preprogramming.

You must proceed as follows:

1. Press down the button corresponding to the day to view (buttons Mon to Sun). When the selected day is displayed, the  icon and period number blink.

2. Choose the period number (1 to 2) to view using the + or - button. For each period, the hour and set point are displayed. You can also press down the Mode button to switch to period 2. If you press down the Mode button when period 2 is displayed, you exit the View mode.

**At any time, you can exit the View mode using one of these 3 methods.**

- 1- Press down the button of the day you are viewing.
- 2- Press down another day to view it.
- 3- Press down the Exit button.

If you do not press down any button during 1 minute, the thermostat quits the view mode. At any time, it is possible to change the day to be viewed by pressing down the desired day button.

### Mode

To switch from the  mode to the  mode, or conversely, press down the A/F button (when you are not in any adjustment mode). The previous temperature set point of this mode will be restored. If a set point is programmed for the current period, it will take this value.

### Safe mode

If the thermostat fails to detect the presence of a floor sensor, it will automatically revert to  mode at a set point of 21°C. (with a maximum set point temperature of 24°C.)

### Sensor Selection

If you want to use the STCP thermostat of Stelpro with a temperature sensor already installed in the floor (other than the sensor supplied with this thermostat), you must contact the Stelpro customer service to validate the compatibility between the sensor and the thermostat. You must know the serial number and name of the installed sensor.

## Temperature Control

The thermostat controls the floor/ambient temperature (according to the  mode) with a high degree of accuracy. When the heating starts or stops, it is normal to hear a “clac” sound. It is the noise of the relay which opens or closes, as applicable.

## Backlighting

The screen lights up when you press down a button. If you do not press down any button for more than 15 seconds, the screen turns off.

If you press down the + or – button once when the backlight is off, it will light up without changing the set point value. The set point value will change only if you press down one of these buttons again.

## Ground-fault Circuit Interrupter (GFCI)

The GFCI is designed to reduce the risk of electric shock. It can detect a leakage current of 5mA. If a defect is detected, the GFCI device lights up, and both screen and heating system circuit are deactivated. The GFCI can be reinitialized either by pressing down the Test button or by disconnecting the thermostat at the electrical panel.

### Ground-fault Circuit Interrupter (GFCI) Verification

It is important to verify the ground-fault circuit interrupter installation and operation on a monthly basis.

#### GFCI verification procedure

- 1- Increase the temperature set point until the heating power bars are displayed (displayed in the bottom-right hand corner of the screen).
- 2- Press down the Test button.
- 3- The following three cases can occur:

- a) Successful test: The red light indicator of the thermostat lights up and the display indicates the temperature. In

this case, press down once again the Test button to reinitialize the ground-fault circuit interrupter, the red indicator turns off.

- b) Failed test: The red indicator of the thermostat lights up and the display indicates E4. In this case, disconnect the heating system at the electrical panel and call Stelpro's customer service.
- c) Failed test: The red indicator of the thermostat lights up and the display shows only the time. In this case, disconnect the heating system at the electrical panel and contact Stelpro's customer service. The thermostat has detected a ground-fault.

## Security mode

This mode imposes a maximum temperature set point which is impossible to exceed regardless of the mode in progress. However, it is still possible to lower the set point at your discretion. The programming of the Auto and Pre-Prog modes also respects this maximum temperature set point. Please note that when the Security mode is activated, it is impossible to switch from the  mode to the  mode, and conversely.

Procedures to activate Security mode

1. Exit any adjustment mode to manually adjust the set point at the desired maximum value.
2. Simultaneously press down the + and - buttons during 10 seconds (note that after 3 seconds, the  icon starts to blink and the software version and date are displayed. Continue to press down these buttons).
3. After 10 seconds, the  icon is displayed indicating that the Security mode is activated. Then, release the buttons.

Procedures to deactivate Security mode

1. To deactivate the Security mode, cut off the power supply of the thermostat at the electrical panel and wait at least 30 seconds.

2. Restore the power supply to the thermostat. The  icon will blink during a maximum of 5 minutes, indicating that you can deactivate the Security mode.
3. Simultaneously press down the + and - buttons for more than 10 seconds. The  icon will then be hidden indicating that the Security mode is deactivated.

## Parameter Backup and Power Failures

The thermostat saves some parameters in its nonvolatile memory in order to recover them when power is restored (e.g. after a power failure). These parameters are the current Man/Auto/Pre-Prog mode, the hour and the day of the week, the Auto mode programming (either from the  or  mode), the maximum floor temperature (28°C), the last selected programming of the Pre-Prog mode, the / mode, the Celsius/Fahrenheit mode, the last effective set point, the Security mode and the maximum lock set point.

As mentioned above, the thermostat can detect a power failure. In such a case, the adjustments described are automatically saved in the volatile memory and recovered when power is restored. Then, the thermostat enters a very low consumption mode and only displays the hour and day of the week. All the other functions are deactivated.

The thermostat is self-sufficient for 2 hours. If the power failure lasts less than 2 hours, the thermostat saves the adjustment of the hour. However, when power is restored after an extensive failure (more than 2 hours), it recovers the last mode (Man/Auto/Pre-Prog) as well as the various adjustments that were effective when the failure occurred (either from the  or the  mode). The hour and the day of the week are also recovered, but you must update them. The set point will be the same as what was active when the failure occurred.

N.B. During the first half hour of the failure, the hour and day of the week are displayed. After half an hour, the screen turns off in order to ensure energy saving.

## TROUBLESHOOTING

| PROBLEM   | DEFECTIVE PART OR PART TO CHECK   |
|---|---|
| The thermostat is hot.  | <ul style="list-style-type: none"> <li>In normal operating conditions, the thermostat housing can reach nearly 40°C at maximum load. It is normal and will not affect the operation of the thermostat.</li> </ul> |
| Heating is always on.   | <ul style="list-style-type: none"> <li>Check if the thermostat is properly connected. Refer to the installation section.</li> </ul>   |
| Heating does not run even if the thermostat indicates it is on. | <ul style="list-style-type: none"> <li>Check if the thermostat is properly connected and make sure the red indicator is not lit. Refer to the installation section.</li> </ul>                                    |
| The display does not come on.                                   | <ul style="list-style-type: none"> <li>Check if the thermostat is properly connected. Refer to the installation section. Check the power supply at the electrical panel.</li> </ul>                               |
| The red indicator lights up frequently.                         | <ul style="list-style-type: none"> <li>Contact customer service.</li> </ul>   |
| The displayed ambient temperature is incorrect.                 | <ul style="list-style-type: none"> <li>Check the presence of an air stream or a heat source near the thermostat, and correct the situation.</li> </ul>  |
| The display indicates E1*, E2** or E3***.                       | <ul style="list-style-type: none"> <li>Faulty thermal sensor. Contact customer service.</li> </ul>  |
| The display indicates E4****.                                   | <ul style="list-style-type: none"> <li>Faulty ground-fault circuit interrupter. Contact customer service.</li> </ul>  |
| Weak luminosity of the display.                                 | <ul style="list-style-type: none"> <li>Possibility of a bad contact. Check thermostat wirings. Refer to the installation section.</li> </ul>  |

\* E1: Faulty ambient exterior sensor (open circuit) - written in the ambient section

\*\* E2: Faulty interior sensor (open circuit) - written in the ambient section

\*\*\* E3: Faulty floor sensor (open circuit) - written in the floor section

\*\*\*\* E4: Faulty ground-fault circuit interrupter (GFCI)

N.B. If you do not solve the problem after checking these points, cut off the power supply at the main electrical panel and contact customer service (consult our Web site to obtain the phone numbers).

## TECHNICAL SPECIFICATIONS

### Supply voltage:

120/208/240 VAC, 50/60 Hz

### Maximum electrical current with a resistive load:

16 A

3840 W @ 240 VAC

3330 W @ 208 VAC

1920 W @ 120 VAC

### Temperature display range:

0 °C to 40 °C (32 °F to 99 °F)

### Temperature display resolution:

1 °C (1 °F)

### Temperature set point range (Ambient Mode):

3 °C to 35 °C (37 °F to 95 °F)

### Temperature set point range (Floor Mode):

3 °C to 28 °C (37 °F to 82 °F)

### Temperature set point increments:

1 °C (1 °F)

### Storage:

-30 °C to 50 °C (-22 °F to 122 °F)

### Certification:

cETLus



