

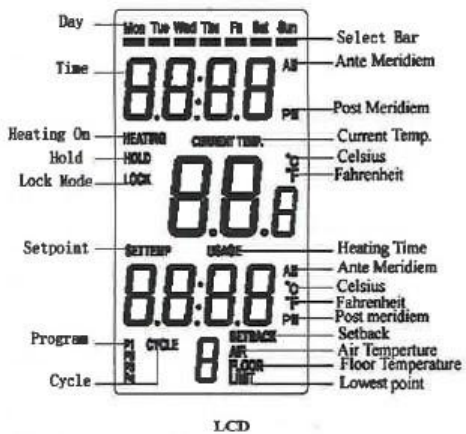
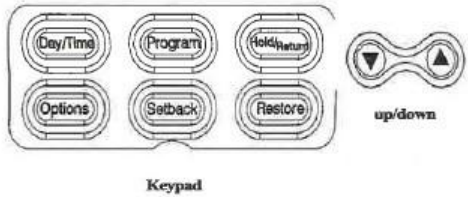
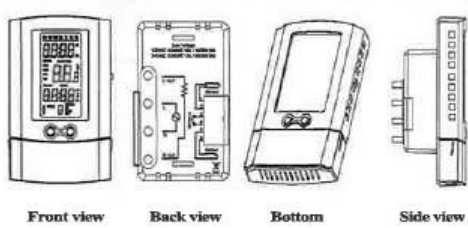
Model: 031530

The Pro-Heat thermostat is suitable for floor heating systems, controlling the voltage of either a 120VAC or 240VAC.

I. Main Functions and Features

- Blue backlight, clear display
- Independent keys, easy to operate
- Can be controlled via sensors or time
- Factory set with 4 programmed schedules for user's choice
- Remote on/off control to connect to a home automation system
- Calculates the heating time which helps calculate the energy consumption
- Keyboard lock function

II. Product Details & LCD Display

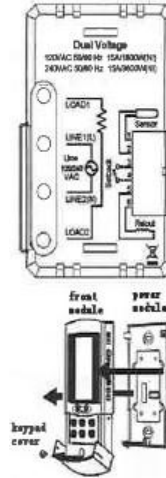


III. Installation and Wiring

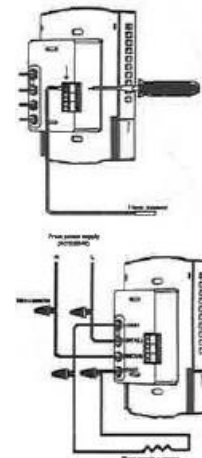
• Installation

Installation must be carried out by a certified electrician and must comply with national and local electrical codes.

- Open the keypad cover and loosen the screw allowing for the separation of the front module from the power module.
- Pull outward near the bottom of the front module and lift off.
- Find a location for the thermostat in your home. It is for indoor use only. Install the thermostat at a height between 4 and 5 feet above the floor, or on an inside wall. Direct sunshine and heat appliances should be avoided.
- Turn off the power to the floor warming system before doing any electrical work.



- A dedicated circuit is ideal for the installation of this thermostat. If a dedicated circuit is not possible, make sure there is enough load capacity on an existing circuit to handle the addition of your floor warming system. This circuit should NOT be wired in series with any other device including other GFCIs.
- The circuit breaker in the main circuit panel should be 15 amps maximum for a floor warming system totaling 12 amps or less. For a larger system up to 15 amps, use a 20 amps maximum circuit breaker. NEVER exceed 15 amps on the thermostat.
- Pull the power supply wiring in to this box, leaving about 6 inches of wire.
- Refer to your floor warming system. Pull the floor sensor wire and the power lead wires from your floor warming system up the wall in to this box.
- Mount the electrical panel. **CAUTION: High Voltage—** Disconnect power supply before servicing. Do NOT use where exposed to rain. Mount this control only to a grounded metallic box or a nonmetallic box.



• Wiring

Line1 (L) and Line2 (N) (Line 120VAC/240VAC) and Load1 (LOUT) and Load2 (NOUT)

- Connect L and N to the power supply with the wire nuts. Gently tug on the wires to make sure there is no failure in the connection. Consider wrapping the wire nuts with electrical tape to secure the wire connection tightly.
 - Connect LOUT and NOUT to the floor warming system lead wires with the wire nuts. Gently tug on the wires to make sure there is no failure in the connection. Consider wrapping the wire nuts with electrical tape to secure the wire connection tightly.
 - Connect the house ground wire to the green lead wire of your floor warming system.
 - Insert the ends of the floor sensor in to the terminal 1 and 2 and tighten the screws. The blue wire should be secured in terminal 1 and the red wire should be secured in terminal 2.
- Note: Before continuing, make sure your power supply voltage matches the voltage rating of your floor warming system. Connecting 240VAC to a 120VAC floor warming system will cause overheating and damage to the system and may damage the controller, other wiring, floor coverings, etc.

IV. Parameter Setup

• On/Off Switch

Found on the side of the thermostat. The switch must be placed in the "on" position to allow any of the programming to function. When in the "off" position, the system will not heat and the keys will not function.

• Setting the Date and Time

- Press and hold the **Day/Time** button until the *hour* begins to flash. Press ▼ or ▲ to adjust the hour.
- Press the **Day/Time** button again and the *minutes* will begin to flash. Press ▼ or ▲ to adjust the minutes.
- Press the **Day/Time** button again and the *day of the week* along the top will flash. Press ▼ or ▲ to adjust the day of the week.



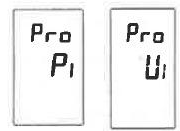
• Switching Between °F/12 h and °C/24h Format

- Press and hold the **Options** button. °F and 12 h will show on the display.
- Press ▼ or ▲ to toggle between °F and 12 h and °C and 24h.



• Setting Your Heating Schedule

There are four factory set schedules you can use, designated P1, P2, P3, and P4.



You may also manually program your own schedule, designated U1. These can be accessed through the **Program** button.

- Press and hold the **Program** button. *PRO P1, P2, P3, P4* or *U1* will be flashing.
- Press ▼ or ▲ to toggle between the options.
 - If a pre-set program is desired, select *P1-P4* and once highlighted, press the **Hold/Return** button to accept. These schedules cannot be permanently modified and are as follows:

P1 (Early riser)

Cycle	Mon - Fri	Saturday	Sunday
1	5:00 AM	5:00 AM	5:00 AM
	82°F	82°F	82°F
2	7:00 AM	9:00 AM	9:00 AM
	75°F	75°F	75°F
3	5:00 PM	5:00 PM	5:00 PM
	82°F	82°F	82°F
4	10:00 PM	10:00 PM	10:00 PM
	75°F	75°F	75°F

P2 (Longer day)

Cycle	Mon - Fri	Saturday	Sunday
1	5:00 AM	6:00 AM	6:00 AM
	82°F	82°F	82°F
2	8:00 AM	9:00 AM	9:00 AM
	75°F	75°F	75°F
3	6:00 PM	5:00 PM	5:00 PM
	82°F	82°F	82°F
4	11:00 PM	11:00 PM	11:00 PM
	75°F	75°F	75°F

P3 (At home during the day)

Cycle	Mon - Fri	Saturday	Sunday
1	6:00 AM	6:00 AM	6:00 AM
	82°F	82°F	82°F
2	8:00 AM	9:00 AM	9:00 AM
	79°F	79°F	79°F
3	6:00 PM	6:00 PM	6:00 PM
	82°F	82°F	82°F
4	10:00 PM	10:00 PM	10:00 PM
	75°F	75°F	75°F

P4 (Take the chill off)

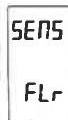
Cycle	Mon - Fri	Saturday	Sunday
1	6:00 AM	7:00 AM	7:00 AM
	75°F	75°F	75°F
2	9:00 AM	10:00 AM	10:00 AM
	70°F	70°F	70°F
3	6:00 PM	6:00 PM	6:00 PM
	75°F	75°F	75°F
4	10:00 PM	10:00 PM	10:00 PM
	70°F	70°F	70°F

Note: Your pre-set program selection will be indicated in the bottom left corner of the display screen.

- If a manual program is desired, select *U1* and once highlighted, press the **Program** button once.
 - The *hour* will begin flashing for the first of four cycles for your Monday-Friday setting. Use ▼ or ▲ to adjust the hour. Press the **Program** button once to store.
 - The *minutes* will begin flashing for the first of four cycles for your Monday-Friday setting. Use ▼ or ▲ to adjust the minutes. Press the **Program** button once to store.
 - The *set temperature* will begin flashing for the first of four cycles for your Monday-Friday setting. Use ▼ or ▲ to adjust the temperature. Press the **Program** button once to store.
 - Now, your *hour* will begin flashing again for the second of four cycles for your Monday-Friday setting. Repeat these steps for the remaining cycles for Monday-Friday. Following these cycles, you will also be programming 4 cycles each for Saturday and Sunday as well.
 - When finished, or at any time during the setting of your manual program, you can press the **Hold/Return** button to store the changes you have made.
- Note: The *U1* program will not show any indication in the bottom left corner of the display screen.

● **Sensor Control and Time Control Mode**

The thermostat can realize simultaneous detection of the room temperature and floor temperature. There are two sensor options: *Flr* for floor temperature mode and *Air* for room temperature mode. The time control mode is indicated by *Regu On*.



- Press and hold the **Options** button.
- Press the **Options** button once more to show the sensor options.
- Use ▼ and ▲ to toggle between *Sens Flr*, *Sens Air* and *Regu On*.
- Press **Hold/Return** to select and store option.
 - Floor Temperature Mode: current temperature displayed is pulled from the installed floor sensor. Heating occurs when current temperature is no more than 10° from the set temperature.
 - Air Temperature Mode: current temperature displayed is pulled from the air sensor in the thermostat. Heating occurs when current temperature is no more than 10° from the set temperature.

● **Floor Limit**

If the thermostat is set to operate in Air Sense Mode, the display will show the air temperature but the thermostat still monitors the floor sensor if it connected. You may set a floor limit temperature so the system will turn off if the floor sensor temperature exceeds this limit. This will avoid possibly overheating your floor.



- Press and hold the **Options** button.
- Use the ▼ or ▲ arrows to highlight the *Sens Air* option. Press the **Options** button once to select.
- Your Floor Limit should show up next. Use ▼ or ▲ to select a *floor limit temperature*.
- Press the **Hold/Return** button to store this setting.

● **Calibration**

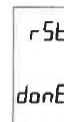
This feature allows the ability to slightly adjust the display temperature. Normally this is not recommended and certainly not required, however it may be necessary in special circumstances.



- Press and hold the **Options** button.
- Press the **Options** button until *CAL* shows on the display with the current temperature and offset value. The offset value is factory set to 0.
- Use ▼ or ▲ to adjust the *offset value*, allowing a range of ±10°F.
- Press the **Hold/Return** button to store this setting.

● **Resetting Factory Defaults**

You have the option to reset all programming, settings and usage time to the factory defaults. To do this, press and hold the **Restore** button until *Rst Done* shows on the display. The thermostat will go through a startup mode and return to the normal operation mode. You will need to reset the day and time following any reset.



Note: When resetting to the factory defaults, some malfunction situations may occur. This is caused by information being previously stored incorrectly in the thermostat. Cut the power supply and restart it to solve the problem.

V. **Operation**

This thermostat has several ways to control your floor heating system. It is factory set to operate in the program schedule selected but this can be overridden to meet your needs. *Heating* will show on the display when the system calls for the heating element to turn on.

● **Manual Mode**

This mode can allow the user to quickly raise the temperature as required. You can temporarily adjust the set temperature as follows. (This set temperature will hold until the next cycle change.)

- Press and hold ▼ or ▲ to adjust the *set temperature*.
- Press the **Hold/Return** button to store this setting.

• **Hold Mode**

You can hold the current set temperature indefinitely. This can be especially useful when you are on vacation.



- Press and hold the **Hold/Return** button on the main display. *Hold* will be indicated on the display.
- To cancel this hold, press and hold the **Hold/Return** button again and the indication will disappear from the display.

• **Setback Mode**

You can use the setback to override the current set temperature. This is especially useful if you have an alternative temperature you repeatedly select when you are away.



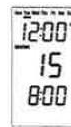
- Press and hold the **Setback** button. You will be prompted to enter your setback temperature.
- Press **Hold/Return** and *Setback* will be indicated on the display and also a *set-point temperature*. This set-point will hold until the next scheduled program time.
- To cancel the setback, press ▼ or ▲.
- If a more permanent setback temperature is desired, press and hold the **Hold/Return** button and *Hold* will be indicated on the screen as well. To cancel this, you will need to press and hold the **Hold/Return** button to cancel the hold and then press ▼ or ▲ to cancel the setback.

• **Remote Control Override Mode**

If your thermostat was installed with Remote Control input from a home automation system, this will override the thermostat when the remote control closes its output switch or relay. *Setback* and *Hold* will show on the display and will operate in the setback temperature indefinitely. To cancel this, the Remote Control switch or relay must be opened.

• **Time Control Mode**

This mode functions like a timer. The heating equipment will start and stop every 15 minutes. You will program a value between 0 and 15 which indicates the length of time in minutes the system will heat out of a possible 15 minutes.



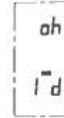
Example: A value of 6 will cause it to heat for 6 minutes of the 15 minute cycle and not heat for the remaining 9

minutes. 0 would indicate no heating and 15 would indicate continuous heating.

- Press and hold the **Options** button.
- Press **Options** until the *Sens* options screen displays.
- Press ▼ or ▲ to locate *Regu On*.
- Press the **Hold/Return** button to select.
- The screen will now show the heating time (value between 0 and 15) and current cycle time (repeats from 0:00 to 14:59 measured in min:sec). Press and hold ▼ or ▲ to select the *heating time*.
- Press the **Hold/Return** button to select.

• **Power Consumption Usage**

This thermostat stores the number of hours it is heating in its memory. This information may be useful in calculating the energy used by the floor heating system.



- Press and hold the **Options** button.
- Press **Options** until *Usage* and *1d* show on the display.
- The time shown on the display is the number of hours it was heating today.
- Press and hold ▼ and ▲ to toggle between the previous 7-day and 30-day usage.
- Press the **Hold/Return** button to return to normal operation mode.

• **Lockout Feature**

You have the ability to lock out adjustments by other users. This may be useful in public locations.

- Press and hold both ▼ and ▲ at the same time. *Lock* will indicate on the display and all keys are invalid.
- To cancel the lockout, press and hold both ▼ and ▲ at the same time again. The *Lock* indication should disappear.

• **GFCI Test**

There is a GFCI (Ground Fault Circuit Interrupter) inside this thermostat. It is designed to help protect from possible electrical shock if the floor warming system has been damaged. To make sure the GFCI is operating properly, test it after the thermostat has been installed and once each month. Note: For this function to work properly, the floor system must be heating. *Heating* will be indicated on the display. You may need to increase the set temperature temporarily.



- Press the **GFCI Test** button on the side of the thermostat. *GFCI Trip* should be displayed on the screen and a *right light* will show next to the GFCI Test. You should also hear a click, indicating power has been removed from the floor warming system. If any of these indicators fail, turn off the thermostat and replace it. Do not continue to use.


- To reset the GFCI, slide the **On/Standby** switch to *Standby* and then back to *On*. If the GFCI does not reset, turn the thermostat off. Check the wiring connections, reset by the **On/Standby** switch, and check resistances on the floor warming system.

Troubleshooting

Problem	Solution
Thermostat works but no heat from the system.	<ol style="list-style-type: none"> 1. Check wiring connections. 2. If GFCI is tripped, reset thermostat with on/standby switch. 3. Check resistances on floor warming system. See manual for system.
No display.	<ol style="list-style-type: none"> 1. Check wiring connections. 2. Check circuit breaker or other protection "upstream" of thermostat.
GFCI is tripped.	<ol style="list-style-type: none"> 1. Check wiring connections. 2. Reset thermostat by switching off/on. 3. Check resistances on floor warming system. See manual for system.
Heating occurs at wrong times.	<ol style="list-style-type: none"> 1. Check that the current time and schedule times are properly set to AM or PM. 2. On <u>uninsulated concrete smartstart</u> may start heating very early. You may turn this feature off if not desired.
Er 1 (only at startup)	Floor sensor not correct type or out of range. Check floor sensor resistance.
Er 2	Floor sensor short-circuited. Replace sensor.
Er 3	Floor sensor not attached and thermostat in floor sense mode. Attach sensor.
Er 4 or Er 5	Internal air sensor is faulty. Replace thermostat or operate in floor sense mode.

VI. Specifications

Power Supply	AC120/240V, 50/60Hz
Maximum Load	15A, resistive
Maximum Power	1800W at 120VAC/3600W at 240VAC
GFCI	Class A (5 milliamp trip)
Display Range	32°F -99°F (0°C -37°C)
Setting Range	41°F -99°F (5°C -37°C)
Accuracy	1°F (0.5°C)
Storage Temp.	32°F -120°F (0°C -49°C)

ETL Listing  Control No. 4001076
 Programming retained indefinitely.
 Current time and day will need to be re-set if power is lost for more than 10 minutes.
 14AWG wire leads attached to the thermostat.