

# INSTALLATION INSTRUCTIONS



F902GFCI

ClearTouch™



**Specifications:**

**Power Supply:** 120VAC/240VAC 50/60Hz


**Max Range:** 1800W @120V or 3600 W @ 240 V

**Max Range:** 15A Max, Resistive

**Accuracy:** ±01F ( . 01C )

**Temperature Control Range:** 41°F-95°F

**Temperature Adjustment Scale:** 1°F

**GFCI:** Class A 5mA 

**⚠ DANGER ⚠**

**ELECTRIC SHOCK OR FIRE HAZARD**

READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO AVOID PROPERTY DAMAGE AND PERSONAL INJURY

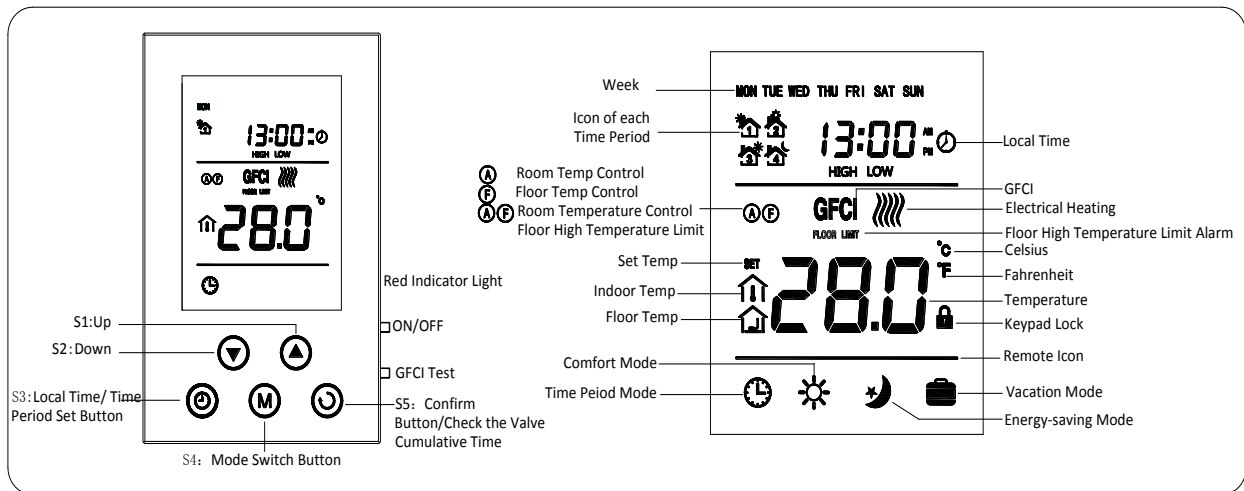
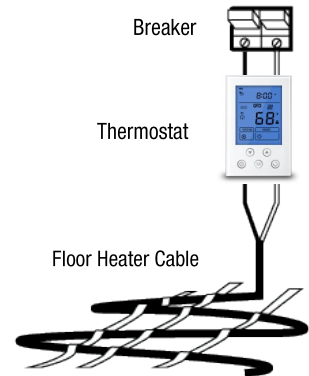
**⚠ WARNING ⚠**

**READ CAREFULLY** - These instructions will help prevent difficulties that might arise during thermostat installation. Studying the instructions first may save considerable time and money later. Observing the following procedures will keep installation time to a minimum. Save these instructions for future use.

## FUNCTIONS AND FEATURES

This Thermostat has been designed for floor heating applications. The built in Ground Fault Circuit Interrupt (GFCI) provides worry-free operation and includes the floor sensor. Required for Floor Heat applications

- Dual Voltage (120vac or 240vac)
- 7 day programmable settings
- Touch-Sensitive Buttons
- Floor and Ambient air sensing
- Blue Backlit Display
- Built-in GFCI and Floor Sensor Included



## PRODUCT OVERVIEW

The ClearTouch F902GFCI is a new intelligent heating thermostat for floor warming. It detects the indoor temperature and displays the corresponding value. This device automatically regulates the heating output on 120V/240V in accordance with the set point and the room temperature. The clock controls the 7-day user schedule. It is accurate and sensitive with high reliability and high performance.

# INSTALLATION INSTRUCTIONS

! **DANGER** !

**ELECTRIC SHOCK OR FIRE HAZARD**

**READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO AVOID PROPERTY DAMAGE AND PERSONAL INJURY**

The installation of the thermostat must comply with the applicable local and/or national electrical code and utility requirements. This installation should be performed by a qualified electrician where required by law. Ensure that all wiring connections to the thermostat are correct and tight to prevent electrical shorts. Use the appropriate wire to meet local and national electrical codes for rated power consumption.

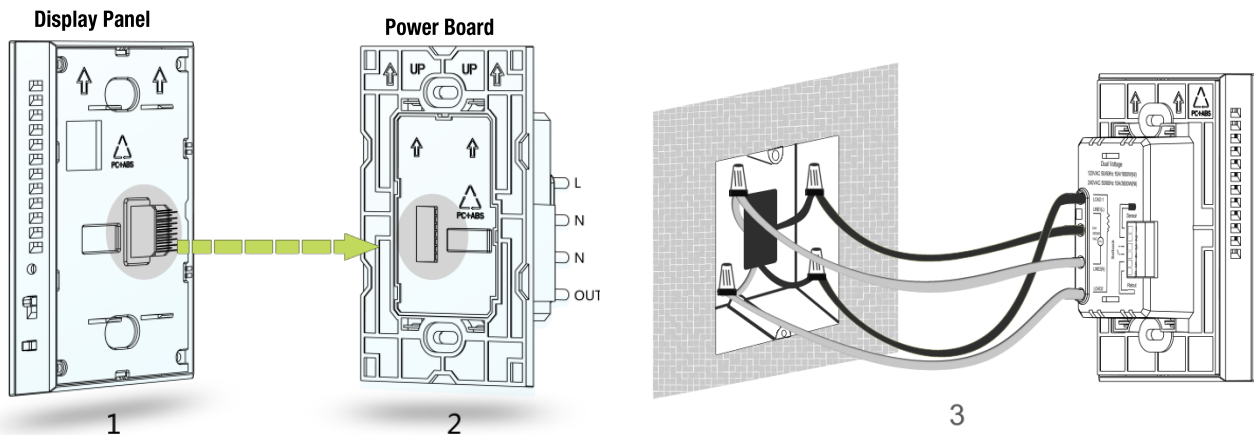
## WARNING!

**Warning:** Turn OFF the power at the circuit breaker before installing. Installation to be performed by a qualified electrician or authorized technician.

Refer to thermostat and heater load specifications before installation of the thermostat to see if it can handle the amp load. The maximum this thermostat can run is 1800W @120V or 3600 W @ 240 V (15A). Install unit in a grounded metal or plastic wall junction box, indoors 4 ½' to 5' above the floor. Avoid any area where it can come in contact with external sources of heat and cold. This includes plumbing pipes, direct sunlight, a T.V. set, lamps, and drafts from a door or window, as this may cause inaccurate temperature readings. The most convenient place is above the light switch. Not for Outdoor use.

## WIRING INSTRUCTIONS

**Caution:** Turn off power at the circuit breaker before performing any work on the electrical connections. None of the electrical connections must be live until the installation has been completed and the housing is closed. Only a qualified electrician or authorized technician are permitted to open the terminal box.



### Wiring requires a Phillips screwdriver

1. Disconnect power supply to prevent electrical shock or damage to the product.
2. Run line voltage wiring to the location of thermostat.
3. Use a screwdriver to separate the Display Panel and power board of the thermostat, as shown in Figure 1 and Figure 2
4. Choose the proper installation location. Installation height is about 4½' to 5 feet above the floor. For indoor use only.
5. Do not install close to a heat source, such as hot water pipe, heating pipe, wall-mounted light fixture or in direct sunlight.
6. Connect the incoming power wires to Line 1(L) & Line 2(N) wires on the power board, using the provided wire nuts, as shown on figure 3.
7. Connect the floor heating load wires to the Load 1 & Load 2 wires of the power board, using the connectors, as shown on figure 3.
8. Connect the floor sensor wire into terminals 1 & 2 (Sensor) on back of the power board and tighten the screws with the screwdriver provided in the box.

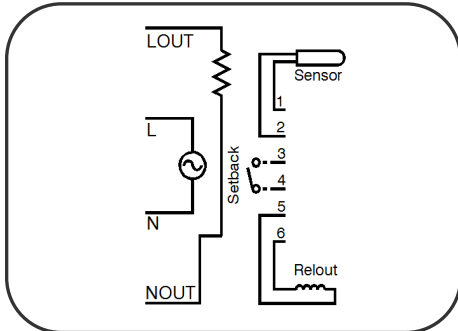
### (Optional) Connection to a Slave Relay (F912GFCI)

If the heating area requires the addition of a Slave Relay, connect the low voltage wire for an auxiliary Slave Relay (F912GFCI) into terminals 5 & 6 (Relout) on back of the power board to add a zone. See drawing below.

9. Install the power board into the electrical box with the 2 screws provided, and then clip & fasten the front Display Panel into place with the bottom screw.
10. Make sure your F902GFCI thermostat is COMPLETELY RECESSED into the junction box and flush with the wall. NO WIRES SHOULD BE EXPOSED outside the metal or plastic junction box.

# WIRING INSTRUCTIONS (CONTINUED)

**WIRING DIAGRAM:**

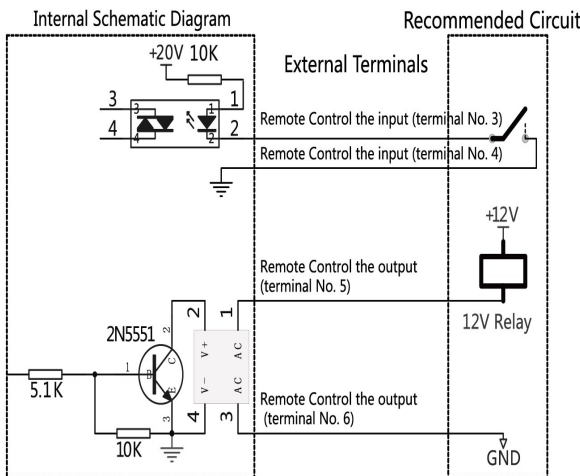


**Safety Information:**

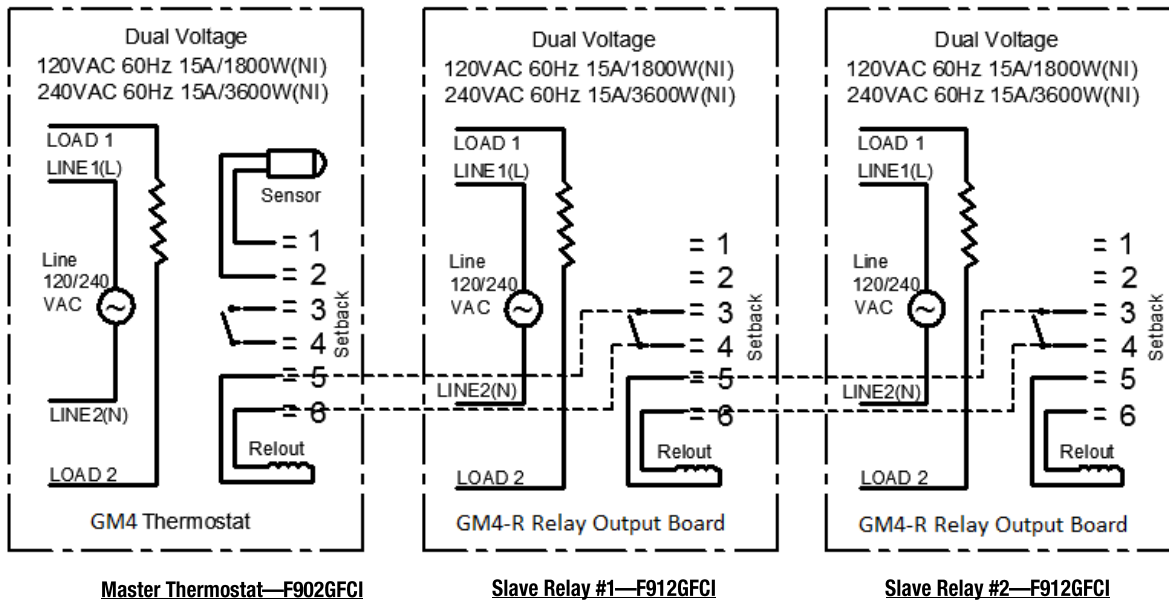
- Installation must be carried out by a certified professional electrician.
- Disconnect all power before performing maintenance work to avoid product damage.
- Shocking, dropping or stepping on the product will damage it and void the warranty.
- The thermostat should be kept away from corrosive chemicals.
- Damage to the product could result in a faulty electrical system that may cause fire.

**Control Wiring :**

- **Setback:** This is an **input** signal driven by a remote contact. One terminal connects to the internal power source by 10K resistance; another terminal connects to the internal ground. The circuit diagram as shown on the left.
- **Relout:** This is an **output** allowing the remote control of a series of Slave Relays (F912GFCI). Inside the thermostat is an open drain circuit, driving a 24V relay. The maximum drive current is 30mA. The circuit diagram as shown in the left. This is used to connect to a Slave Relay (F912GFCI) to expand the heating surface. Multiple Slave Relays can be interconnected in a daisy chain, see below:



**Master / Slave Wiring Diagram**



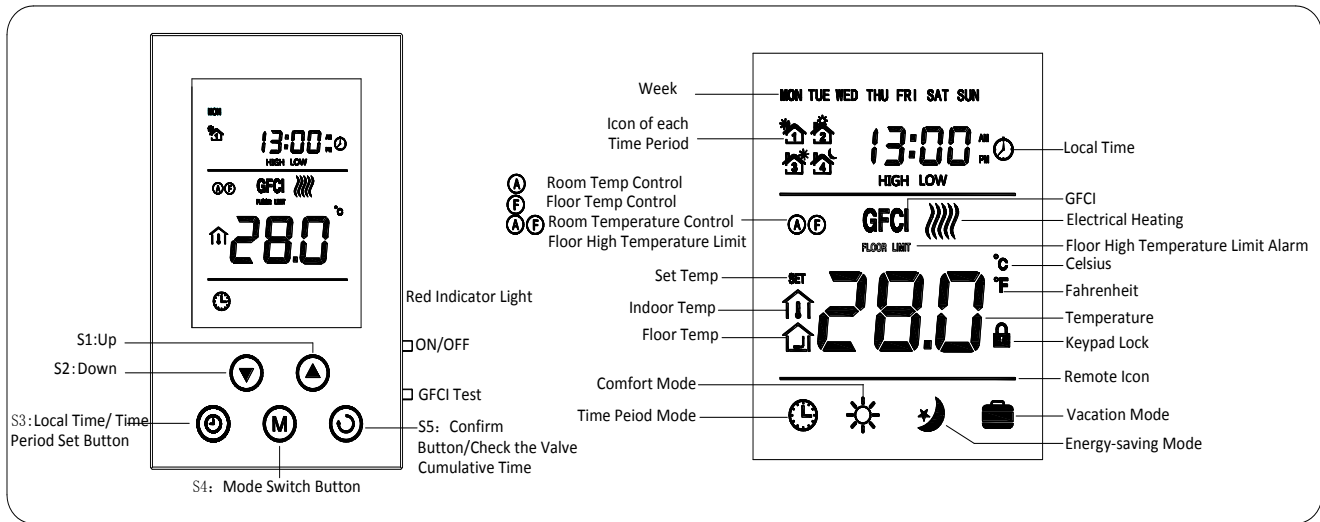
# OPERATION INSTRUCTIONS



F902GFCI  
ClearTouch™



## PRODUCT SETUP AND OPERATION



### ON/OFF Settings

- **ON:** From the OFF status, slide the ON/OFF side switch up to turn the unit on. Time clock, actual probe temperature, working mode and output status will be displayed on the screen.
- **OFF:** From the ON status, slide the ON/OFF switch down to turn the unit off. It will display OFF and all outputs will be open.

### GFCI Test


- **Start a GFCI test:** From the ON status, while the heating cable is energized, press the GFCI button. The GFCI icon will be displayed on the screen and the output of electrical heating is stopped, GFCI indicator light is on.
- **Exit from GFCI test:** Turn the side switch off then back on, the device will be back to the normal ON status. The electrical heating begins to output and the GFCI icon will disappear.











Note: There is a Ground Fault Circuit Interrupter GFCI inside the thermostat. It is used to protect occupants from electric shock if there is a short circuit. After installing the thermostat, test this function to ensure proper and safe operation.

1. If necessary, temporarily turn the set point up to get the heating mode in operation. The heat light comes on.
2. Press the GFCI button on the side of display to simulate a GFCI condition. The GFCI alarm light comes on and the heating indicator light goes off.
3. If the reset does not work and the GFCI icon does not disappear and the LED stays on, proceed with a megger test on the heating cable insulation. Check with the original tag info. If ok, then the thermostat may need to be replaced.
4. Readjust the set point to the normal temperature desired. End of test.




# OPERATION INSTRUCTIONS






## Setting the Time

In the normal working interface, press  button for 3 seconds to enter into the Time setting interface.

1. First, "WEEK" is blinking, press  or  button to set the day of the week;
2. When finished setting the DAY, press  button to switch to HOUR, "HOUR" is blinking, press  or  button to set the hour;
3. When finished setting the HOUR, press  button to switch to MINUTE, "MINUTE" is blinking, press  or  button to set the minutes.
4. When finished setting the MINUTE, press  button or wait for 10 seconds without any operation to save the new values and return to the normal interface automatically.
5. In the setting interface, press  button at any time, to return to the normal working interface directly. The new values will be saved.






## Setting the Control Mode

In the normal control interface, press  button to enter into the Control Mode settings interface. The control mode will be changed for every press of  button. Press  button continuously, then all the working modes will cycle.

1. When the icon  displays on the screen indicates it's in Time Period Mode ;
2. When the icon  displays on the screen indicates it's in Comfort Mode ;
3. When the icon  displays on the screen indicates it's in Energy-saving Mode ;
4. When the icon  displays on the screen indicates it's in Vacation Mode ;
5. When the corresponding icon of working mode is blinking, press  button to confirm or wait for 10 seconds without any operation to save the values and return to the normal working interface automatically.

## Setting the Set Temp

In any mode, press  or  button to enter into the Set Temp settings interface of the corresponding mode. "Set Temp" is blinking.








1. Press  button to decrease the temperature, press  button to increase the temperature set point.
2. After enter into the interface of Set Temp settings, press  or  button for 3 seconds to decrease/ increase the temperature continuously.
3. Once completed, press  button to confirm changes or wait for 10 seconds without any operation to save the values and return to the normal working interface automatically.

## Check the Temperature

In the normal working interface, press  and  buttons simultaneously, the displayed temperature will be switched between the room ambient temperature and floor temperature.







# OPERATION INSTRUCTIONS

## Keypad Lock

In the normal working interface, press  and  buttons simultaneously to lock the keypad, at the same time the icon  will display on the screen. When the keypad is locked, no adjustment is possible. When the icon of Keypad Lock  displays on the screen, press  and  buttons simultaneously to unlock the keypad, and the icon  will disappear from the screen and the keypad is back to its normal state.

## Setting the Time Periods (Schedule)

In the normal working interface, press  button to enter into the Time Period settings interface. First, the "HOUR" of the first period is blinking.

- 1 . The blinking item is adjustable, press  or  button to change the value.
- 2 . In the setting interface, press  button to switch the weekday, the sequence is Monday→ Tuesday→ Wednesday→ Thursday→ Friday→ Saturday→ Sunday→ Exit.
- 3 . In the setting interface, press  button to switch the following parameters: HOUR, MINUTE, Set Temp, and Time Period of each day, press  button continuously, the time period will be switched from the 1<sup>st</sup> period to the 4<sup>th</sup> period.
- 4 . In the setting interface, press  button to return to the normal working interface directly, and the new values will be saved.





The default values of time periods are as follow :

7 Days	Default Values of the Time Periods			
Time Period	1	2	3	4
Start Time	5:00	7:00	17:00	22:00
Set Temp	28°C ( 82°F )	24°C ( 75°F )	28°C ( 82°F )	24°C ( 75°F )





**Note:** The default start time of the second period of Saturday and Sunday is different from the default start time of Monday to Friday. The default start time of the second period of Saturday and Sunday is 9:00, but the Set Temp is the same.

## Output Control

### Floor Temperature Control Mode








When the icon  displays on the screen it indicates the system is in Floor Temperature Control Mode, and the icon  will display beside the temperature value, indicating the actual temperature from the floor probe. When the detected indoor temperature is below the set temperature by -1.5°C (3°F) , electrical heating will be turned on, and the icon  will display on the screen; when the detected indoor temperature is above the set temperature , electrical heating will be turned off, the icon  will disappear from the screen.

### Room Temperature Control Mode



When the icon  displays on the screen it indicates the system is in Room Temperature Control Mode, when the icon  displays on the screen, indicating the ambient temperature from the built-in probe. When the detected indoor temperature is below the set temperature by -2.5°C (5°F), electrical heating will be turned on, and the icon  will display on the screen; when the detected indoor temperature is above the set temperature, electrical heating will be turned off, and the icon  will disappear from the screen.

# OPERATION INSTRUCTIONS

## Room Temperature Control, Floor High Temperature Limit Mode

If the icon  displays on the screen, it indicates the system is in the Room Temperature Control with Floor High Temperature Limit Mode, when the icon  displays on the screen, it indicates the current temperature that displayed on the screen is the ambient temperature. When the detected indoor temperature is below the set temperature by  $-2.5^{\circ}\text{C}$  ( $-5^{\circ}\text{F}$ ), electrical heating will be turned on, and the icon  will display on the screen; when the detected indoor temperature is above set temperature, electrical heating will be turned off, and the icon  will disappear. Press  and  buttons simultaneously, the displayed temperature will switch to the floor temperature, and the icon  will display beside the temperature. When the temperature is higher than  $45^{\circ}\text{C}$  ( $113^{\circ}\text{F}$ ), the output will be closed, and then the icon **FLOOR LIMIT** will display on the screen to avoid overheating the floor. When the floor temperature cools off, electrical heating will be turned on again, and the icon **FLOOR LIMIT** will disappear.




## Remote Control of thermostat

When there is a remote control signal input, the Remote icon (bar) blinks; when the detected indoor temperature is below the set temperature by  $-2.5^{\circ}\text{C}$  ( $-5^{\circ}\text{F}$ ), electrical heating will be turned on, and the icon  will display on the screen; meanwhile, the Relout sends the output signals. When the detected indoor temperature is above the set temperature, electrical heating will be turned off, and the icon  will disappear, and the Relout turns off the power module output signal. The default set temperature is  $16.5^{\circ}\text{C}$  ( $61^{\circ}\text{F}$ ) on the remote control mode. Note: Remote signal control signal has the highest priority in the logic sequence.

## Sensor Failure

1. When the sensor fails to work, the **error icon EEE** will be displayed on the screen. The output relay will open. Heating output will stop.
2. Replace sensor. If not, change the control mode to A only (ambient temperature). See above.

## Cumulative Heating Time to compute energy consumption

Press  button, the cumulative heating time will be displayed on the screen. The cumulative time will reset and restart when press  and  buttons simultaneously. ( Unit : min )

## Configuration of User Parameters (Hidden Menu)

When the thermostat is off, press "Time" and "Confirm" buttons simultaneously to enter into the parameters setting interface, then input **password 1234** using "Up" button and "Down" button, press "M" to switch, then press "Confirm" button to enter into the setting interface. Following is the value of each parameter:

# OPERATION INSTRUCTIONS

## Hidden Menu Parameter Options Chart

NO.	Parameter	Default Value	Setting Range	Note
P1	High Temp Protection	45C (113F)	0F/45~95C (113-203F)	0F: Turn off the floor high temp protection
P2	Anti-freezing Protection	10C (50F)	0~30C (32-86F)	Reserved
P3	Room Temperature Calibration	0 (00)	-9.5~9.5C (-16~16F)	
P4	Temperature Backlash Value	2C (45F)	0.5~10C (1-18F)	
P5	Data Storage when Power Failure	OFF	OFF/OPN/PRU	Reserved
P6	Key Volume Level	3	0F/0~9	0F: OFF 0~9: Length of the Key Volume
P7	Backlight Brightness	5	1~8/NO/ FO	1~8: Reserved NO: Always on FO: Energy Saving of Backlight
P8	Control Mode	A-F	A-F/Air/Flo	Air: Ambient Room Temperature Control Mode Flo: Floor Temperature Control Mode A/F:Room Temperature Control, with Floor High Temperature Limit Mode
P9	Period Control	15	0~99	Reserved
P10	Period Control Time	6	0~99	Reserved
P11	Temp Setting of Energy Saving Mode	16.5C(62F)	05~37C (41-99F)	Being limited by P7 and P8
P12	Temp Setting of Vacation Mode	10C(50F)	05~37C (41-99F)	Being limited by P7 and P8
P13	Celsius/Fahrenheit	0C	0C/0F	0C: Celsius 0F: Fahrenheit  (After modify settings, to restore the factory settings.)



# OPERATION INSTRUCTIONS

## Hidden Menu Parameter Options Chart—Continued

NO.	Parameter	Default Value	Setting Range	Note
P14	Time System	24	12/24	12: 12-hour time system 24: 24-hour time system
P15	Floor Temperature Calibration	0(00)	-9.5~9.5C (-16~16F)	
P16	Backlash Value of Floor Temp Control	1.5C(03F)	0.5~10C (01~18F)	
P17	Backlash Value of Floor Protection Temp	5.0C(09F)	0.5~10C (1-18F)	
P18	Temp Setting of Remote Control Mode	16.5C(62F)	5~37C (41-99F)	
P19	Factory Reset	53	0~99	Set it to 55 and then press S3 to confirm to set it to Factory Reset.
P20	Heating Temp Increasing Speed	5	0~99	

## Troubleshooting

Problem	Solution
Thermostat functions but no heat from the system	<ol style="list-style-type: none"> <li>1. Check wiring instructions and wire identification</li> <li>2. If the GFCI is tripped, reset the thermostat with the side switch</li> <li>3. Check the resistance of the floor warming system. Refer to the cable manufacturer installation manual</li> </ol>
No display	Check wiring connection on the back of the unit
GFCI is tripped	<ol style="list-style-type: none"> <li>1. Check wiring connections</li> <li>2. Reset thermostat by switching off then back on</li> <li>3. Check resistance of the floor warming system. Refer to the cable manufacturer installation manual</li> </ol>
Heat occurs at wrong time	Check the current time and schedule are properly set at AM or PM
Error EEE	Check floor sensor resistance. Change if out of range