# User Manual for DUAL-TEMP DT-02 thermostat

Overview

DUAL-TEMP DT-02 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.

Parameters

Power Supply	120VAC/240VAC 50/60Hz	Self-consumption	<2W
Installation Way	120V electrical box, deep	Dimension	120mm ×76mm
Outer Shell	Tampered glass +PC Alloy	Wiring	Wiring +Terminals
GFCI	Class A 5mA	Output Load	15Amp., resistive
Maximum Power	120VAC/ 1800W , 240VAC/ 3600W	Accuracy	±0.1°C (1°F)

Installation

fig.1   fig.2

fig.3
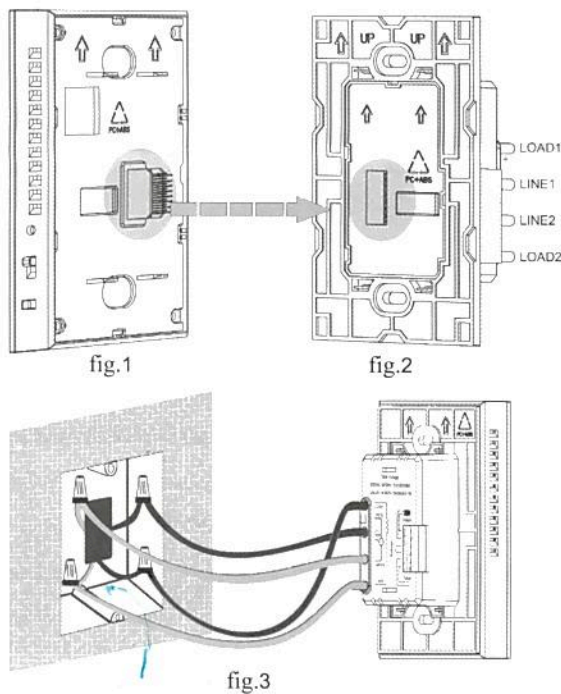
> Use a screwdriver to separate the control panel and power board of the thermostat, as figure 1 and figure 2 shown.

> Choose the proper installation location. Installation height is about $4^{1/2}$ to 5 feet above the floor. For indoor use only.

> Do not install close to a heat source, such as hot water pipe, heating pipe, wall-mounted light fixture or in direct sunlight.

> Connect the power wires to Line 1(L) & Line 2(N) wires of the power board, using the connectors provided, as shown on figure 3.

> 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.

> Connect the floor sensor wire into terminals 1 & 2 behind the power board and tighten the screws with the screwdriver provided in the box. fig.4

> If needed, connect an auxiliary power module into terminals 5 & 6 of the thermostat for remote control. See drawing below. fig.4

> Install the power board into the electrical box with the 2 screws provided, and then clip & fasten the front control panel into place with the bottom screw.

Wiring Diagram

Safety Information：

> The wiring 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.

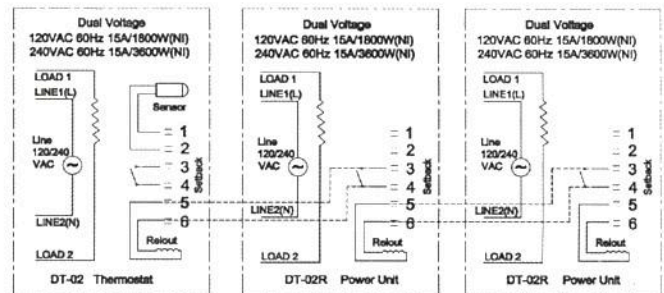> Damage to the product could result in a faulty electrical system that may cause fire.
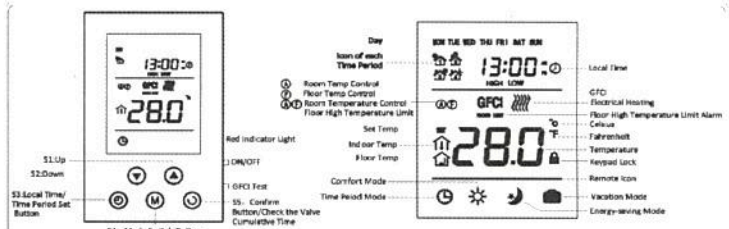

fig.4

Buttons and Display

fig.5

Main Functions and Programming steps

ON/OFF settings

> ON: From the OFF display, 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 display, slide the ON/OFF switch down to turn the unit off. It will display OFF and all outputs will be closed.

GFCI Test

> Start a GFCI test: From the ON display, 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 display, 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 right away 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.

Setting the Time

> In the normal working interface, press ◎ button for 3sec. 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 sec. without any operation to save the new values and return to the normal interface automatically.

5. From 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 it indicates it's in Time Period Mode;

2. When the icon ☼ displays on the screen it indicates it's in Comfort Mode;

3. When the icon ☽ displays on the screen it indicates it's in Energy-saving Mode;

4. When the icon 💼 displays on the screen it indicates it's in Vacation Mode;

5. When the corresponding icon of working mode is blinking, press ⊙ button to confirm or wait for 10sec. 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. The 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 sec. to decrease/ increase the temperature continuously.

3. Once completed, press ⊙ button to confirm changes or wait for 10s 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.

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 1st period to the 4th 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℃(82°F)	24℃(75°F)	24℃(75°F)	28℃(82°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 am, 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℃(3℉), 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℃ (-4℉), 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.

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 ambiant temperature. When the detected indoor temperature is below the set temperature by -2℃(-4℉), 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℃(113℉), 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℃ (-4℉), 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℃(61℉) on the remote control mode. Note: Remote signal control signal has the highest priority in the logic sequence.

Sensor Failure

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. Replace sensor or 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 at 0 when press ⊚ and ⊙ buttons simultaneously. (Unit: min)

Configuration of User Parameters (Hidden Menu)

When the thermostat is off, press ⊚ and ⊙ buttons simultaneously to enter into the parameters setting interface, then input password 1234 using ⊙ button and ⊙ button, press Ⓜ to switch, then press ⊙ button to enter into the setting interface. Following is the value of each parameter:

NO.	Parameter	Default Value	Setting Range	Note
P1	High Temp Protection	45℃ (113°F)	OF/45~95℃ (113-203°F)	OF: Turn off the floor high temp protection
P2	Anti-freezing Protection	10℃ (50°F)	0~30℃ (32-86°F)	Reserved
P3	Room Temperature Calibration	0 (00)	-9.5~9.5℃ (-16~16°F)	
P4	Temperature Backlash Value	2℃ (04°F)	0.5~10℃ (1~18°F)	
P5	Data Storage when Power Failure	OFF	OFF/OPN/PRU	Reserved
P6	Key Volume Level	3	OF/0~9	OF: 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	16.5℃(62°F)	5~37℃ (41-99°F)	Being limited by P7 and P8
P12	Temp Setting of Vacation Mode	10℃(50°F)	5~37℃ (41-99°F)	Being limited by P7 and P8
P13	Celsius/Fahrenheit	OF	OC/OF	OC: Celsius OF: Fahrenheit (After modify settings, to restore the factory settings.)
P14	Time System	12	12/24	12: 12-hour time system 24: 24-hour time system
P15	Floor Temperature Calibration	0(00)	-9.5~9.5℃ (-16~16°F)	
P16	Backlash Value of Floor Temp Control	1.5℃(03°F)	0.5~10℃ (1~18°F)	
P17	Backlash Value of Floor Protection Temp	5.0℃(09°F)	0.5~10℃ (1~18°F)	
P18	Temp Setting of Remote Control Mode	16.5℃(62°F)	5~37℃ (41-99°F)	
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	Check wiring instructions and wire identification If the GFCI is tripped, reset the thermostat with the side switch Check the resistance of the floor warming system. Refer to the cable manufacturer installation manual
No display	Check wiring connection on the back of the unit
GFCI is tripped	Check wiring connections Reset thermostat by switching off then back on Check resistance of the floor warming system. Refer to the cable manufacturer installation manual
Heat occurs at wrong time	Check the current time and schedule if properly set at AM or PM
Error EEE	Check floor sensor resistance. Change if out of range or switch to ambient mode