

T13FHL-7(EN) Digital Thermostat Installation and User Guide



T13FHL-7(EN) is a digital thermostat with stylish appearance, and designed for hot water heating system and electric heating system, which can be operated more convenient with 360°freewheeling button to choose the menu option, as well as add or reduce the setting temperature you required.

Main Features

- TFT color display screen with backlight
- 360°Freewheeling, easily operate
- Energy monitoring function
- Frost protection function
- English/Chinese OSD menu optional
- Support Holiday mode

Technical Specification

Operation voltage	100-240VAC 50/60HZ
Maximum Load	250VAC 16A
Room temperature limit	5°C (41°F) ~35°C (95°F)
Floor temperature limit	5°C (41°F) ~70°C (158°F)
Ambient temperature-operation	0°C(32°F)~50°C(122°F)
Ambient temperature-transport	-10°C(14°F)~60°C(140°F)
Accuracy	±1°F or ±0.5°C
Dimensions	86(L)x86(W)x18(H)(mm)
Color	White
IP class	IP21

Summary of Contents

1. Introduction	3
1.1 Starting up.....	3
1.2 Key description.....	4
2. Menu Option	5
2.1 Program setting.....	5
2.2 Energy use history.....	6
2.3 Holiday setting.....	7
2.4 Settings.....	7
2.4.1 Display setting.....	7
2.4.2 Date setting.....	7
2.4.3 Child Lock.....	8
2.4.4 Install.....	8
3. Installation	10
4. Error Message	11

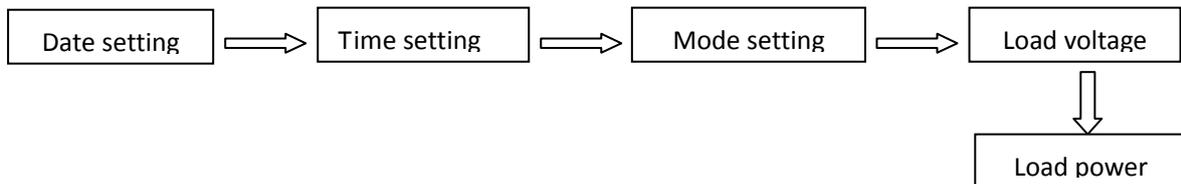
Safety introduction

Please observe the following guidelines:

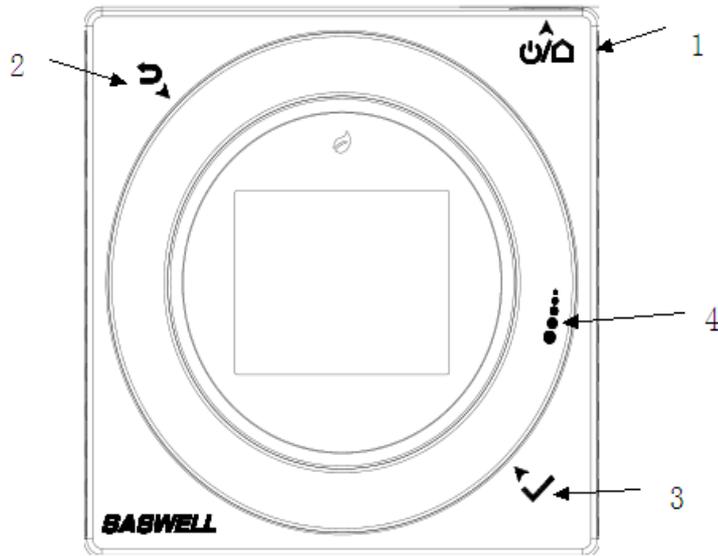
- Do not cover the thermostat, It will impair the ability of the thermostat to sense and adjust the room temperature correctly.
- Do not spill any kind of liquids into the thermostat.
Do not open, disassemble, or tamper with the thermostat in any way.
- If the thermostat is installed in a place frequented by little children, please use the child lock.
- The installation of the thermostat must be done by an authorized and qualified installer.

1.1 First time settings

When you open the thermostat for the first time, it will require you into the following setting:



1.2 Key description



- ① **On/Off button:** press it turn the thermostat on, long-press it to close the thermostat or into frost mode when running; short press it to lock the screen or unlock the screen when running; Press it to quick back to the main operation interface whenever you are making any settings.
- ② **Back button:** press it back to previous menu in program running mode
- ③ **Menu/OK button:** press it shortly into the menu option in program running interface, confirm when use the menu option
- ④ **Adjust button:** turn it clockwise to raise, anticlockwise to lower, turn it into manual mode when program running, turn it freely to select the menu option

When the indicator light is green, it means maintain the temperature, when it is red, it means the heating output.

Operation Mode

The factory default mode is program operation mode, you can also select other operation modes according to the following settings.

Temporary mode/Permanent mode:

In the main operation interface, turn the adjust button to set Temporary mode or Permanent mode, in the Temporary mode, this temperature will be kept until start the next program period, and in the Permanent mode, this temperature will be kept until quit this mode positively.

If you want to cancel these two modes, press the button of upper left, and in the main interface, it prompted a option, then choose “YES”, press “OK”.



Frost Mode:

Press the “ON/OFF” button at the top right corner of the thermostat, don’t release until the screen shows  symbol, this mode maintain a minimum temperature

for frost protection, and just like the way you open this mode, same way to close it.





2.1 Program setting

2.1.1 Edit the program

Turn the adjust button to select the days (Monday-Sunday) you want to edit, press “OK” button, then turn the adjust button to choose “NEXT”, press “OK” again, now begin the temperature and time setting, if you want to cancel the selected date, press “OK” button again

Turn the adjust button to select the time period you want to edit, press “OK” button, then adjust the start time by turning the dial (adjust button), press “OK” button again to begin the temperature setting.



There are total 6 periods of time in one day, get up in the Morning, and go out of home in the morning, back home at the noon, go out of home in the afternoon, back home in the evening, and sleep at night.

You can make the same settings of 7-day (Monday to Sunday), or make each day different, when you finished one day’s setting, the zone will be blue, it means that you cannot set again.

The factory default program period and temperature chart are as following:

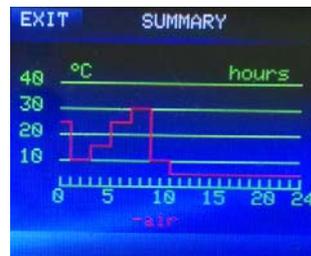
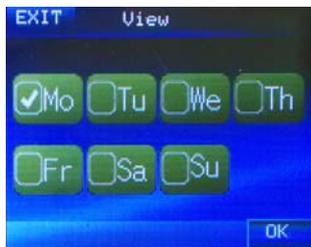
	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp
All 7 days	6:00	21°C	8:00	16.5°C	12:00	21°C	14:00	16.5°C	18:00	21°C	22:00	16.5°C

2.1.2 View the program

Turn the adjust button to select the day you want to view, such as: Monday-Sunday, press “OK” button.

If you want to back to previous menu, press the “EXIT” button.

The summary diagram is as following:



2.2 Energy use history

The history shows the summary of temperature and energy consumption during the periods of programming, such as: today, yesterday, this week, this month, and this year.

Turn the adjust button to select a time period you want to view, press “OK” button into the diagram display.

The diagram shows the energy consumption summary of the selected period. Press the “EXIT” button back to the time period option.



2.3 Holiday Setting

Press “OK” to set the holiday start date, now the year begin to flash, turn the dial to set the year, press “OK”, and the month begin to flash, turn the dial to set the month, press “OK”, then the date begin to flash, turn the dial to set the date, press “OK”, and continue to press “NEXT” into the holiday end date setting. The same way like **Starts**.

Finally, turn the dial to set the holiday temp, and press “OK”.

This temperature will keep on all the time until the holiday date end.



2.4 Settings

2.4.1 Display Setting

Brightness

Turn the dial to select the brightness of the LCD screen between 1 (dimpest) and 6 (brightest). The factory default of operation backlight setting is 6, the standby backlight is 1.

Language

Turn the dial to select the operation language which you prefer to, there are two optional languages (Chinese, English). The factory default setting is English.

Temperature unit

Turn the dial to select the “C” or “F” according to your preference. The factory default setting is “C”.

Time format

Turn the dial to select time format (12Hr clock or 24Hr clock). The factory default setting is 12Hr clock.



2.4.2 Date setting

Press “OK” into the date option, the year will flash first, turn the dial to set it,
Press “OK”, and then the month begin to flash, turn the dial to set it, Press “OK”
Now the date will flash, turn the dial to set it, press “OK”.
Press it again to edit the time setting (hour, minute, second).
The factory default setting is 2012.01.01, 12:00AM.

2.4.3 Child lock

The child lock is used for locking the screen display, in order to prevent some false changes by mistake.
Turn the dial to select “ON”, the symbol will appear on the top of the display screen, if you want to turn
it off, turn the dial to select “OFF”. The factory default is “ON”.

2.4.4 Install setting

2.4.4.1 Control mode select

Turn the dial to select the control object, there are three modes: Room
Mode, Floor Mode, Room temperature with floor limit (All mode).
The factory default is Room temperature with floor limit (All mode).



Room temperature mode

The thermostat will use the temperature reading
from the room sensor (inside thermostat housing) to
decide whether heating is required to achieve the setpoint.

Floor temperature mode

The thermostat will use the temperature reading from
the floor sensor to decide whether heating is required to
achieve the setpoint.



Room temperature with floor limit

The thermostat will use the temperature reading from the
room sensor to decide whether heating is required to achieve
the setpoint, however if the floor temperature goes above
the set limit then heating will be suspended until floor
temperature falls below limit.

2.4.4.2 Floor sensor setting

Set floor sensor type

The thermostat is compatible with these floor sensors:

NTC10K, NTC15K, NTC100K.

The factory default setting is NTC10K.



Set temperature offset

If you feel the room temperature is not very comfortable

you can set the offset temperature, the maximum limit of the offset temperature is -4°C ~ 4°C .

The factory default setting is 0°C .

2.4.4.3 Floor temperature limit

In order to protect the floor not to be damaged, you should set

upper limit of the floor temperature, turn the dial to set the temperature according to your floor material.

The factory default floor temperature is 35°C (optional range: 20°C ~ 70°C).



2.4.4.4 Load setting

Set load voltage:

Turn the dial to select load voltage (optional: 100-120V, 220-240V)

Set load power:

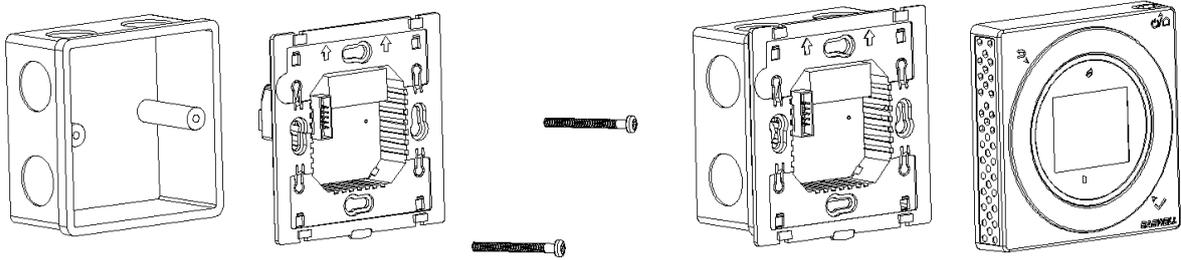
Turn the dial to select load power (optional: 100-1700W, 100-3500W)

2.4.4.5 Revert to factory default

Press “**RESET**” button, this will reset the thermostat to the factory default setting. Press “**YES**” to confirm.

2.4.4.6 Communication address

The reserved mainframe port for the RS485.

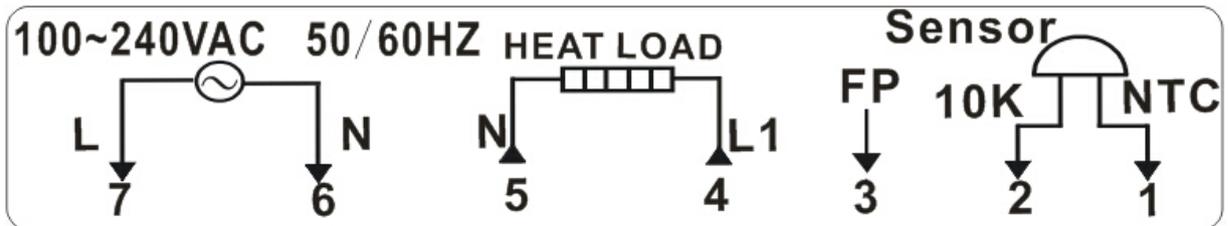


a. Install the back cover

b. Install the tight screw

c. Install the thermostat

WIRING DIAGRAM

**Attention:**

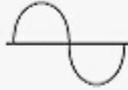
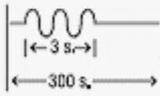
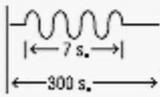
Item 1-2: Connected with external sensor.

Item 3: Pilot wire signal.

Item 4-5: Connected with heat load.

Item 6: Neutral Wire;

Item 7: Live Wire.

Pilot wire order	Signals
Maintain temperature at setpoint (Comfort)	No signal
Maintain temperature at setpoint minus 3,5°C (3,5k setback)	
Maintain temperature at 7°C (frost protection)	
Turn heating Off (Off)	
Maintain temperature at setpoint minus 1°C (1k setback)	
Maintain temperature at setpoint minus 2°C (2k setback)	

4

Error Message

Error Code (Sensor Error)

- 1 In the Floor and Dual Sensor mode, external sensor short circuit, Thermostat shut down all output.
- 2 In the Floor and Dual Sensor mode, external sensor open circuit, Thermostat shut down all output.
- 3 Internal sensor short circuit. Thermostat shut down all output.
- 4 Internal sensor open circuit. Thermostat shut down all output.