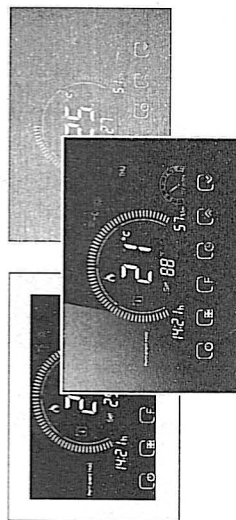# BHT-8000 Series Round Thermostat
User Guide

For Water Heating/Boiler/Floor/Electric Heating

Welcome

Thank you for your purchase.

Your new thermostat will provide uniform and comfortable temperature control throughout every room in your property. We bring together technology, craftsmanship and the highest quality materials to provide you with a safe, reliable product combined with sleek, contemporary design.

Please read this installation/programming manual for comprehensive instructions on installing and operating your thermostat. Please also ensure a suitably qualified person installs your thermostat and complies with all local regulations.

ABOUT YOUR THERMOSTATS

The BHT-8000 range has been developed to control electric underfloor, water heating or water/gas boiler systems. These units are designed for use in commercial, industrial, civil and domestic properties.

In the box you will find

Thermostat	1pc	
User Guide	1pc	
QC Passed	1pc	
Screws		2pc
Floor Sensor (2.5m)		1pc
(Floor sensor is Optional)		

MODEL DEFINITION

GA: Water heating, 3A
GB: Electric floor Heating, 16A
GC: Water/Gas Boiler, 3A
L: Backlight
P: Weekly Programmable
N: Modbus Communication
B: BACnet Communication
W: Wifi
S2: Both internal sensor and floor external sensor

*For example: BHT-8000 GALW*

FEATURES

On Appearance

1. Negative black screen will bring you to a secret world.
2. Touch buttons to make simple operation.
3. Amazing Silver Frame opens your modern life.
4. The visiable thickness above the wall is only 14mm.
5. Rotation to connect gives you easy installation.
6. 86mm hidden box and european 60mm round box is suitable.
7. White or black housing creates your colorful life.

On Functionality

1. Powerful functions are available such as Modbus/WIFI etc,.
2. 0.5°C Accuracy keeps temperature within the level you set.
3. Data memory when power is off.

DIMENSION
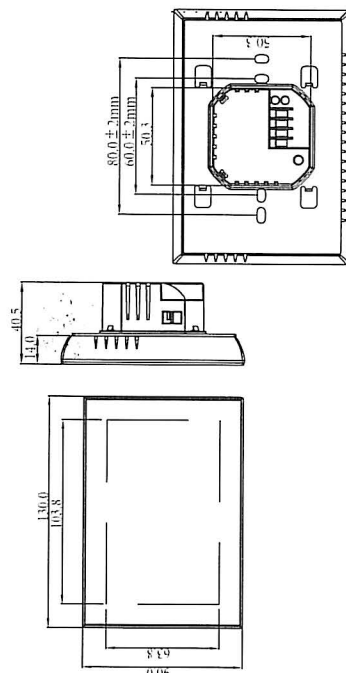
TECHNICAL DATA

Power Supply: 95 ~ 240 VAC, 50 ~ 60HZ
Current Load: 3A (water heating/water boiler/gas boiler)
  16A (electric heating)
Sensor: NTC3950, 10K
Accuracy: ±0.5°C
Set Temp. Range: 5 -35C
Dispaly Temp. Range: 5 ~ 99°C
Ambient Temp.: 0 ~ 45°C
Ambient Humidity: 5 ~ 95 % RH (Non Condensing)
Storage Temp.: -5 ~ 45°C
Power Consumption: <1.5W
Timing Error: < 1%
Shell Material: PC +ABS (Fireproof)
Installation Box: 86 * 86mm Square or European 60mm Round Box
Wire Terminals: Wire 2 x 1.5 mm2 or 1 x 2.5 mm2
Protection Class: IP20
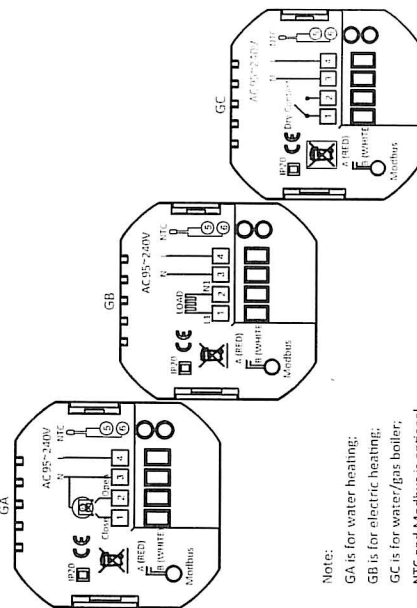Buttons: Capactive Touch Buttons

Caution

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

⚠ CAUTION

Electrical Shock or Equipment Damage Hazard. Can shock individuals or short equipment circuitry.
Disconnect power supply before installation.

WIRING

GA

GB

GC

Note:
GA is for water heating;
GB is for electric heating;
GC is for water/gas boiler;
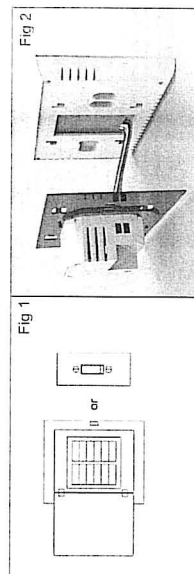NTC and Modbus is optional.

INSTALLATION

Your thermostat is suitable for installation within a standard 86mm pattress box or European 60mm pattress box.
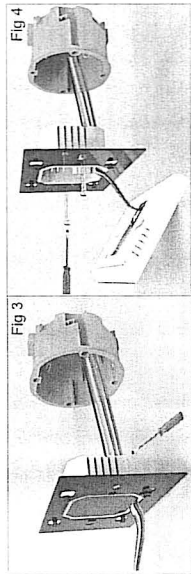
Step 1. Keep power off. See Fig 1.
Step 2. Remove the mounting Plate by rotating the LCD part. See Fig 2.
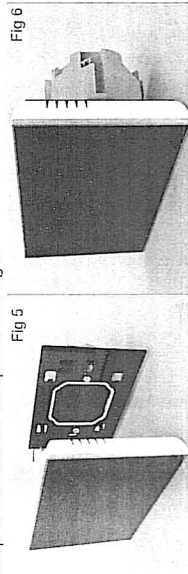

Fig 1   Fig 2

Step 3. Connect power supply, load into the appropriate terminals. (see "Wiring your thermostat" for details and Fig 3).
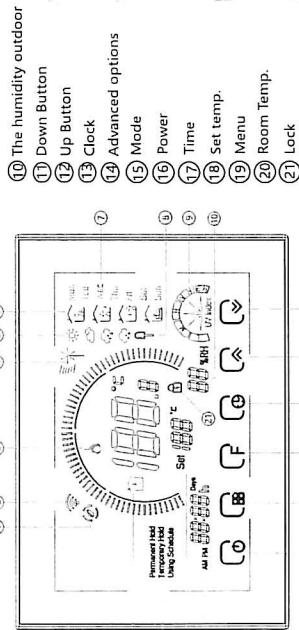Step 4. Fix the mounting plate into the wall with screws in the box. See Fig 4.

No.	Phenomenons	Handling
1	Power is on but without display.	• Check if the terminals between LCD panel and Power Unit Box is loosen.
2	Without output but display works.	• Use a new LCD panel or new Power Unit Box to replace the old one.
3	Room Temp. Is a little different from the actual.	• Do temperature calibration in item 1 of high senior options

SERVICE

Your thermostat carries an 24 month warranty from date of purchase. Service outwith the warranty period may incur a charge. More detail please contact with us directly.

A separate schedule may be set for weekdays (Mon – Fri) and for weekends (Sat or Sun).

5. Checking the Temperature of Floor Sensor

Press and hold the ⟳ arrow for 5 seconds to display the temp. of floor sensor. When the external sensor is not connected, press ⟳ for a long time to display "error".

During Power On

Setting the Functions and Options

Press and hold ⟲F for 5 sec. in the order to reach system function. Then press ⟲F to scroll through the available functions, and use the ⟳ / ⟳ arrows to change the available options. All settings are confirmed automatically.

Code	Function	Setting and options	Default
1	Temperature compensation	-9 to +9 ℃ (for internal sensor)	-3
2	Deadzone Temperature	1 ~ 5 ℃	1
3	12/24 hours	00:12 hours 01:24 hours	01
4	Button locking	00: All buttons are locked except power button. 01: All buttons are locked.	01
5	Sensor types	In: Internal Sensor（to control or limit the temp.） Ex: External Sensor（to control or limit the temp.） AL: Internal/External Sensor（Internal sensor to control the temp., external sensor to limit the temp.）	In for GA /GC /AL for GB
6	Min. Set Temp.	5-15 ℃	5
7	Max. Set Temp.	15-45 ℃	35
8	Standby Brightness	0-99; bigger value, more brightness	04
9	Economy Mode	00: Non-energy saving Mode 01: Energy saving mode	00
A	Economy Temp.	0-30 ℃	20
B	High temperature protection setting.	25-70 ℃	45
C	Low temperature protection setting.	0-10 ℃	00
D	IP Address	0.x.01-0.x.FF	01
E	Baudrate	1: 9600; 2: 19200; 3: 38400; 4: 56000; 5: 115200	01
F	Version number	Version number of the product.	112

Step 5. Fasten body of thermostat and the mounting plate through rotating. See Fig 5.
Step 6. Installation complete. See Fig 6.

Fig 3
Fig 4
Fig 5
Fig 6

HOME SCREEN QUICK REFERENCE

① Wifi (AP mode)
② Wifi (EZ mode)
③ Heating on
④ Wind speed
⑤ Weather
⑥ Periods
⑦ Monday to Sunday
⑧ External sensor
⑨ Ultraviolet intensity
⑩ The humidity outdoor
⑪ Down Button
⑫ Up Button
⑬ Clock
⑭ Advanced options
⑮ Mode
⑯ Power
⑰ Time
⑱ Set temp.
⑲ Menu
⑳ Room Temp.
㉑ Lock

OPERATION

During Power On

1.Power On/off: Press ⟳ to turn the thermostat on/off.

2.Setting the temperature

Press ⟳ ⟳ to set temperature.

3.Adjusting/Setting the Clock

Press ⟳ Il the min of me will flashes;
Touch the icon ⟳ / ⟳ to set your minute.
Then press the icon ⟳ , the hour of me will flash ; Touch the icon ⟳ / ⟳ to set your hour.
Then press ⟳ , the week of me will flash; Touch the icon ⟳ / ⟳ to set your week.

4.Locking your Thermostat

Press and hold the ⟳ and ⟳ for 5 seconds to lock/unlock your thermostat
In item 3 of high senior options, you can select full lock or half lock.

Thermostat Interface Protocol V1.1

Model:BHT-8000

This protocol takes standard Modbus as a reference, mainly for use for communication between thermostat and computer (PC). This protocol doesn't describe Modbus. For information about Modbus, please refer to the relevant standard documents.

Settings

1. Basic description

No	Parameter	Protocol provision
1	Operating mode	RS-485,master-slave；thermostat is the slave machine
2	Physical interface	A(+),B(-) two-wire system
3	Baud rate	9600 bps(standard)
4	Byte format	9 format (8 data bits +1 stop bit)
5	Modbus	RTU
6	Transmission mode	RTU format (Please refer to standard Modbus)
7	Thermostat address	1—255；(0 is broadcast address)
8	Command code	03、06, and 16 (03—read thermostat, 06—set thermostat, 16-set thermostat for several bytes)
9	CRC check code	CRC—16 (Please refer to standard Modbus)
10	CRC verification mode	CRC—16 (Please refer to standard Modbus)

2. Read the thermostat frame format

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address (default is 0X01)	03	Set register start address high byte	Set register start address low byte	Set register Value high address	Set register Value low address	CRC high	CRC low

Command	Byte	Description	Register address
03	High Byte	00	40001
	Low Byte	Setting Power On/off: 0—means closed, 1—means open	0
	High Byte	00	40002
	Low Byte	Setting Temp. * 10	
	High Byte	00	40003
	Low Byte	Setting Lock: 0 – Unlock; 1 – Lock	
	High Byte	00	40004
	Low Byte	Setting Minute (value 1-59)	
	High Byte	00	40005
	Low Byte	Setting Hour (value 0-23)	
	High Byte	00	40006
	Low Byte	Week (value 1-7), 1-Monday, 2-Tuesday, 3-Wednesday, 4- Thursday, 5- Friday, 6- Saturday, 7- Sunday	
	High Byte	00	40007
	Low Byte	Reading Room Temperature* 10	
	High Byte	00	40008
	Low Byte	VALVE : 0-Close;1-Open	

3. Set the thermostat frame format

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address (default is 0X01)	03	Set register start address high byte	Set register start address low byte	Set register Value high address	Set register Value low address	CRC high	CRC low

Command	Byte	Description	Register address
06	High Byte	00	40001
	Low Byte	Setting Power On/off: 0—means closed, 1—means open	
	High Byte	00	40002
	Low Byte	Setting Temp. * 10	
	High Byte	00	40003
	Low Byte	Setting Lock: 0 – Unlock; 1 – Lock	
	High Byte	00	40004
	Low Byte	Setting Minute (value 1-59)	
	High Byte	00	40005
	Low Byte	Setting Hour (value 0-23)	
	High Byte	00	40006
	Low Byte	Week (value 1-7), 1-Monday, 2-Tuesday, 3-Wednesday, 4- Thursday, 5- Friday, 6- Saturday, 7- Sunday	

4. Continous Multi-byte set the thermostat frame format

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte N-1	Byte N
Thermostat address (default is 0X01)	16(0x10)	Set register start address high byte	Set register start address low byte	Set register Number N* 2	Set register Value high address	Set register Value low address	N set byte value high address	N set byte value low address

Byte N+1	Byte N+2
CRC high	CRC low

Command	Byte	Description	Register address
16 (0x10)	High Byte	00	40001
	Low Byte	Setting Power On/off: 0—means closed, 1—means open	
	High Byte	00	40002
	Low Byte	Setting Temp. * 10	
	High Byte	00	40003
	Low Byte	Setting Lock: 0 – Unlock; 1 – Lock	
	High Byte	00	40004
	Low Byte	Setting Minute (value 1-59)	
	High Byte	00	40005
	Low Byte	Setting Hour (value 0-23)	
	High Byte	00	40006
	Low Byte	Week (value 1-7), 1-Monday, 2-Tuesday, 3-Wednesday, 4- Thursday, 5- Friday, 6- Saturday, 7- Sunday	

Remark

1. Format

When the thermostat sends collected temperature data to the PC computer, the value of collected temperature should be multiplied by 10.

For example: **When the collected temperature is 25.5°C**, the value sent from the thermostat to the PC computer will be 255.

Similarly, when the PC computer sends set temperature data to the thermostat, the value of the set temperature should be multiplied by 10.

For example: **When the set temperature is 25.5°C**, the value sent from the PC computer to the thermostat should be 255.

2. How to change the thermostat's IP address?

During power off, press **M** and at the button Clock same time for 5 seconds to access system functions.

Press **M** till you reach item D.

Then press A and ∀ to change the relative value. The default is 0x01.

Turn on your thermostat to save the IP setting.