

Thermostat Interface Protocol V1.1

Model: BHT-18GCLN(5A)

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	
	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	00 Program 01 Hand	
	High Byte	00	40005
	Low Byte	Minute (Value 1-59)	
	High Byte	00	40006
	Low Byte	Hour (value 0-23)	
	High Byte	00	40007
	Low Byte	Week (value 1-7), 1-Monday, 2-Tuesday, 3-Wednesday, 4- Thursday, 5- Friday, 6- Saturday, 7- Sunday	
	High Byte	00	40008
	Low Byte	Reading Room Temperature* 10	
	High Byte	00	40009
	Low Byte	External Temperature*10	
	High Byte	00	40010
	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	00 Program 01 Hand	
	High Byte	00	40005
	Low Byte	Minute (value 1-59)	
	High Byte	00	40006
	Low Byte	Hour (value 0-23)	
	High Byte	00	40007
	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
Thermosta	16(0x1	Set	Set	Set	Set	Set	N set	N set

t address (default is 0X01)	0)	register start address high byte	register start address low byte	register Number N* 2	register Value high address	register Value low address	byte value high address	byte value low address
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Byte N+1	Byte N+2
CRC high	CRC low

Command	Byte	Description	Register address
16	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	00 Program 01 Hand	
	High Byte	00	40005
	Low Byte	Minute (value 1-59)	
	High Byte	00	40006
	Low Byte	Hour (value 0-23)	
	High Byte	00	40007
	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 thermostat IP address?

During power off, Press and hold “ ” and “ ” for 8 sec. in the

order to reach system function. Then press “ ” to scroll through the

available functions.

Press  to item15.

Then press up and down to change the relative value. The default is 0x01.