Thermostat Interface Protocol V1.0

Model: BAC 1000

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
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 (03—read thermostat, 06—set thermostat)
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 Fan Speed: 0 - Auto speed; 0-Auto speed ;1 - High speed; 2- Mid speed; 3- Low speed	
	High Byte	00	40003
	Low Byte	Setting Mode: 0 – Cooling; 1 – Heating; 2 - Ventilation	
	High Byte	00	40004
	Low Byte	Setting Temperature: Data is Temperature*10	
	High Byte	00	40005
	Low Byte	Setting Lock: 0 – Unlock; 1 – Lock	
	High Byte	00	40006
	Low Byte	Minute (value 0-59)	
	High Byte	00	40007
	Low Byte	Hour (value 0-23)	
	High Byte	00	40008
	Low Byte	Week (value 1-7), 1-Monday, 2-Tuesday, 3-Wednesday, 4- Thursday, 5- Friday, 6- Saturday, 7- Sunday	
	High Byte	00	40009
	Low Byte	Reading Room Temperature: Data is Temperature*10	
	High Byte	00	40010
	Low Byte	Valve 0n =1 Valve off =0	
	High Byte	00	40011
	Low Byte	1 - High speed; 2- Mid speed; 3- Low speed 4- OFF	

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)	06	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 Fan Speed: 0-Auto speed ;1 - High speed; 2- Mid speed; 3- Low speed	
	High Byte	00	40003
	Low Byte	Setting Mode: 0 – Cooling; 1 – Heating; 2 - Ventilation	
	High Byte	00	40004
	Low Byte	Setting Temperature: Data is Temperature*10	
	High Byte	00	40005
	Low Byte	Setting Lock: 0 – Unlock; 1 – Lock	
	High Byte	00	40006
	Low Byte	Minute (value 0-59)	
	High Byte	00	40007
	Low Byte	Hour (value 0-23)	
	High Byte	00	40008
	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 2 and sent completely in HEX format because the accuracy is 0.5°C.

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 2 and sent completely in HEX format because the accuracy is 0.5°C.

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

Example: Read Temperature = 25.5°C
The send (or receive) value is 25.5*10=255

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

During power off, press **M** and at the same time for 5 seconds to access system functions.
Press **M** till you reach item A.
Then press and to change the relative value. The default is 0x01.

Turn on your thermostat to save the IP setting.

3. Any data in the address from 40001 to 40005 could be read and written at one time. After 40006, it could be just read or written one by one .