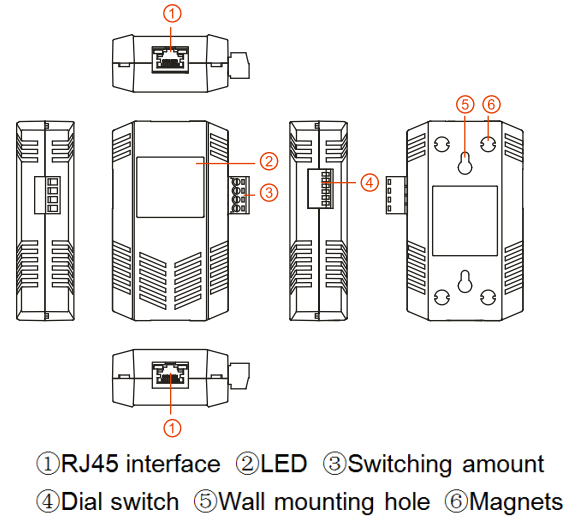


WiseTH Temperature and humidity module

User manual

1 Overview

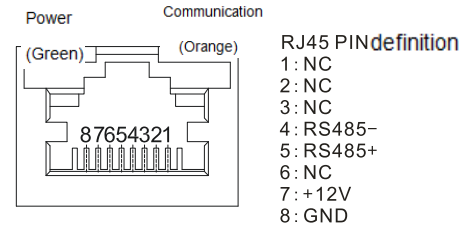
WiseTH Temperature and humidity module gets the environment status through sensors and displays it on the OLED. The upper computer interacts with the real-time data through Modbus protocol. The modular block can support up to 63 nodes, support baud rate adjustable, Chinese and English switching, with a high degree of flexibility and scalability, its appearance is as follows:



2 Hardware

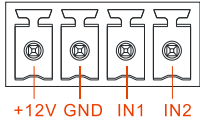
2.1 RJ45 interface

The module's electrical connection to the exterior is accomplished through two RJ45 interfaces. The RJ45 interface is used device cascading, display indicator effect, etc. It is defined as follows:



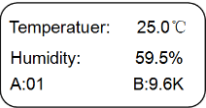
2.2 Switching amount

Switching amount interface is 4PIN green terminal, the interface is defined as follows (from left to right):



2.3 OLED

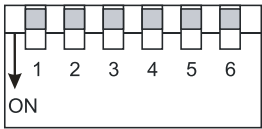
OLED real-time display module address, baud rate and temper and humidity data. For example, module address is 01, baud rate is 9600, temperature date is 25.0℃, measure humidity at 59.5% RH. At this point, the OLED displays as follows:



3 Protocol and Configuration

3.1 Communication address

Module communication address can be set by 6 PIN dialing switch on the left side of the module. The dial switch DIP1 is high and DIP6 is low. Dial up to 0 or down to 1. The dialing switch is defined as follows:



The settings of the dialing switch DIP1~DIP6 are as follows:

Device address	Dial switch					
	1	2	3	4	5	6
1	0	0	0	0	0	1
2	0	0	0	0	1	0
3	0	0	0	0	1	1
...
63	1	1	1	1	1	1

NOTE

In the event of an address conflict in the bus, the address displays Err, which can be restored after the address is changed.

3.2 Communications protocol

3.2.1 protocol specification

1) Host send command format

The address	Function code	The register start address		Number of register		CRC16 verification
		High byte	Low byte	High byte	Low byte	
1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	2 byte

2) WiseTH returns the message format

The address	Function code	byte length	Data 1	Data 2	...	CRC16 verification
1 byte	1 byte	1 byte	1 byte	1 byte	...	2 byte

3) WiseTH message information

Functional code	Start address of data	Number of data	Explain
03H	0000H	1	Temperature value
	0001H	1	Humidity value
03H/06H/10H	0002H	1	Temperature offset value
03H/06H/10H	0003H	1	Humidity offset value
03H/06H/10H	0004H	1	Baud rate setting
03H/06H/10H	0005H	1	Language setting
03H	0006H	1	IO acquisition value

4) WiseTH function code

Functional code	Meaning	Remarks
03H	Read register	Support multiple register continuous reads
06H	Write a single register	Supports single register write
10H	Write multiple registers	Support multiple registers to write

3.2.2 Query

Each piece of data is represented by two byte integers, high byte first, and low byte second. Signed integer range-32768~32767,upload

data divided by 100,negative numbers are represented by complement. For example:

- Temperature upload 16 hexadecimal 0xFB0E,the highest bit 1,said negative, said -12.66°C.
- Temperature upload 16 hexadecimal 0x00FA,corresponding to-F base 250,said 2.50°C.
- Humidity upload 16 hexadecimal 0x0258,corresponding to decimal 600,said 6.0%.

Mainframe issuing command

01 03 00 00 00 07 04 08 (Read the seven register values starting at 0000H from the beginning of the data)

WiseTH return:

01 03 0E 08 9C 0F 0A 00 00 00 00 03 00 01 00 03 56 4D

3.2.3 Set temperature and humidity offset

Set the temperature offset ,the highest bit is 1 to denote a negative number, the highest bit is 0, which means positive number, set the numeric unit *0.1,offset range soil $\pm 10^{\circ}\text{C}$ or $\pm 10\%$,out of range offset is not valid. For example:

- 01 06 00 02 80 14 49 C5 set the 02 temperature offset register. 8014H stands for-20,which is the final temperature offset -2°C.
- 01 06 00 03 00 14 79 C5 set the 03 humidity offset register,0014Hstands fo+20 or the final humidity offset of +20%.

3.2.4 Set baud rate

The baud rate is set by writing the value 0-7 to a register at address 0004H to set the baud rate(1200-115200bps) as follows:

value	Baud rate	value	Baud rate
0	1200	4	19200
1	2400	5	38400
2	4800	6	57600
3	9600	7	115200

For example: 01 06 00 04 00 03 88 0A set the 04 baud rate register,0003H for writing 3,which 9600 baud rate.

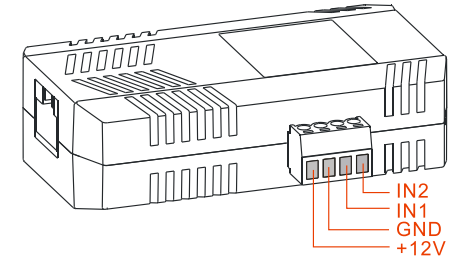
3.2.5 Settings language

The language is set by writing the value 0-1 to a register with the

address 0005H to set the OLED display language,0 stands for English,1 stands for Chinese.

For example: 01 06 00 05 00 01 58 0B set the language register 05,0001H to select Chinese.

3.3 Switching amount detection



3.3.1 Internal power supply

Using internal power connection: The detection equipment is powered by temperature and humidity module, and the access device COM pin is connected to the module GND, The detecting pin (NC or NO) accesses IN1 or IN2.

3.3.2 External power supply

Using external power connection: Temperature and humidity module 12V hover, access equipment power through external power supply, The access device COM pin is connected to the module GND, The detecting pin(NC or NO) accesses IN1 or IN2.