HUATO

User's Guide



HE500 Series
Temperature & Humidity Transmitter, wall-mounted

HUATO

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Section 1 - Introduction

HE500 series temperature and humidity transmitter adopt Switzerland imported 2 in 1 sensor, the output it provides including voltage, current and modbus .etc. With built-in high performance, lower power SCM, it provides wide range and high precision measurements.

Section 1.2 - Features

- Accuracy: Temperature/±0.5℃; Humidity/±5%RH.
- Supporting multiple standard signal output: 4-20mA /0-5V/0-10V/Modbus /RS485,etc.
- Designed for faster heat dissipation.
- Wall-mounted.
- DC Power Supply: 9-30V.
- Host Size(L x H x D): 100mm x 100mm x 30mm.
- LCD Screen Size: 60mm x 40mm.

Section 1.3 - Application

- Museums.
- Archive room.
- Industrial and civil sectors.

NOTE:

There are no user serviceable parts inside your unit. Attempting to repair or service your unit may void your warranty.

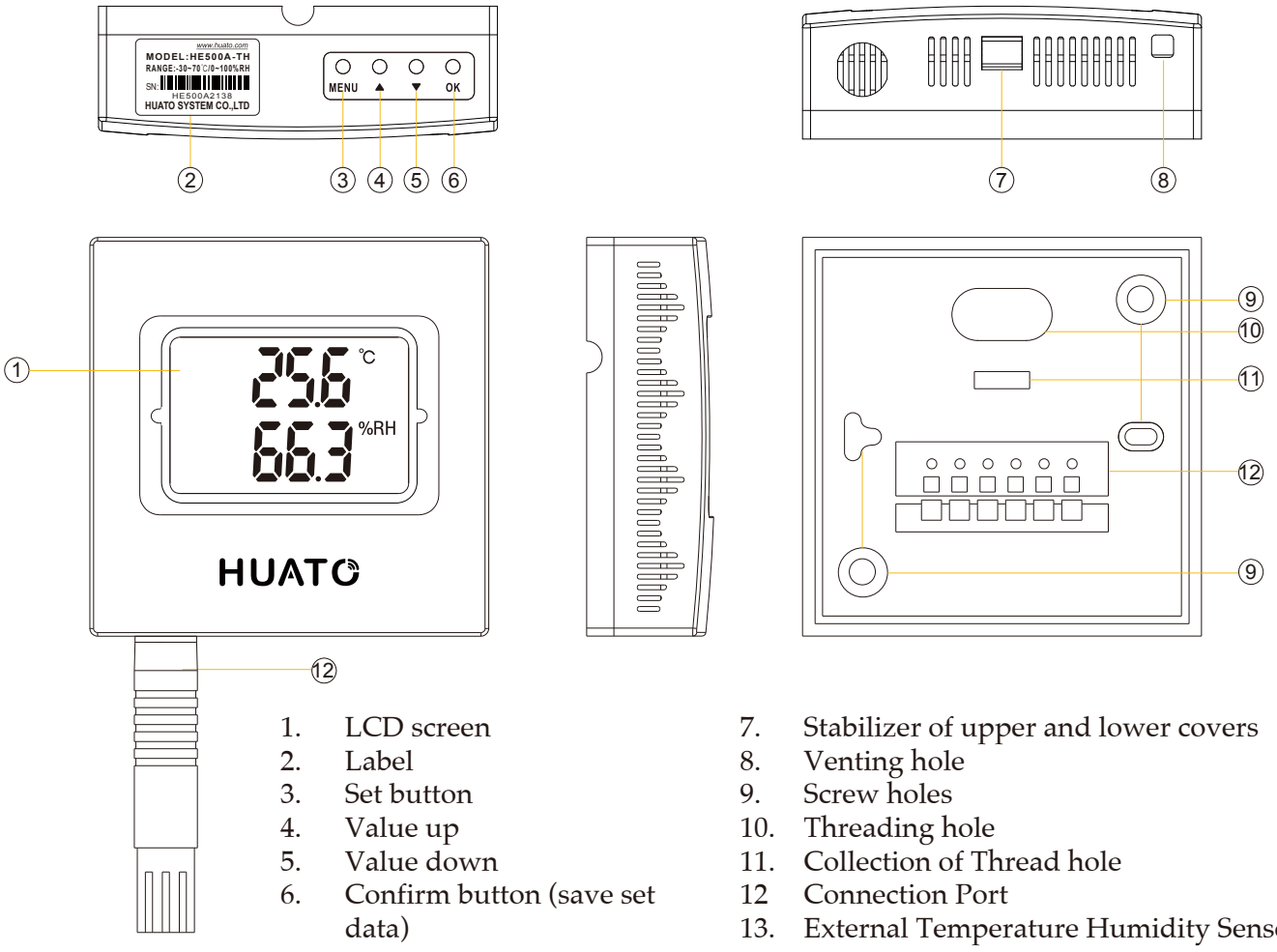
Section 1.4 - Data Logger Model

Model	Temperature Range	Humidity Range	Temperature Accuracy	Humidity Accuracy	Output
HE500A-TH	-30~70℃	0~100%RH	±0.5℃	±5%RH	4~20mA
HE500A-EX					
HE500V5	-0~50℃	0~100%RH	±0.5℃	±5%RH	0~5V
HE500V5-EX	-30~70℃				
HE500V10	-0~50℃	0~100%RH	±0.5℃	±5%RH	0~10V
HE500V10-EX	-30~70℃				

Model	Temperature Range	Humidity Range	Temperature Accuracy	Humidity Accuracy	Output
HE500M	-20~70℃	0~100%RH	±0.5℃	±5%RH	Modbus
HE500M-EX	-40~85℃				
HE500N	-20~70℃	0~100%RH	±0.5℃	±5%RH	RS485
HE500N-EX	-40~85℃				

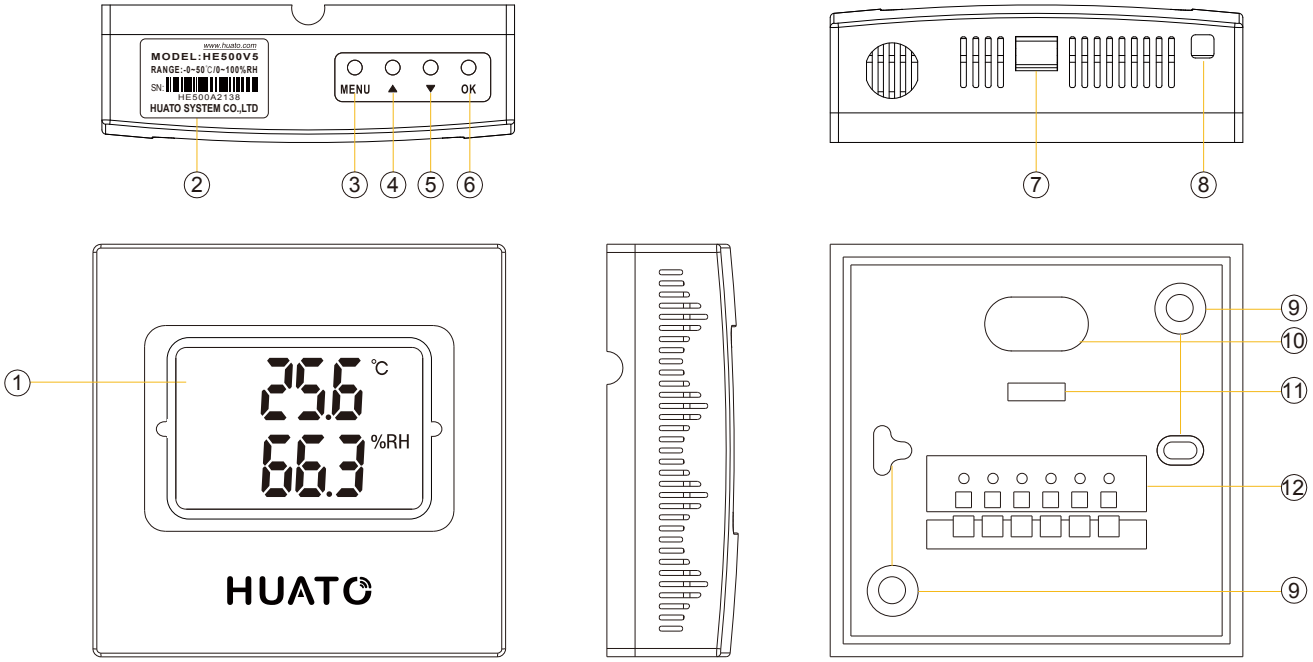
Section 1.5 - Temperature Data Logger Appearance (HE500A-TH/HE500A-EX/HE500V5/HE500V5-EX/ HE500V10/HE500V10-EX/HE500M/HE500M-EX/ HE500N/HE500N-EX)

HE500A-TH



1. LCD screen
2. Label
3. Set button
4. Value up
5. Value down
6. Confirm button (save set data)
7. Stabilizer of upper and lower covers
8. Venting hole
9. Screw holes
10. Threading hole
11. Collection of Thread hole
12 Connection Port
13. External Temperature Humidity Sensor

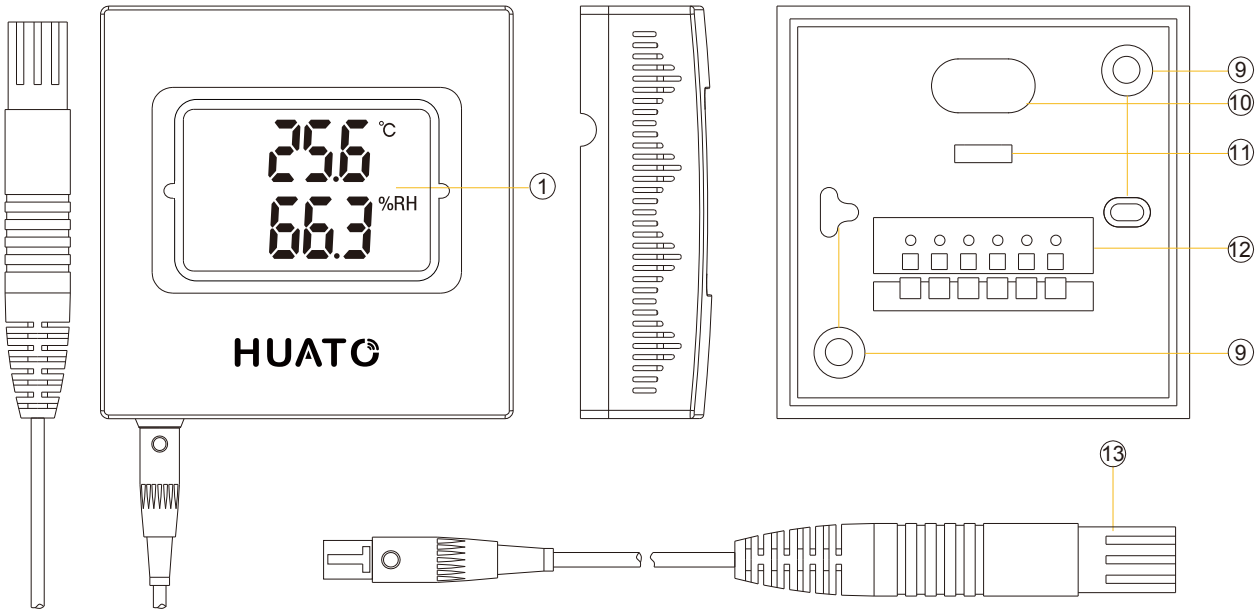
HE500V5/HE500V10/HE500M/HE500N



1. LCD screen
2. Label
3. Set button
4. Value up
5. Value down
6. Confirm button (save set data)
7. Stabilizer of upper and lower covers
8. Venting hole
9. Screw holes
10. Threading hole
11. Collection of Thread hole
12 Connection Port

HE500A-EX/HE500V5-EX/HE500V10-EX/HE500M-EX/HE500N-EX

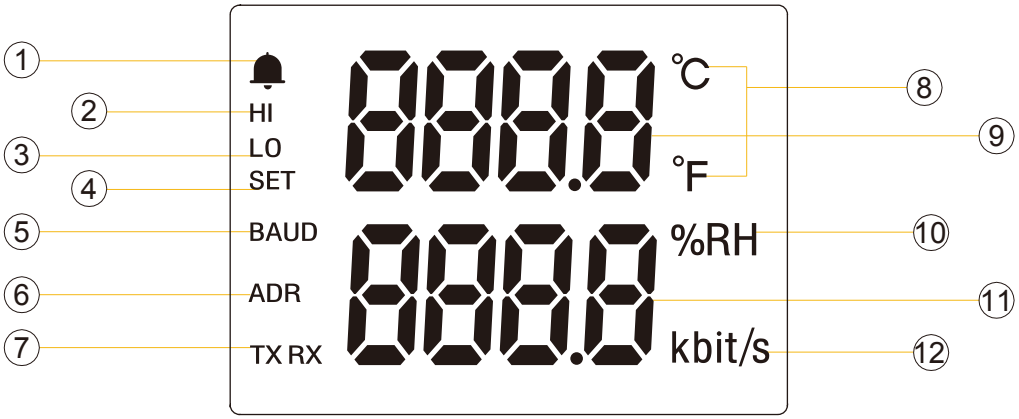




1. LCD screen
2. Label
3. Set button
4. Value up
5. Value down
6. Confirm button (save set data)
7. Stabilizer of upper and Lower covers
8. Venting hole
9. Screw holes
10. Threading hole
11. Collection of thread hole
12. Connection port
13. External Temperature Humidity Sensor

Section 1.6 - Temperature and Humidity Data Logger Screen

HE500A-TH/HE500A-EX/HE500V5/HE500V5-EX/HE500V10/ HE500V10-EX/HE500M/HE500M-EX/HE500N/HE500N-EX



1. Alarm symbol
2. High limit symbol
3. Lower limit symbol
4 Set mode indicator
5. Baud rate indicator
6. Address indicator
7. Receive/send indicators
8. Temperature unit: °C or °F
9. Temperature value area
10. Humidity unit symbol
11. Humidity value area
12. Baud rate unit symbol

Section 1.7 - Button function instructions and button operation

1.7.1 - Button function instructions

MENU : Press to enter SET mode when the transmitter is in normal displaying mode;
Press to get back to normal displaying mode when the transmitter is in SET mode.

▲ : Add value (switch symbol)

▼ : Reduce value

OK : Press to save temperature value and enter humidity SET mode if the transmitter is in temperature SET mode ;
Press to save humidity value and enter normal displaying mode if the transmitter is intemperature SET mode .

1.7.2 - HE500A button operation instructions

The basic flow of the HE500A setting interface is:

Temperature deviation value setting --> humidity deviation value setting --> °C / °F switching setting.

1, HE500A power-on display instructions

The device is powered on normally and fully displayed as shown in Figure (1). After HE500A, the version number 【V4.4】 is displayed, as shown in Figure (2). After normal startup, it enters the normal measurement state, and the screen displays the temperature value and temperature symbol. The lower row shows the humidity value and humidity symbol, as shown in Figure (3).

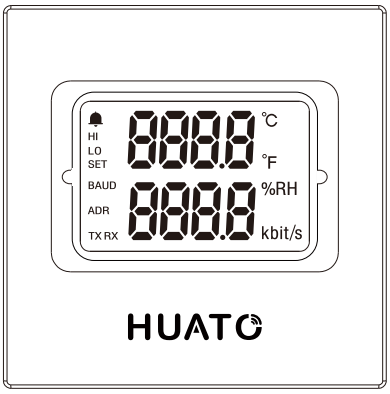


Figure 1

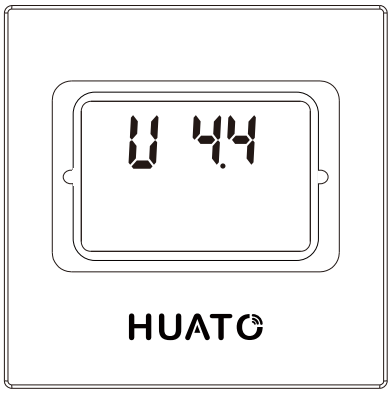


Figure 2



Figure 3

2, Enter the setting interface and temperature deviation setting

Power on the HE500A and press the 【MENU】 key for 2 seconds to enter the setting interface. As shown in Figure (1), the LCD screen displays the set temperature 【SET.T】 and the initial temperature deviation value 【0.0】. At this time, press 【UP】(【DOWN】)key to 【add】 (【decrease】) the deviation value, long press to accumulate (reduced), release the button to stop accumulating (reduced). The display interface is shown in Figure (4).



Figure 4

3, Humidity deviation setting

After setting the temperature deviation value, press the 【MENU】 key again to select the humidity channel deviation value setting. After entering the humidity channel deviation value setting interface, the LCD screen displays the setting humidity 【SET.H】 and the humidity deviation value initial value【0.0】, also perform the addition and subtraction of the deviation value of the current channel as above, until it is set to the desired value. The display interface is shown in Figure (5).

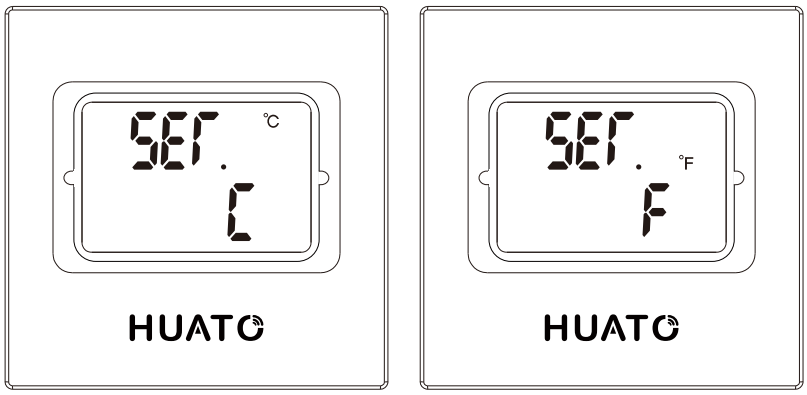


Figure 5

4, ℃/℉ Switch Settings

When the 【MENU】 key is pressed again, the temperature symbol switching interface is entered. At this time, the LCD screen displays the set temperature 【SET.℃】 and the temperature initial value symbol 【°C】; when the 【UP】 / 【DOWN】 key is pressed, the current temperature can be changed Symbol [°C] → [°F].

When all settings are completed, press the 【OK】 key to save the setting data and the device enters the normal measurement state.



°C Symbol °F Symbol

1.7.3 - HE500M/N button operation instructions

The basic flow of the HE500M setting mode is:

Address Setting --> Baud Rate Setting --> C/F Switch Setting --> Over Temperature Alarm Setting --> Low Temperature Alarm Setting --> Humidity High Alarm Setting - -> Humidity under low alarm setting --> alarm switch setting --> temperature and humidity deviation value setting.

The basic flow of the HE500N setting mode is:

C/F switching setting --> over temperature alarm setting --> low temperature alarm setting --> humidity too high alarm setting --> humidity low alarm setting --> alarm switch Settings --> Temperature and humidity deviation value settings.

1. HE500M/N power-on display

The HE500M/N is powered on and displayed normally as shown in Figure (1). The version number 【V1.0】 and the device address 【001】 are displayed, as shown in Figure (2). After normal startup, the device enters the normal measurement state, and the screen displays the temperature value. And temperature symbol, the lower row shows the humidity value and humidity No., as shown in Figure (3).

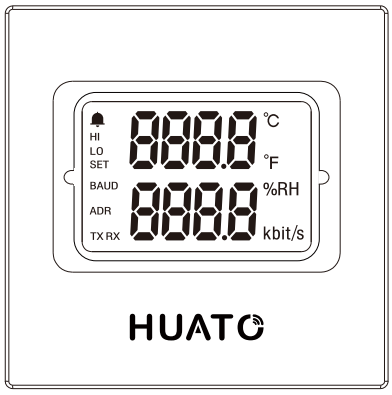


Figure 1

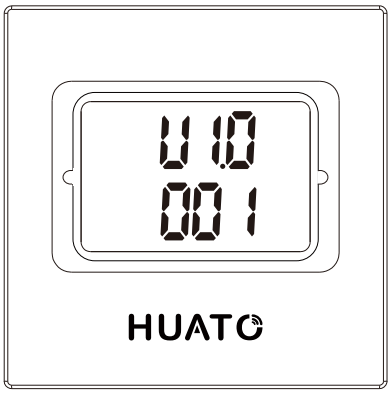


Figure 2



Figure 3

2. Address settings (HE500M)

Press and hold the 【MENU】 button for 50ms to enter the setting interface, as shown in Figure (4). The LCD screen displays the setting temperature 【SET】 and the setting item 【ADR】, indicating the setting address (address), and the default address 01 is displayed in the center of the LCD screen. At this time, press the 【UP】 (【DOWN】) key to perform the deviation value. 【Plus】 (【minus】) operation, long press to accumulate (reduced), release the button to stop accumulating (reduced), the address value is greater than zero, less than 255.

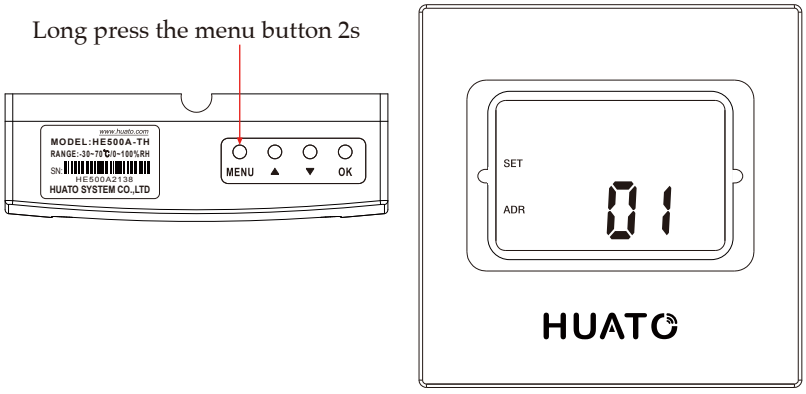


Figure 4

3, Baud rate setting (HE500M)

Press the 【MENU】 button again to display the screen display content as shown in Figure (5); 2. Baud rate setting. Press the 【MENU】 button again, the display screen display content is shown in Figure (5); the LCD screen displays the set temperature 【SET】 and the setting item 【BAUD】, indicating the baud rate is set. The default baud rate is 9600 (9.6Kbit/s) At this time, press the 【UP】 (【DOWN】) button to set the baud rate of 2.4 Kbit/s, 4.8 Kbit/s, 9.6 Kbit/s, and 19.2 Kbit/s. As shown in the figure, Figure (6), Figure (7), Figure (8), Figure (9).

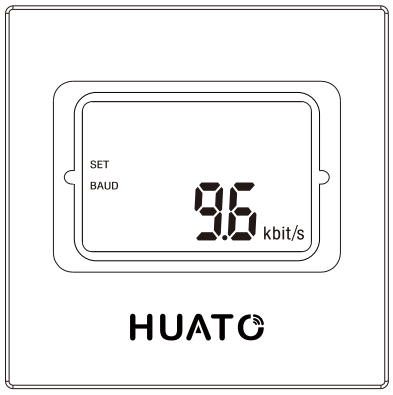


Figure 5

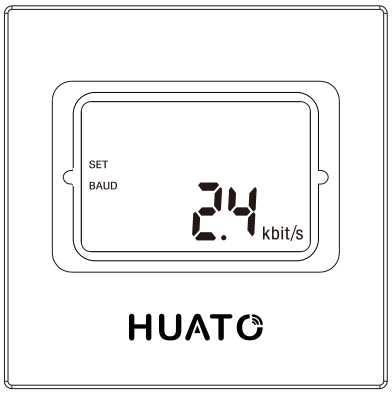


Figure 6

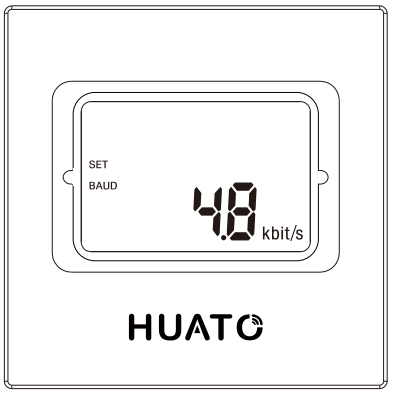


Figure 7

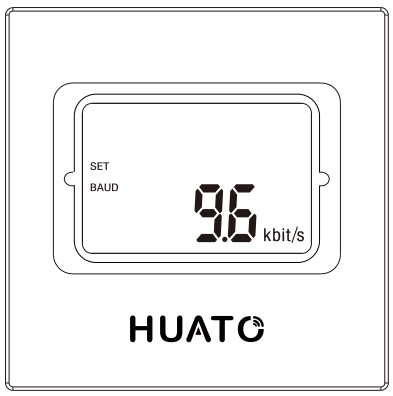


Figure 8

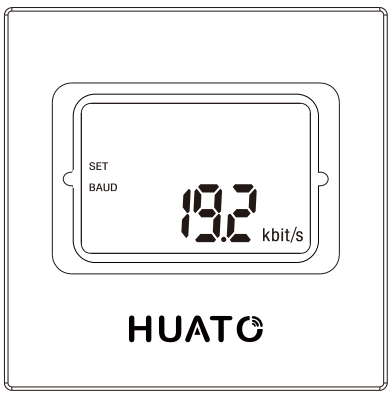


Figure 9

4, C / F switch settings

Press the 【MENU】 button again, the interface will display as shown in Figure (10), the LCD screen will display the setting temperature 【SET】 and the setting item 【 °C 】. At this time, the default temperature symbol is 【 °C 】, then press 【UP】 (【DOWN】) button can be used to switch between C/F.

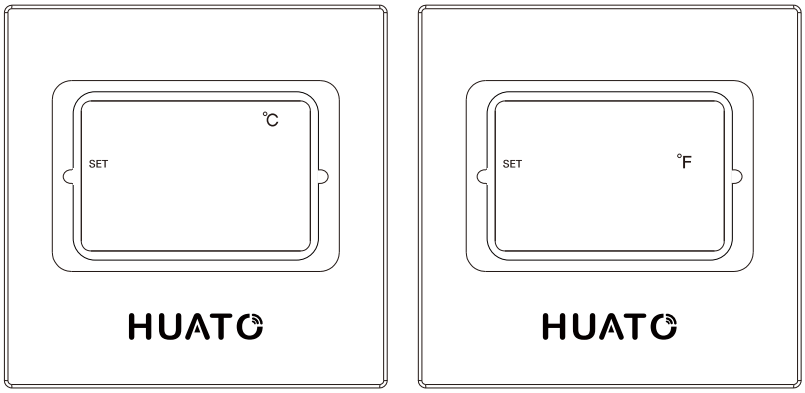


Figure 10

5, The temperature is too high alarm settings

Press the 【MENU】 button again, the interface will display as shown in Figure (11). The LCD screen displays the set temperature 【SET】 and the setting item 【HI】. At this time, the default temperature high alarm threshold is 120.0 and the symbol is 【°C】. Press the 【UP】(【DOWN】) button to perform the 【Add】 (【Subtract】) operation on the default value. Press and hold the accumulate (reduced), release the button to stop accumulating (reduced) until the user wants to set The value is up.

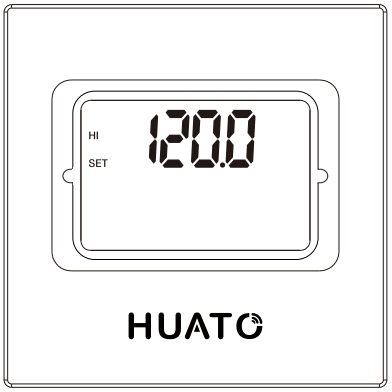


Figure 11

6, The temperature is too low alarm settings

Press the 【MENU】 button again, the interface will display as shown in Figure (12). The LCD screen displays the set temperature 【SET】 and the setting item 【LO】. At this time, the default temperature high alarm threshold is -40.0, the symbol is 【°C】, at this time, press the 【UP】 (【DOWN】) button to perform the 【Add】 (【Decrease】) operation on the default value, long press the accumulate (reduced), release the button to stop accumulating (reduced) until the user The value you want to set.

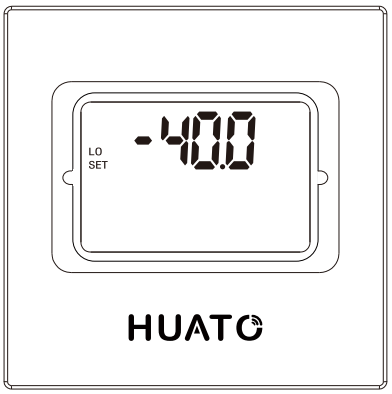


Figure 1

7, humidity is too high alarm settings

Press the 【MENU】 button again, the interface will display as shown in Figure (13). The LCD screen displays the set temperature 【SET】 and the setting item 【HI】. At this time, the default temperature high alarm threshold is 100.0, and the symbol is 【RH%】, at this time, press the 【UP】 (【DOWN】) key to perform the 【Add】 (【Decrease】) operation on the default value, long press the accumulation (reduced), release the button to stop the accumulation (reduced) until the user The value you want to set.

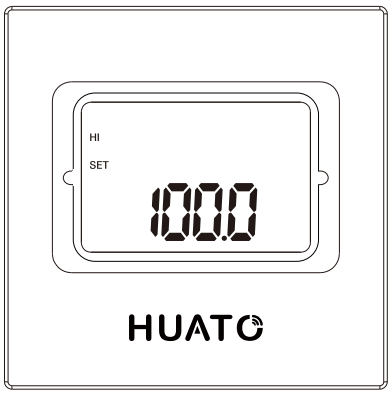


Figure 13

8, humidity is too low alarm settings

Press the 【MENU】 button again, the interface will display as shown in Figure (14). The LCD screen displays the set temperature 【SET】 and the setting item 【LO】. At this time, the default temperature high alarm threshold is 0 0. 0, the symbol is 【RH%】, press 【UP】 (【DOWN】) at this time to perform 【Add】 (【Decrease】) on the default value, long press to accumulate (reduced), release the button to stop accumulating (reduced), until The value that the user wants to set.

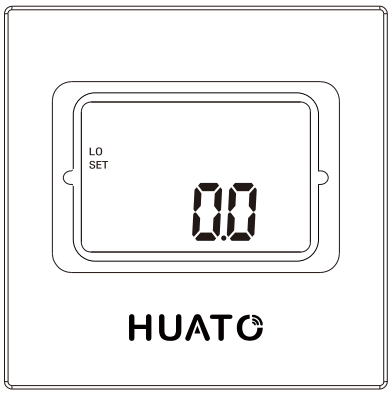


Figure 14

9, temperature and humidity is too high and too low alarm settings

Press the 【MENU]】 button again, the interface will display as shown in Figure (15), Figure (16), LCD screen display setting temperature 【SET】 and setting items 【? 】, the temperature and humidity are too high and the alarm is too low by default. At this time, you can press the 【UP】 (【DOWN】) button to perform the 【Plus】 (【Subtract】) operation on the default value to implement the switch function.

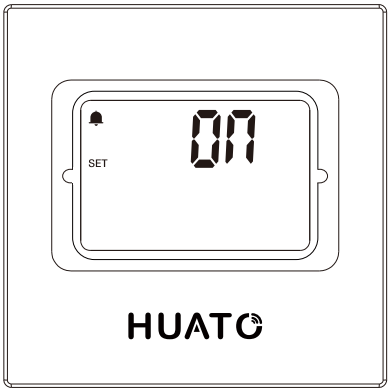


Figure 15

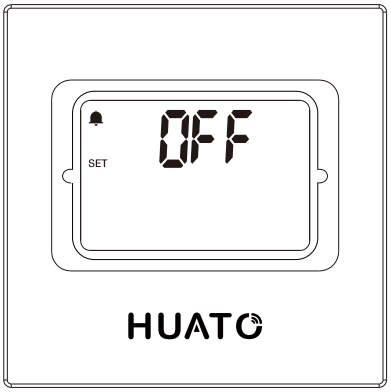


Figure 16

10, Temperature and humidity deviation value setting

Press the 【MENU】 button again, the interface will display as shown in Figure (17) and Figure (18). In the temperature and humidity value setting interface, the user can press the 【UP】 (【DOWN】) button to 【default】 the value 【Plus】 (【Subtract】) operation, long press to accumulate (reduced), release the button to stop accumulating (reduced) until the user wants to set the value.

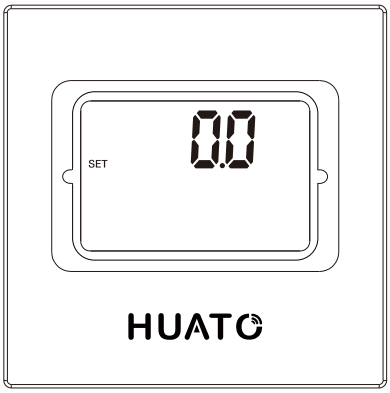


Figure 17

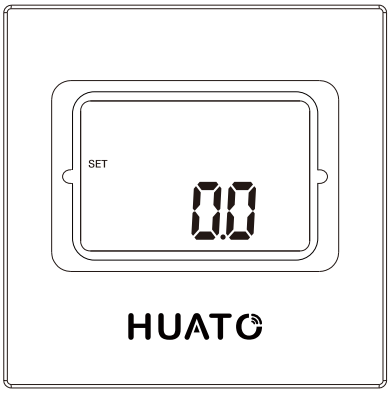


Figure 18

11, Restore factory settings (HE500M)

Press 【MENU】 again to enter the factory reset interface. After pressing the 【OK】 button for 3 seconds, the user will restore the factory settings, and then automatically exit the setting interface. The interface display is shown in Figure (19); after pressing the 【MENU】 button, Make the factory settings and exit (Note: The factory reset interface is a separate interface, and the settings of the previous interface are not saved after pressing the 【MENU】 key).

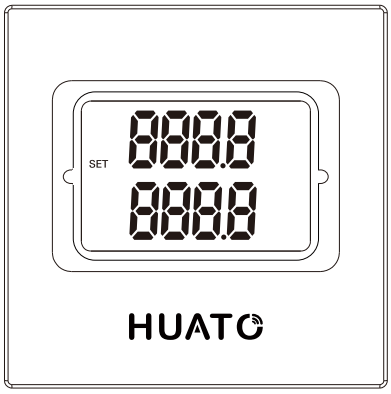


Figure 19

Section 1.8 - Output Interpretation Table

Output Type		0-5V	0-10V	4-20mA
Humidity	0%RH	0	0	4mA
	100%RH	5V	10V	20mA
Temperature	0℃(−30)	0	0	4mA
	50℃(70)	5V	10V	20mA

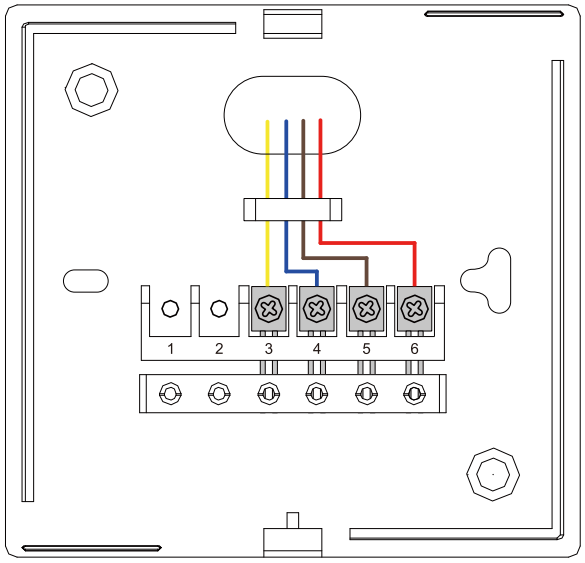
In the setting mode and temperature and humidity calibration mode, if there is no button operation in more than 20S, the device will automatically exit the setting interface or calibration mode interface, automatically exit to the normal measurement mode, and automatically exit the data set in the current time without saving.

Section 2 - Method of Cable Installation

This section describes the installation methods of each series of HE500 products. The name, meaning and proper wiring of each terminal are described in detail.

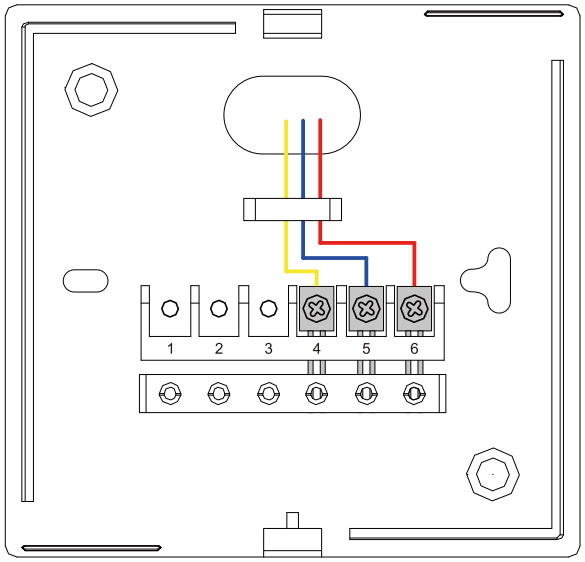
Section 2.1 - Voltage

3	4	5	6
T_out	RH_out	Gnd	Vcc
Temperature Output	Humidity Output	Negative DC Input	Positive DC Input



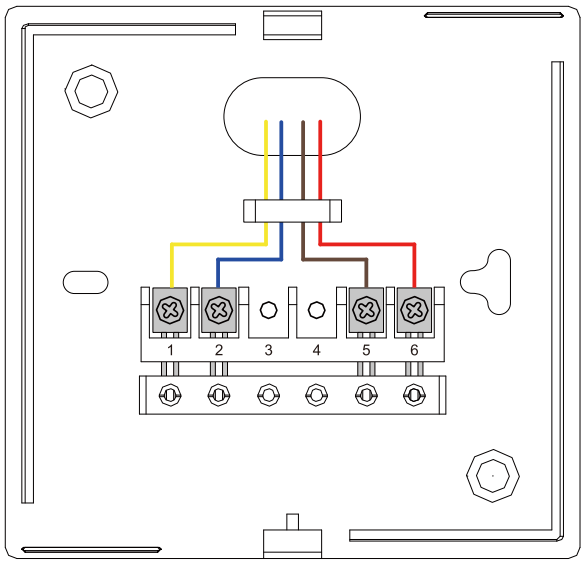
Section 2.2 - Current

4	5	6
T_out	RH_out	Vcc
Temperature Output	Humidity Output	Positive DC Input

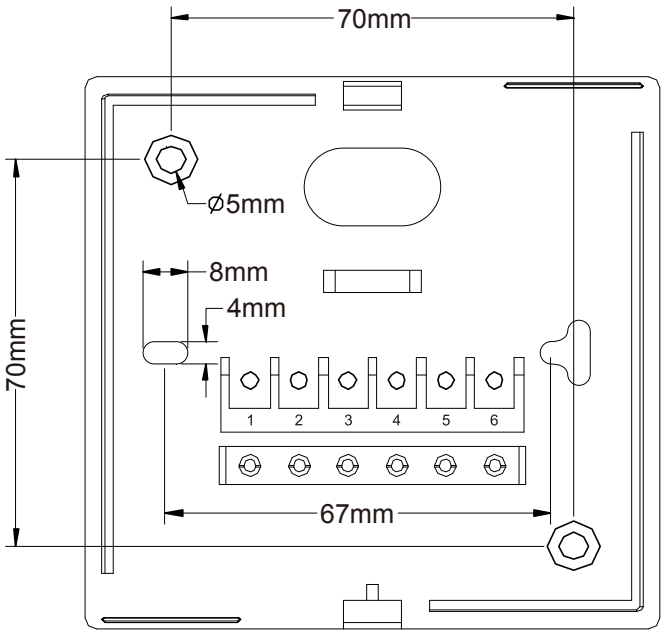


Section 2.3 - Modbus/RS485

1	2	5	6
A	B	Gnd	Vcc
485-	485+	Negative DC Input	Positive DC Input



Section 2.4 - Installation Size



Section 2.5 - Standard MODBUS RTU Data Frames （Modbus）

Address	Function	Data	Check
8-Bits	8-Bits	N x 8-Bits	16-Bits