

WSY-3 Temperature and Humidity Controller

User's Manual



Harbin Huaxin Power Electronic Equipment Co., Ltd.

1. Application

WSY-3 series of temperature and humidity control instrument is suitable for various needs of temperature, humidity and detection, control environment. Especially suitable for monitoring the water conservancy and electricity / automation system of high and low voltage switchgear and isothermal humidity environment pit places.

2. Outline

With advanced single-chip microcomputer as the control core, high-precision temperature and humidity transmitter is adopted. Through receiving single temperature signal and single humidity signal, the measurement, analysis, control and signal output are carried out. The operating personnel can be the key to the monitoring of the environment are the upper and lower limits of instrument settings, according to the site will automatically start the fan and the heater through the contact output, to ensure the good condition of temperature and humidity.

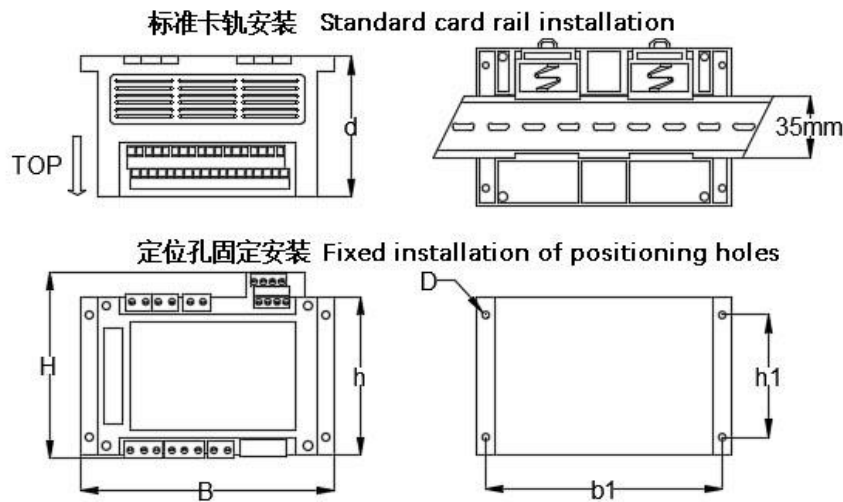
WSY-3 can provide the temperature and humidity signals to the automatic monitoring system in the manner of current analog, and communicate with the host computer through the 485 interface.

3. Features / Specifications

- Show: dual road 3 bit LED
- Measuring range: Temperature 0~99 degrees, Humidity 0 ~ 99%RH
- Control accuracy: Temperature + 1 degrees, Humidity + 2% RH
- Output type: Relay contact
- Output contact capacity: 5A 240VAC/28VDC
- Signal output: DC 4-20 mA
- Work power select: AC/DC220V, AC/DC110V, DC24V
- Power: Less than 10W
- The working environment: Temperature: - 20 ~ 70 C Relative humidity: < 95%RH

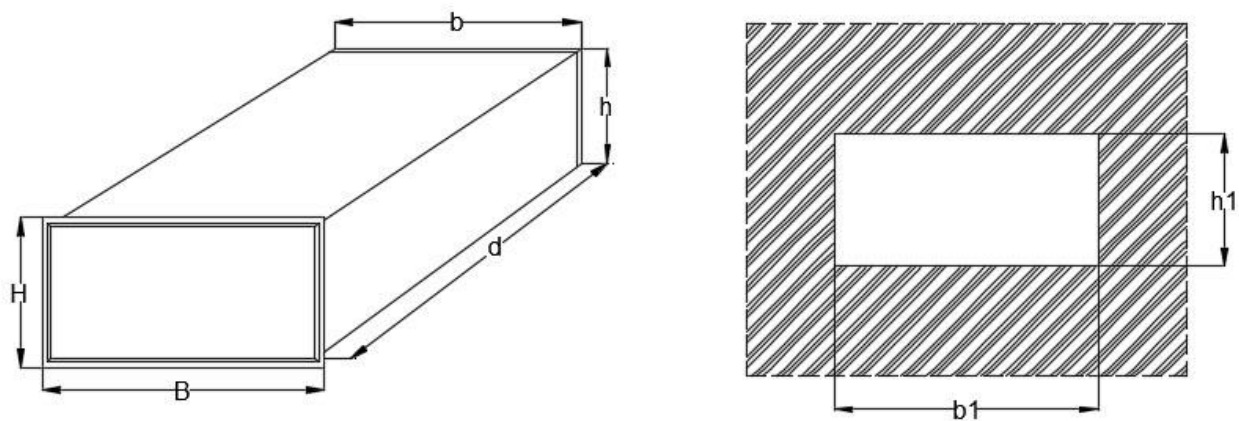
● Dimensions and Installation:

Size Chart WSY-3A:



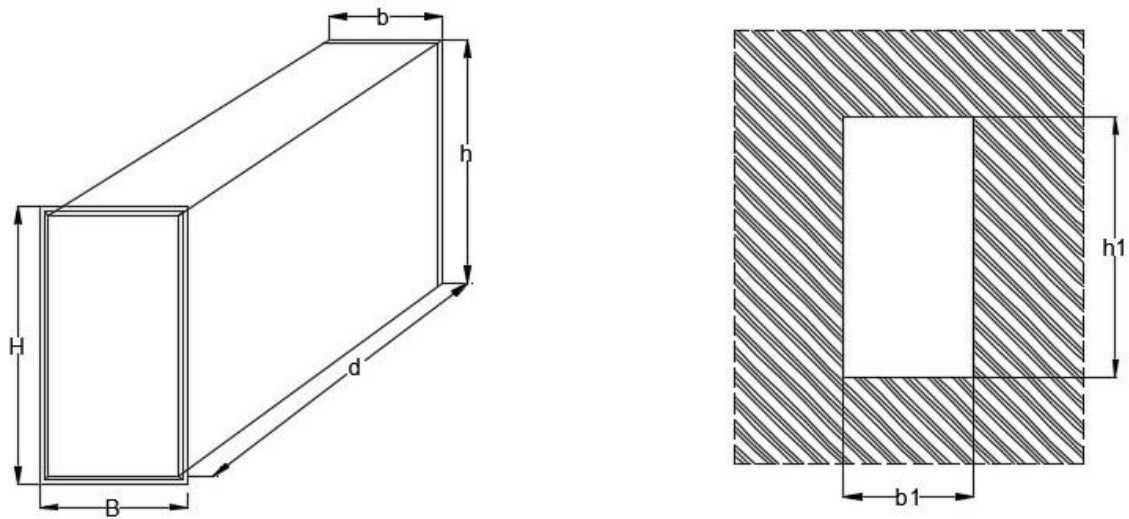
外形及开孔尺寸表 Outline and Hole Size Table						单位: Company: mm	
型号及部件 Model and components	B	H	h	d	D	b1	h1
WSY-3A	145	106	90	72	Ø4	135	70

Size Chart WSY-3B/H:



外形及开孔尺寸表 Outline and Hole Size Table						单位: Company: mm	
型号及部件 Model and components	B	H	b	h	d	b1	h1
WSY-3B/H	160	85	150	75	200	151^{+1}_0	76^{+1}_0

Size Chart WSY-3B/V:

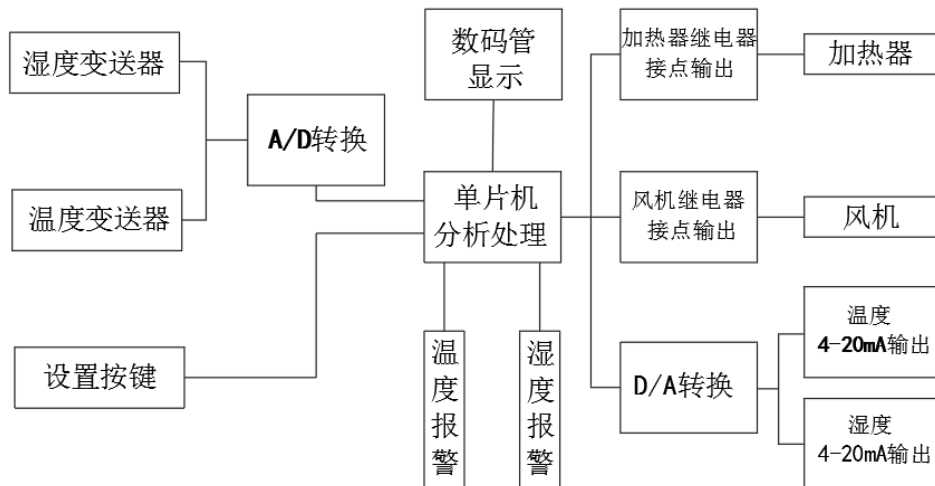


外形及开孔尺寸表 Outline and Hole Size Table						单位: Company: mm	
型号及部件 Model and components	B	H	b	h	d	b1	h1
WSY-3B/V	85	160	75	150	200	76^{+1}_0	151^{+1}_0

4. Working principle

- The temperature and humidity controller samples the signals from the temperature transmitter and humidity transmitter, and sends them to the microcontroller for logical judgment and display through A/D conversion;
- When the humidity is higher than the set upper limit or lower than the set lower limit, output a contact signal for the user to control the circuit.
- When the temperature is below the set lower limit or above the set upper limit, output a contact signal for the user to control the circuit.
- Settings: Use the "Settings", " \wedge ", and " \vee " buttons to set the upper and lower limits of temperature and humidity

WSY-3 Principle block diagram



5. A-Type Panel operation/terminal instructions

1) Parameter settings:

- Press the setting button to enter the parameter setting state. The left three digit digital display flashes P-1, indicating the lower temperature limit setting value. The right three digit digital display is the numerical value, which can be set through " \wedge " and " \vee " (see Figure 1), Set the range from 0 to 99.

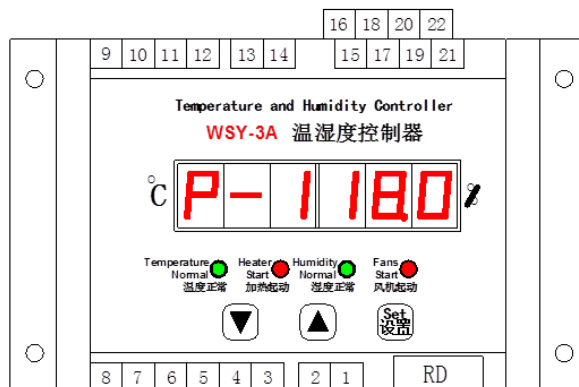


Figure 1

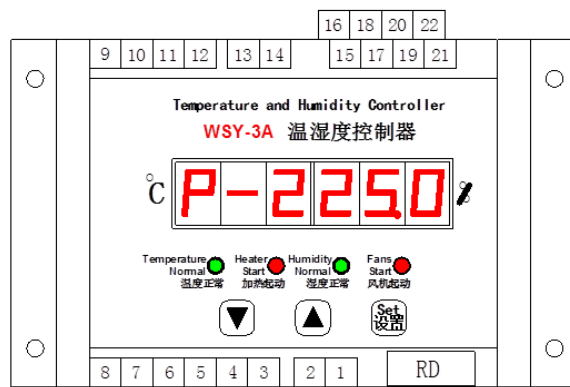


Figure 2

- Continue to press the setting button, and the left three digit digital display flashes to show P-2, indicating the upper temperature limit setting value. The right three digit digital display is the numerical value, which can be set through " \wedge " and " \vee " (see Figure 2), with a setting range of 0-99.
- Continue to press the setting button, the left three digit digital display flashes and shows P3,

indicating the lower humidity limit setting value. The right three digit digital display is the numerical value, which can be set through " \wedge " and " \vee " (see Figure 3), with a setting range of 0-99.

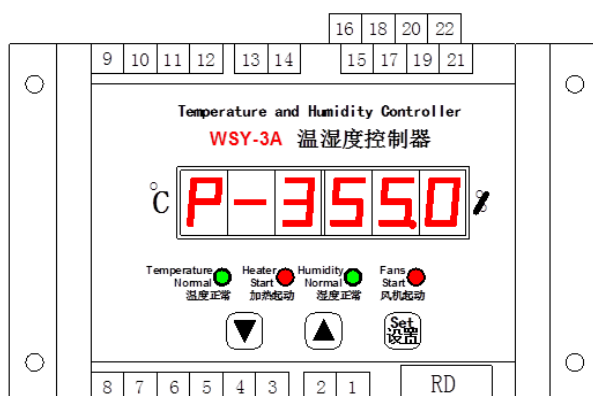


Figure 3

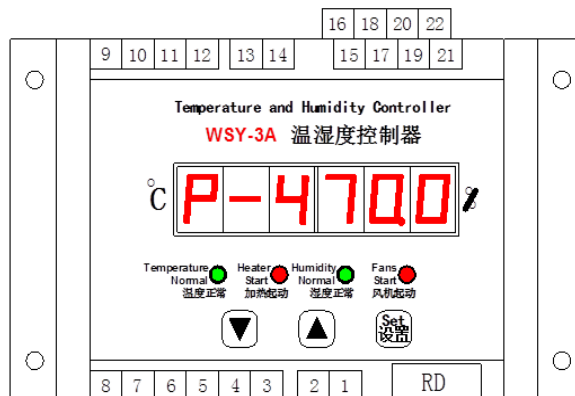


Figure 4

- Continue to press the setting button, the left three digit digital display flashes to show P-4, indicating the humidity upper limit setting value. The right three digit digital display is the numerical value, with a setting range of 0-99, which can be set through " \wedge " and " \vee " (see Figure 4).
- Continue pressing the settings button to save the set values and exit the parameter setting state.

Note: Factory default initial values: temperature upper limit of 25 °C, lower limit of 18 °C, humidity upper limit of 70%, lower limit of 55%.

2) Communication settings

- Simultaneously press the " \wedge " and " \vee " keys, and the left three digit digital display will flash and show H-1, indicating the communication address setting value. The right three digit digital display will show the numerical value within the range of 1-255, which can be set through " \wedge " and " \vee " (see Figure 5).

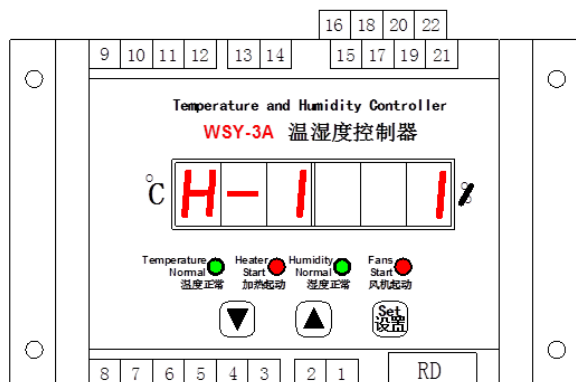


Figure 5

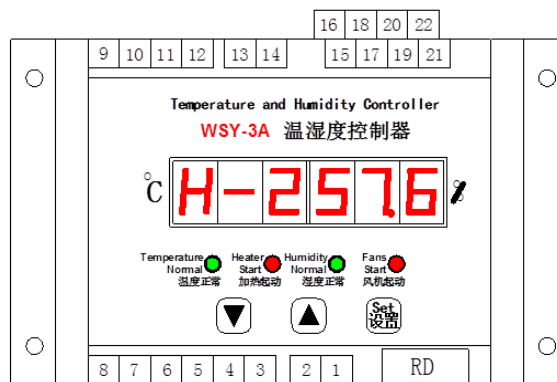


Figure 6

- Continuing to press the settings button, the left three digit digital display flashes H-2, indicating the communication baud rate setting value. The right three digit digital display is the numerical value, with five options for setting values: 4.8, 9.6, 19.2, 38.4, and 57.6, which can be set through "^" and "V" (see Figure 6).
- Continue to press the setting button, the left three digit digital display flashes H-3, indicating the temperature correction coefficient setting value. The right three digit digital display is the numerical value, with a setting value of -9.9-9.9, which can be set through "^" and "V" (see Figure 7).

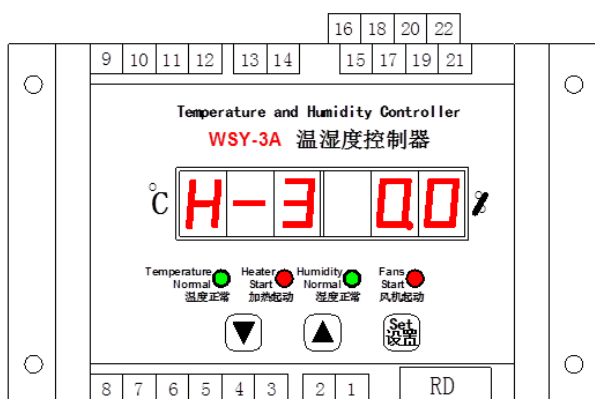


Figure 7

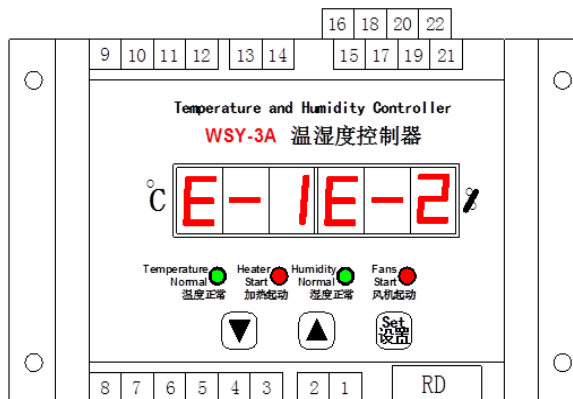


Figure 8

- Continue pressing the settings button to save the set values and exit the parameter setting state.

Note: Factory default initial values: communication address 1, baud rate 57.6kbps.

Attention:

- ◆ **The temperature correction coefficient is set by the manufacturer at the factory and may not be 0.0. Customers cannot change this setting value**

arbitrarily, otherwise it will affect the accuracy of the measurement. If you have any questions, please contact the manufacturer's after-sales service.

- ◆ If the digital tube displays as shown in the figure (see Figure 8), it indicates that the temperature transmitter and humidity transmitter are abnormal. Please check if the transmitter or wiring is normal.

3) Terminal wiring instructions:

Wiring diagram of WSY-3A panel and terminal board

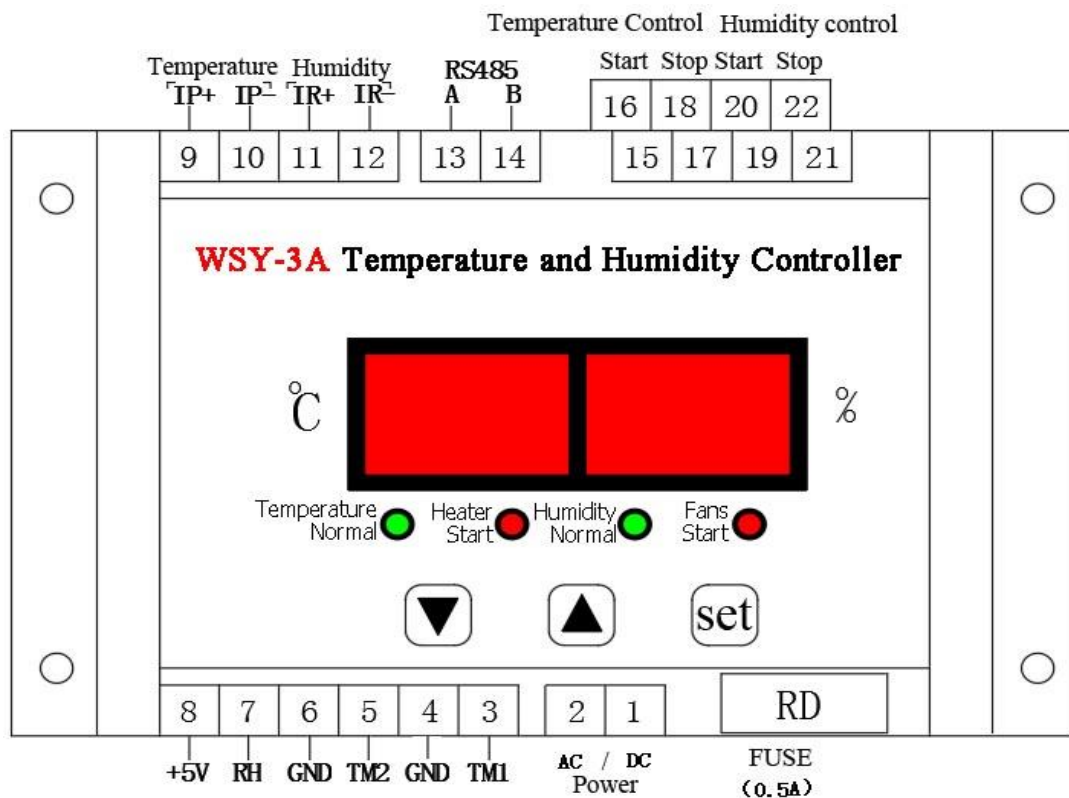


Figure 9

- RD is a power fuse (0.5A)
- 1-2 is the working power supply of the controller: AC/DC220V, AC/DC110V, DC24V (optional)
- 3, 4, 5 are temperature transmitter signal inputs (TMA, GND, TM2)
- 6, 7, 8 are humidity transmitter signal inputs (GND, RH, +5V)
- 9, 10 are analog outputs for temperature 4-20mA
- 11, 12 are analog outputs for humidity 4-20Ma
- 13, 14 are RS-485 communication ports A B

- 15, 16 are alarm contacts for low temperature (below the lower limit of the set value) (can provide normally open or normally closed status).
- 17, 18 are alarm contacts for high temperature (above the upper limit of the set value) (can provide normally open or normally closed status).
- 19, 20 are alarm contacts for high humidity (above the upper limit of the set value) (can provide normally open or normally closed status).
- 21, 22 are alarm contacts for low humidity (below the lower limit of the set value) (which can provide normally open or normally closed status).

6. B-Type Panel operation/terminal instructions

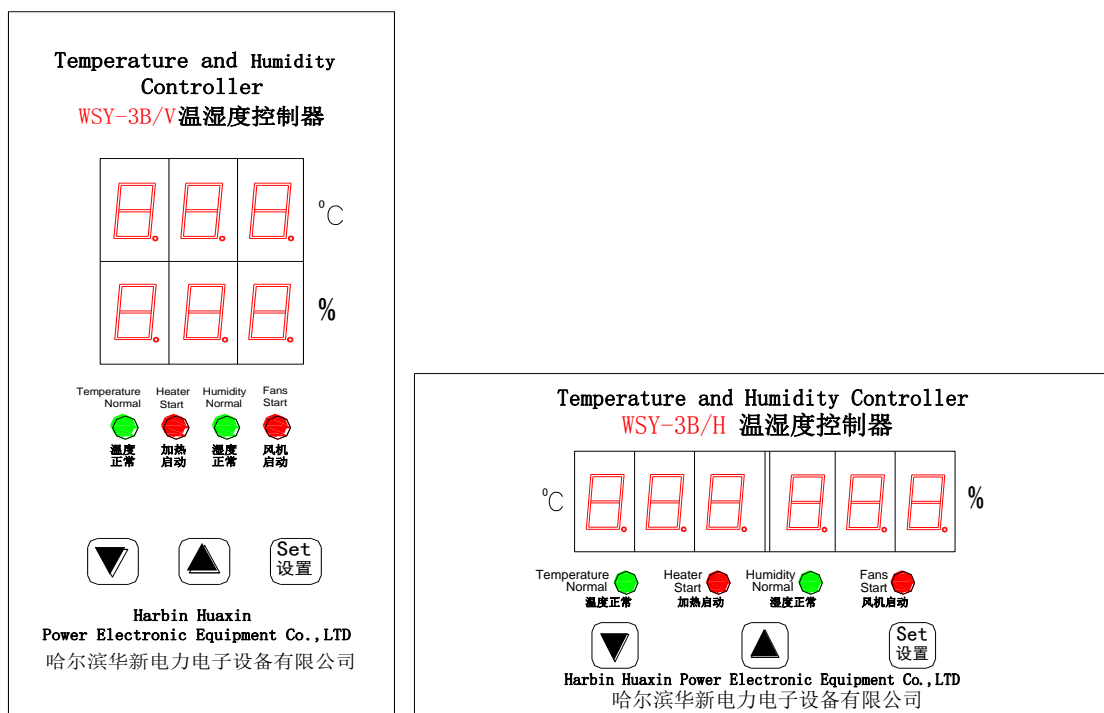


Figure 10

Note: WSY-3B/V type is vertically installed; The WSY-3B/H model is installed horizontally.

1) Parameter setting:

(Same as the setting steps for WSY-3A type, please refer to)

2) Terminal wiring instructions:

Wiring diagram of WSY-3B terminal board

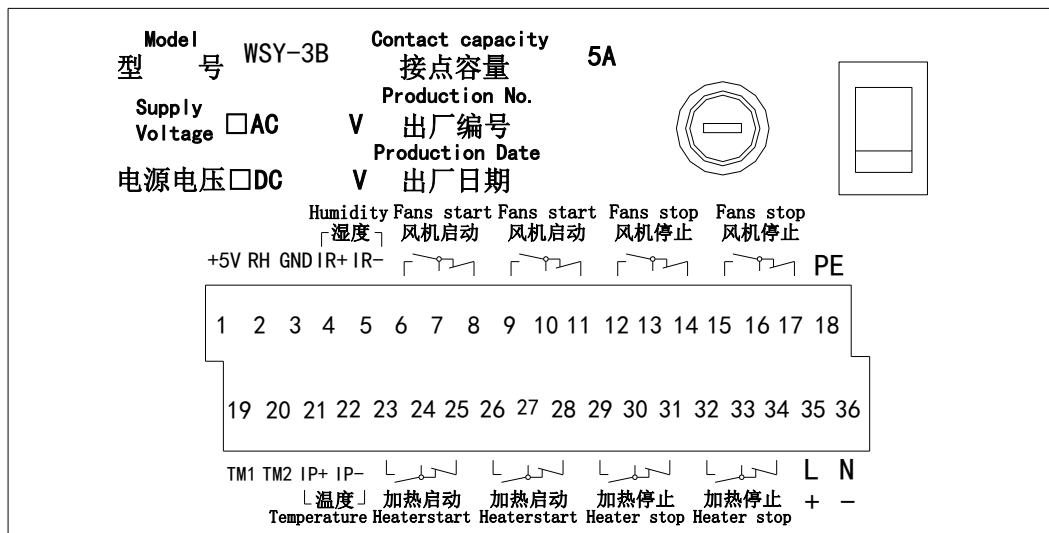


Figure 11

- 1, 2, 3 are humidity transmitter signal inputs (+5V, RH, GND)
- 4, 5 are humidity 4-20mA analog output (+, -)
- 6, 7, 8, 9, 10, 11 are alarm contacts for high humidity (above the set upper limit) (providing two sets of normally open and two sets of normally closed states)
- 12, 13, 14, 15, 16, 17 are alarm contacts for low humidity (below the lower limit of the set value) (providing two sets of normally open and two sets of normally closed states)
- 18 is instrument grounding (PE)
- 19, 20 are temperature transmitter inputs (TM1, TM2)
- 21, 22 are temperature 4-20mA analog outputs (+, -)
- 23, 24, 25, 26, 27, 28 are alarm contacts for low temperature (below the lower limit of the set value) (providing two sets of normally open and two sets of normally closed states).
- 29, 30, 31, 32, 33, 34 are alarm contacts for high temperature (above the upper limit of the set value) (providing two sets of normally open and two sets of normally closed states).
- 35, 36 are the working power sources for the controller (L and N for AC, + and - for DC)

7. Transmitter wiring

- 1) The appearance of temperature transmitter TBZ-1 and humidity transmitter HBC-1 is shown in Figure 12, which can be installed using standard 35mm guide rails or fixed installation (hole

spacing 37mm, hole diameter 4mm)

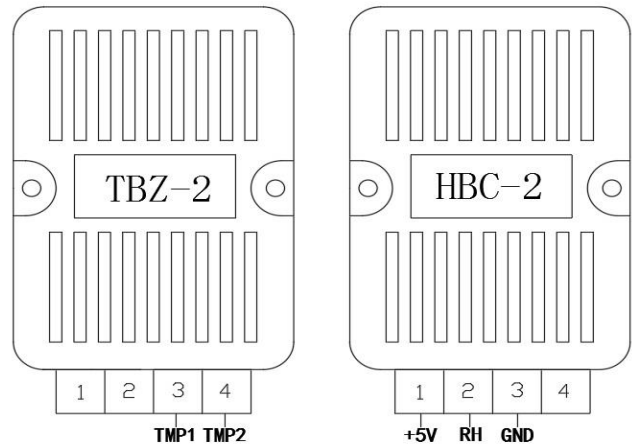
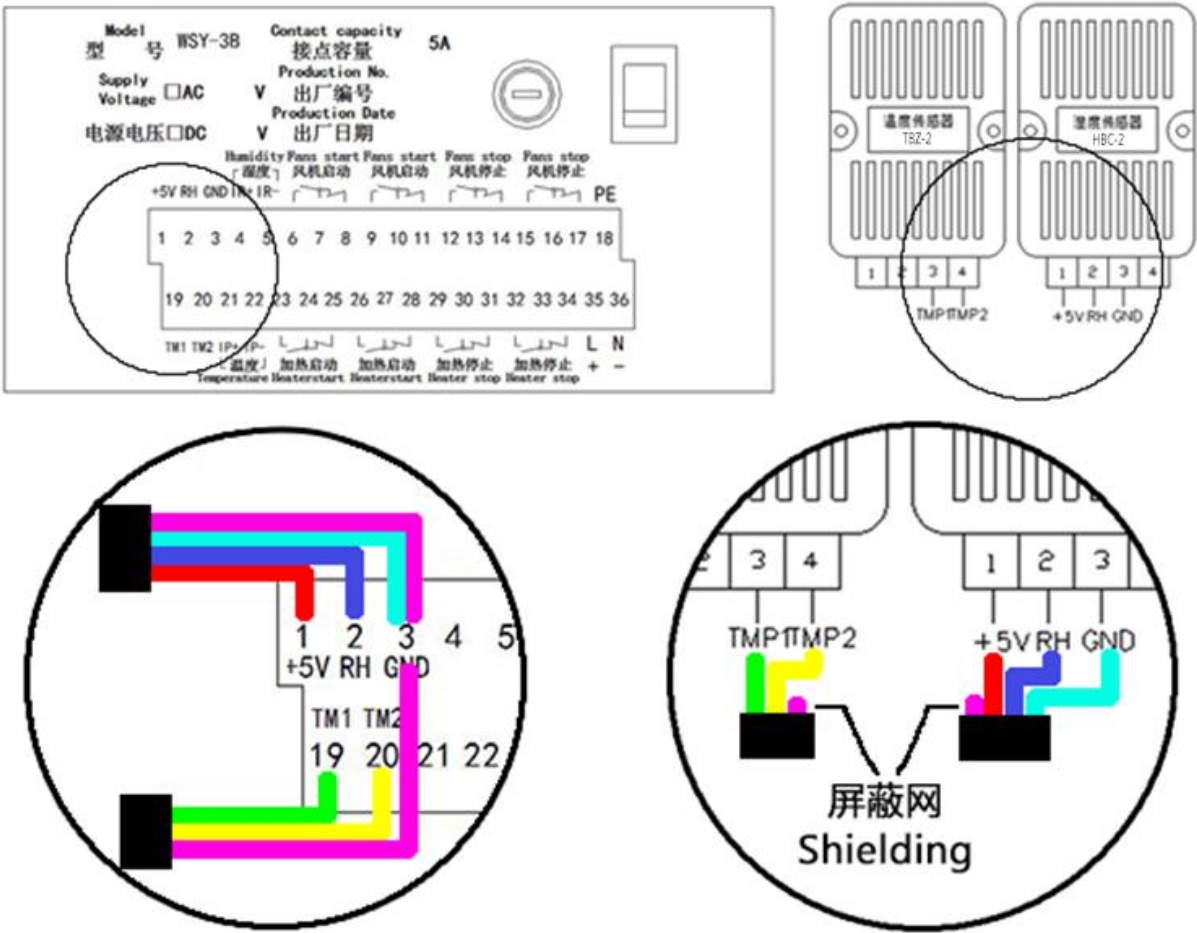


Figure 12

- 2) Please connect the wires correctly according to the diagram (Figure 12) during installation.
- 3) The transmitter and instrument are connected using shielded cables. Due to the distance between the connections, potential long line effects may interfere with the output of the instrument. To avoid such interference, please connect the shielding mesh of the temperature transmitter cable to the GND terminal of the instrument during wiring. The shielding mesh of the transmitter cable should be suspended (Figure 13).



- 4) If the distance between the transmitter and the instrument is close, the connecting cable (randomly matched) can be coiled up and not cut off.

Note: The upgraded transmitter models are TBZ-2 and HBC-2; The wiring method is the same as TBZ-1 and HBC-1.

8. Please provide:

Working voltage: AC/DC220V、AC/DC110V、DC24V

If there are special requirements, please provide detailed explanations.

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