



JWSH-5 Series High Precision Temperature And Humidity Transmitter Instruction Manual V4.8

I. Introduction

The JWSH-5 series temperature and humidity transmitter product is positioned as an industrial grade product. For temperature and humidity measurement in the range of $-100^{\circ}\text{C}\sim 200^{\circ}\text{C}$, a variety of high-precision probe resources of Rotronic Switzerland are used.

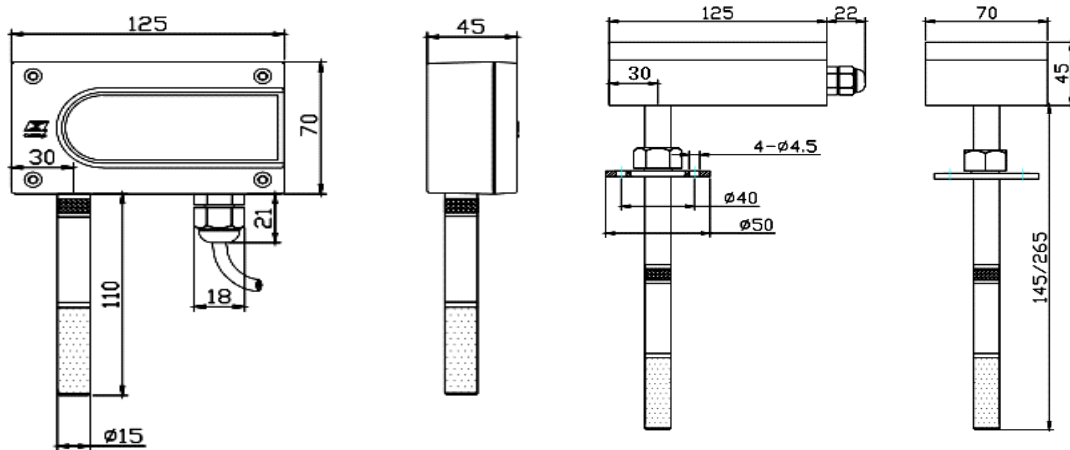
- Display accuracy: $\pm 0.1^{\circ}\text{C}$ (23°C), $\pm 0.8\% \text{RH}$ (23°C , $0\% \text{RH}\sim 100\% \text{RH}$), With temperature compensation
- A variety of analog outputs $0\text{V}\sim 5\text{V}$ or $0\text{V}\sim 10\text{V}$ or $4\text{mA}\sim 20\text{mA}$
- 128×64 large LCD display temperature and humidity, zero correction function
- The maximum working temperature range of the probe is $-100^{\circ}\text{C}\sim 200^{\circ}\text{C}$
- It can switch from temperature and humidity to temperature and dew point display
- Optional network RS485/RS232 output

II. Technical parameters

Power voltage:	Current output: DC 24V ($22\text{V}\sim 26\text{V}$) Voltage output: DC 24V ($12\text{V}\sim 24\text{V}$) Network output: DC 24V ($12\text{V}\sim 24\text{V}$)
Power loss:	Current output $\leq 1.44\text{W}$ Voltage output: $\leq 0.72\text{W}$ Network output: $\leq 0.72\text{W}$
Display accuracy	Temperature: $\pm 0.1^{\circ}\text{C}$ (23°C) Humidity: $\pm 0.8\% \text{RH}$ ($0\% \text{RH}\sim 100\% \text{RH}$, 23°C)
Output accuracy	Temperature: $\pm 0.3^{\circ}\text{C}$ or $\pm 0.5^{\circ}\text{F}$ ·S, take the largest of the two Humidity: $\pm 1.5\% \text{RH}$ ($0\% \text{RH}\sim 100\% \text{RH}$, 23°C)
Circuit working condition	Temperature: $-20^{\circ}\text{C}\sim 60^{\circ}\text{C}$ Humidity: $5\% \text{RH}\sim 95\% \text{RH}$
Probe working condition	Temperature: $-40^{\circ}\text{C}\sim 100^{\circ}\text{C}/-100^{\circ}\text{C}\sim 200^{\circ}\text{C}$, the two can be chosen arbitrarily Humidity: $0\% \text{RH}\sim 100\% \text{RH}$ Dew point: $-50^{\circ}\text{C}\sim 100^{\circ}\text{C}$ (Immutable)
Long-term stability	Temperature: $\leq 0.1^{\circ}\text{C}/\text{y}$ Humidity: $\leq 1\% \text{RH}/\text{y}$
Output type	Voltage output $0\text{V}\sim 5\text{V}$ or $0\text{V}\sim 10\text{V}$ Current output $4\text{mA}\sim 20\text{mA}$ Network output type RS485 or RS232
Liquid crystal display	Temperature $^{\circ}\text{C}$, Humidity $\% \text{RH}$ / Temperature $^{\circ}\text{C}$, Dew point $^{\circ}\text{C}$
Display resolution	Temperature 0.1°C ; Humidity $0.1\% \text{RH}$
Load	Voltage output type impedance $\leq 250\Omega$ Current output type impedance $\leq 500\Omega$
Repeatability	Temperature $\leq 0.5^{\circ}\text{C}$, Humidity $\leq 1\% \text{RH}/\text{y}$;
Response time	$\leq 15\text{s}$ (1m/s Wind speed)
Installation	Wall mounted type , Pipeline type, Split type
Shell size	$125\text{mm}\times 70\text{mm}\times 45\text{mm}$ (Not the probe part)
Product weight	Wall mounted type $\leq 305\text{g}$

Note: Specific temperature, humidity, dew point range and output see product label

III. Shape and Connection



Note: The dimensions of wall-mounted and pipe types are taken as examples, see the physical products for details.

Wiring specification: (any error connection is likely to be irreversible to the transmitter)

Red (24V): 24V (Power +);

Yellow (T): Analog output current or voltage output temperature;

Blue (H): Analog output humidity current or voltage output (dew point current or voltage output, factory default humidity, set according to the menu);

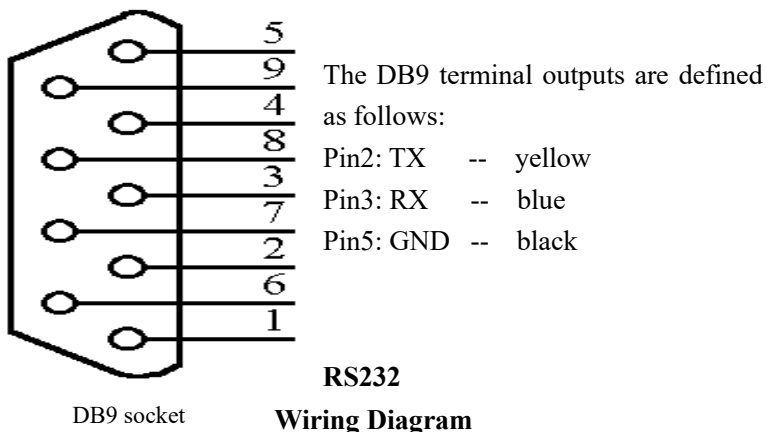
Yellow (TX): The network outputs the A+ end of the RS485 signal line or the RS232 signal TX line;

Blue (RX): The network output RS485 bs-end or RS232 signal Line RX;

Black (GND): GND (Ground);

Note: Current type: JWSH-5XXACXX ; Voltage type: JWSH-5XXVB/VCXX; Network type: JWSH-5XXW1/W2XX

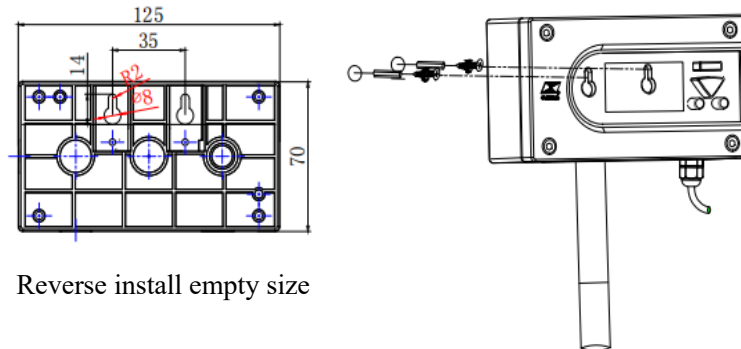
RS232 interface connection (with the DB9 RS232 interface connection signal)



IV. Installation

Installation steps:

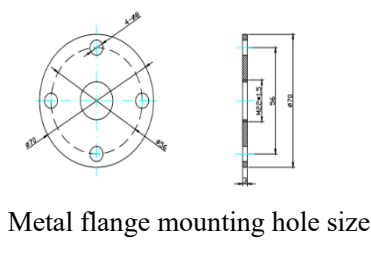
1. Wall mounted type: according to the above 1 size holes on the surface of the installation, choose appropriate accessories installed in the hole, hang up the transmitter.



Reverse install empty size

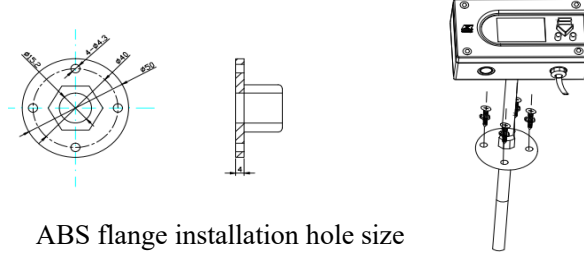
Figure 1

2. Pipeline type: Four holes of $\phi 4.3$ (ABS) or $\phi 8$ (metal) in the flange on the probe are fixed to the wall or pipe.



Metal flange mounting hole size

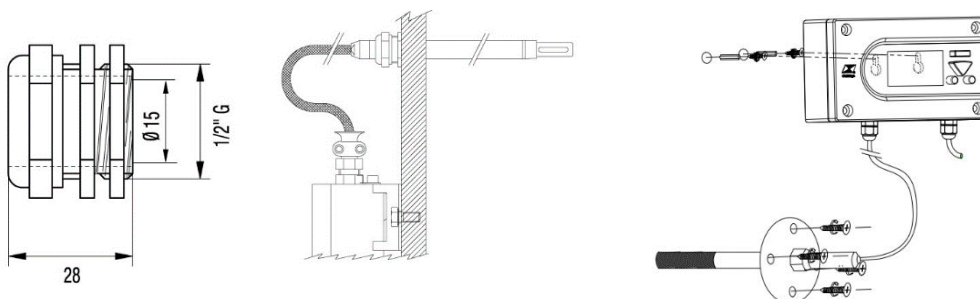
Figure 2



ABS flange installation hole size

Figure 3

3. Split type: Punch holes on the mounting surface according to the size shown in the above figure, select the appropriate pendant to install in the hole, and hang the transmitter; The probe is fixed to the wall or pipe with four holes of $\phi 8$ or $\phi 4.3$ in the flange (optional flange), and the probe is fixed to the wall or pipe with M22 \times 1.5 mounting threads (optional thread).



AC1303 temperature 200 $^{\circ}$ C, directly screwed into or with the nut fixed

4. Connect to the acquisition device with a transmitter cable.

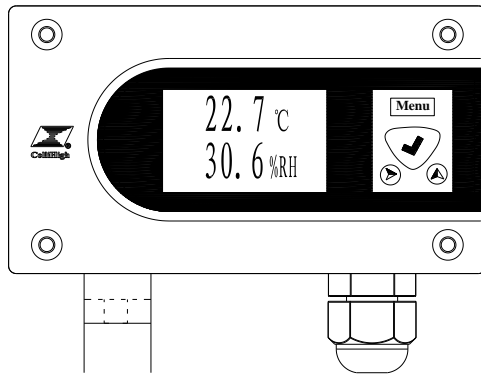
Installation location:

1. The transmitter should be placed vertically as far as possible, and when installed, ensure that the sensor is below the transmitter (the front on the transmitter is positive direction);
2. The installation height is the sitting height of the human body or the environmental area where the main

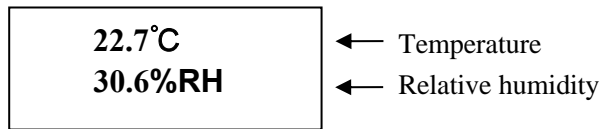
3. If not these reasons, please contact the manufacturer.

Appendix 1: LCD panel operation

1. Panel chart and display measurement values (factory default temperature, humidity)



2. Temperature and humidity display



Dew point shows

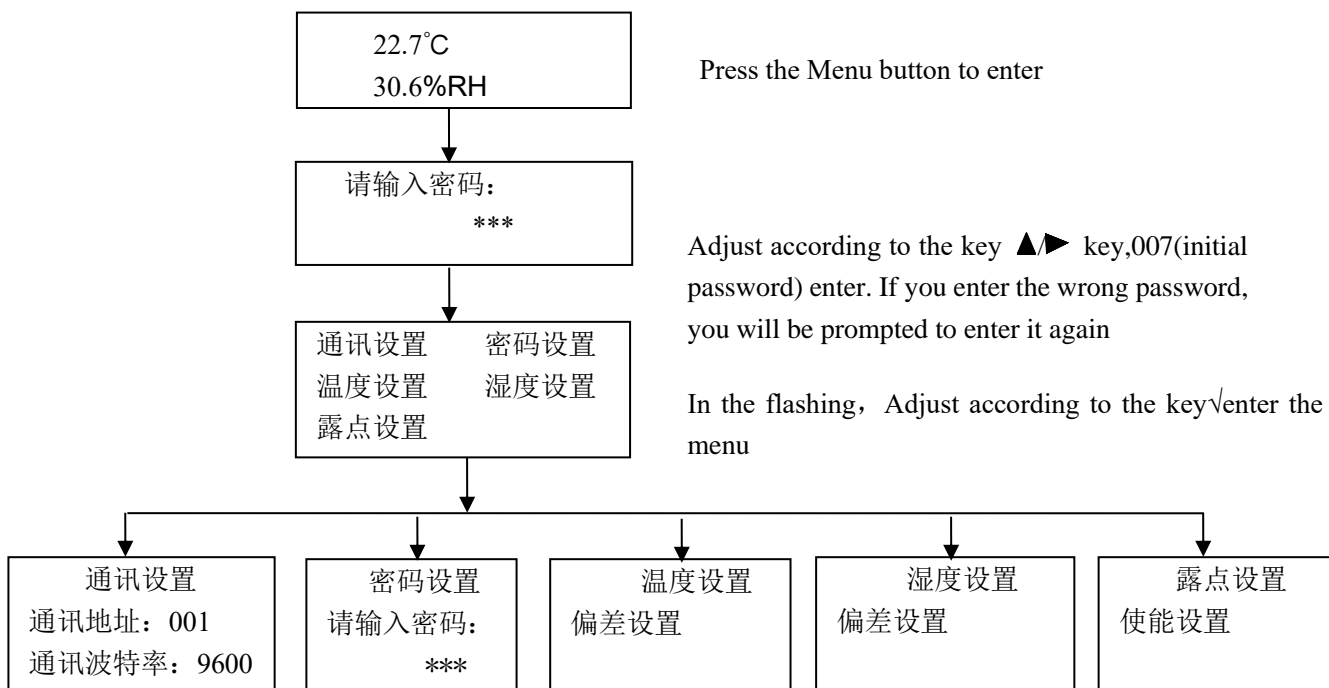


3. Keypress Description

- Menu: Enter or return to the menu at the next higher level
- ▲ : Change the parameter key, from 0 to 9, loop change (change at the cursor blink)
- ► : The shift key, on the can change the parameters of the cyclic shift
- √ : Enter or store arguments and continue to the next item
- If there is no keyboard operation within 15s, it will automatically return to the display state

Note: press the cursor blink▲/►key adjust the parameters, According to the√ enter or store parameters or skip to the next parameter at the blink

4. See the changed parameters:



通讯设置
通讯地址: 001
通讯波特率: 9600

Address can be adjusted by the ▲/▶key, It can be selected from 0 to 247. After setting, press √ key to enter baud rate setting. Baud rate can be adjusted through the ▲/▶key, There are 2400,4800,9600,19200,38400,57600, etc, Once set, press the √key to finish.

密码设置
请输入密码:

First enter the original password, press √ key to complete.

通讯设置
通讯地址: 002
通讯波特率: 19200

When you set it up, press Enter and return to the first level menu.

密码设置
请输入新密码:

Through the ▲/▶key adjustment, you can set any three password, press the √ key to complete, return to the upper level menu.

At the blink, press √ to enter the menu

温度设置
偏差设置



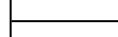
偏差设置
偏差值: 0.0

After setting, press √ key to complete, return to the upper level menu.

The above terms are regulated by the ▲/▶key, √ key:

The deviation value is the correction of the current value, which can be from 0.0 to 4.9, **but the factory has been adjusted, and generally does not need to be adjusted by the user.**

湿度设置
偏差设置



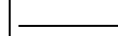
偏差设置
偏差值: 0.0

In the flashing place, press √ key to enter the menu. After setting, press √ key to complete and return to the upper menu.

The above terms are regulated by the ▲/▶ key, √key:

Deviation value is the current correction, which can be from 0.0 to 9.9, **but the factory has to adjust the, generally no user control.**

露点设置
使能设置



露点输出设置
露点输出设置:
输出禁止 输出允许

The above terms are regulated by the ▲/▶key, √key:

1. When set to "output allowed", the LCD is displayed as output temperature and dew point.
2. The two paths simulate the output corresponding temperature and the dew-point, and the network output can be accessed by the upper machine.

Meaning of menu interface:

- 1.请输入密码: Please enter password
- 2.通讯设置: Communication Settings
- 3.密码设置: Password Settings
- 4.温度设置: Temperature setting
- 5.湿度设置: Humidity setting
- 6.露点设置: Dew point setting
- 7.通讯地址: Address of correspondence
- 8.通讯波特率: Communication baud rate:
- 9.请输入新密码: Please enter a new password
- 10.偏差设置: Deviation setting

- 11.偏差值: Value of deviation
- 12.使能设置: Enable Settings
- 13.露点输出设置: Dew point output Settings
- 14.输出禁止: Output suppression
- 15.输出允许: Output allowed

Appendix 2: Communication protocol

Conforms to MODBUS standard (RTU mode).

- 1. Master-slave mode in which the host queries and the transmitter replies

Query Data	De-vice Ad-dress	Func-tion Code	Memor-y start address	Data Number	CRC16 (L)	CRC16(H)	Sample
Tem-perature	0X XX	0X03	0X0000	0X0001	CRCL	CRCH	010300000001840A Response: Address 0302 Temperature H Tem-perature L CRCL CRCH
Hu-midity	0X XX	0X03	0X0001	0X0001	CRCL	CRCH	010300010001D5CA Response: Address 0302 Humidity H Humidity L CRCL CRCH
Dew point	0X XX	0X03	0X0002	0X0001	CRCL	CRCH	01030002000125CA Response: Address 0302 Dew point H Dew point L CRCL CRCH
Tem-perature Hu-midity	0X XX	0X03	0X0000	0X0002	CRCL	CRCH	010300000002C40B Response: Address 0304 Temperature H Tem-perature L Humidity H Humidity L CRCL CRCH
Tem-perature Hu-midity Dew point	0X XX	0X03	0X0000	0X0003	CRCL	CRCH	01030000000305CB Response: Address 0306 Temperature H Tem-perature L Humidity H Humidity L Dew point H Dew point L CRCL CRCH
De-vice Ad-dress	FF	0X03	0X0003	0X0001	CRCL	CRCH	FF030003000161D4 Response: Address 0302 Address H Address L CRCL CRCH
Baud rate	0X XX	0X03	0X0004	0X0001	CRCL	CRCH	010300040001C5CB Response: Address 0302 Baud rate code H Baud rate code L CRCL CRCH

- 2. The transmitter address and baud rate can be changed through the serial port

Change of address (0X01 – 0XFE); Be careful when modifying the baud rate. The error may cause communication failure.

Modify communication parameters	Device Address	Function Code	Memory start address	Setting parameters H	Setting parameters L	CRC16 (L)	CRC16(H)	Sample
Address	Original address	0X06	0X0003	New Address H	New Address L	CRCL	CRCH	After setting, the new address will take effect immediately after the power outage. To change the address of the transmitter with address 01 to address 02, the operation is: FF0600030002EDD5 Response: The return value is the same as the issue command, that is, the setup is successful;
Baud rate	Address	0X06	0X0004	Baud rate code H	Baud rate code L	CRCL	CRCH	Communication baud rate changed to 38400 operation: 0106000400050808 Response: The return value is the same as the issue command, that is, the setup is successful;

Note: the high byte CRC check CRCH, CRCL for low byte CRC check

3. Data H (high byte) and data L (low byte) are the corresponding current temperature and humidity values:

- The uploaded data should be divided by 10, e.g. humidity uploaded in hexadecimal 0311, converted to decimal 785, which means 78.5%.
- Positive temperature conversion, such as temperature upload 0X00FC, convert decimal to 252, which means 25.2°C.
- Negative temperature conversion, such as temperature upload 0XFF8C, take the complement - (0XFFFF-0XFF8C+1) to convert to decimal as -116, said -11.6 °C.
- Dew point conversion, such as dew point upload 0X0037, convert decimal to 55, said 5.5 °C.

4. Communication format:

Byte format 8 data bits, no check, 1 stop bit, baud rate 1200, 2400, 4800, 9600, 19200, 38400, 57600 can be set.

Note: Baud rate codes correspond to actual baud rates as follows

Baud rate code	01	02	03	04	05	06
Baud rate (kbps)	2400	4800	9600	19200	38400	57600