



## I. Introduction and characteristics

JWSK - V type outdoor temperature and humidity sensor adopts imported products in the transmitter, wide detection range and can be accurately measure temperature and humidity within the range, use temperature compensation circuit, product stable and reliable work.

- The temperature and humidity transmitter is equipped with a standard radiation cover. The radiation cover protects the sensor from rain, sun and ultraviolet radiation, and can normally sense the surrounding temperature and humidity.
- Prevent sunlight radiation, rain, can arbitrarily increase or decrease the height.
- Low drift, fast response speed.
- Long service life and strong anti-jamming capability.
- Easy installation, stable performance.
- Wiring and over voltage protection, current limiting protection.

## II. Technical parameters

Power voltage:

Current output: DC 24V (22V~26V)

Voltage output: DC 24V (12V~24V)

Network output: DC 24V (12V~24V)

Power loss:

Current output:  $\leq 1.2W$

Voltage output:  $\leq 0.48W$

Network output:  $\leq 0.48W$

Measuring range:

Humidity: 0%RH~100%RH

Temperature: -20°C~60°C

Accuracy:

Humidity  $\pm 3\%$  RH (5%RH~95%RH, 25°C)

Temperature  $\pm 0.5^\circ\text{C}$  (25°C)

Circuit working temperature: -20°C~60°C

Long-term stability:

Humidity:  $\leq 1\%$  RH/y

Temperature:  $\leq 0.1^\circ\text{C}/\text{y}$

Response time:

Humidity:  $\leq 4\text{s}$  (1m/s wind speed)

Temperature:  $\leq 15\text{s}$  (1m/s wind speed)

Output signal:

Current output: 4mA~20 mA

Voltage output: 0V~5V/ 0V~10V

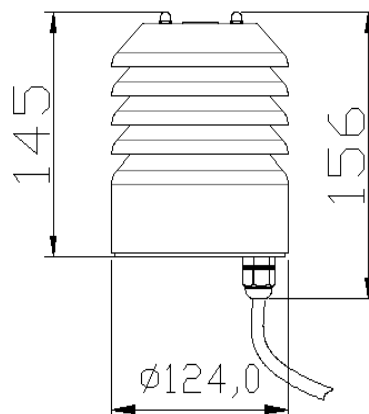
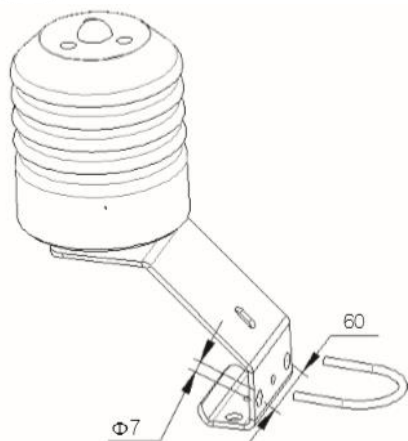
Network output: RS485 /RS232

Installation: Column installation or wall installation

Product weight: About 420g

## III. Shape and Connection

Dimensions:  $\Phi 124\text{mm} \times 156\text{mm}$



**Description:** (Any wrong wiring may cause irreversible damage to the transmitter)

Wiring definition:

1.Current or voltage output type

Red: power + Black: Power -

Yellow: Temperature current output Blue: humidity current output

2.Network output type:

Red: Power + Black: Power - Yellow:RS485 signal + A/RS232 receiver

Blue:RS485 signal- B/RS232 sender

**Note:**

**Current type: JWSK-VACXX**

**Voltage type: JWSK -VVBXX/VVCXX**

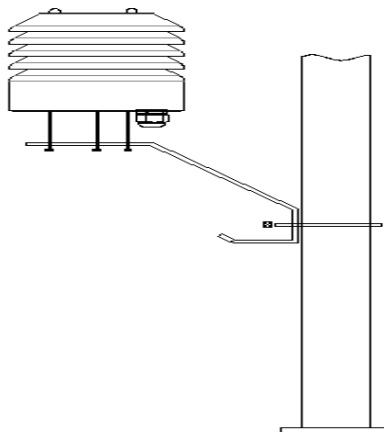
**Network: JWSK -VWXX**

## IV. Installation

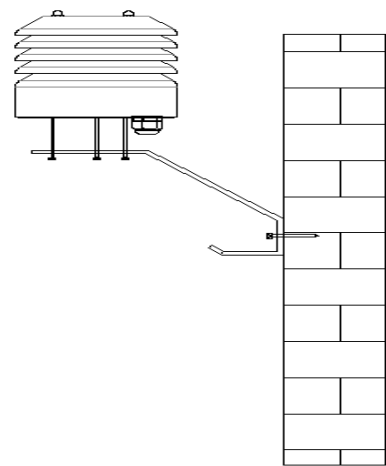
### Installation steps:

- 1.There are three  $\phi 4$  mounting holes on the lower side of the transmitter, which are fixed with the standard bracket and then fixed to the bracket with a U-card and a nut.
- 2.The bracket is fixed on the wall with the standard expansion screw and screw, and the transmitter is fixed with the standard bracket.
- 3.Connect to the acquisition device with a transmitter cable.

Column installation diagram (column diameter  $\phi 40\text{mm}-\phi 55\text{mm}$ ):



Wall installation diagram:



### Installation location:

The transmitter should be placed vertically to ensure protection.



# JWSK-V series outdoor temperature and humidity transmitter operating instructions V1.4

## Installation note:

1. Avoid the installation in the area where heat transfer is easy and the temperature difference between the area to be measured will be directly caused, otherwise the temperature and humidity measurement will be inaccurate.
2. Installed in the area of environmental stability, avoid direct sunlight, away from the window and air conditioning, heating and other equipment, avoid straight to the window and door.
3. Away from high power interference device as far as possible, lest cause inaccurate measurement, such as frequency converter, motor, etc.

## V. Use

1. The current or voltage signal output: check carefully, to ensure correct wiring, on DC 24 V, when using a multi-meter to measure will be output corresponding to the current or voltage value.
2. Network output type: carefully check to ensure that the wiring is correct, through the RS485 conversion module (485 output) or directly (232 output) connected to the PC RS232 serial port, connect DC 24V or 12V power supply, you can check the temperature and humidity value through the test software. (See the appendix of the newsletter for details)

## VI. Attention

1. Please read this manual carefully before use to make sure the wiring is correct. Any incorrect wiring may cause irreversible damage to the transmitter.
2. Avoid installation in zones where heat transfer is easy and will directly cause temperature differences with the area to be measured, as this will result in inaccurate temperature and humidity measurements.
3. Prevent chemical reagents, oil, dust, etc. from directly attacking the sensor, and do not use it for a long time under the environment of condensation and extreme temperature. Do not carry out cold or thermal shock.
4. This product is an electronic product, scrapping will produce environmental pollution, scrapping should follow the national electronic device scrapping related standards.

## VII. Maintenance

The transmitter will be offset when used for a long time. In order to ensure the accuracy of measurement, it is best to calibrate once a year.

## VIII. Transportation, storage

1. Transmitter try to avoid vibration, lightly take and put.
2. Long-term optimal storage conditions: 10°C~40°C; 20%RH~50%RH.

## IX. Open box inspection

1. After opening the package, check whether the transmitter is intact.
2. Transmitter 1 set  
Manual 1 serving  
Certificate of conformity 1 sheet
3. U shaped card 1 serving  
Bracket 1 serving  
Nut nut (  $\phi$  4) 2 serving  
Up plug 2serving  
Screws (  $\phi$  4×40) 2serving  
Spacer 2serving

## X. Troubleshooting and Analysis

1. When the network output, if the transmitter can not communicate, please check whether the wiring is correct and firm; Communication test software is set correctly (baud rate, data bits, stop bit parity, acquisition cycle, flow control, the factory default to: 9600,8,1, n, 1000, none).

2. When simulating the output, if the transmitter output is 0, or the output value is not within the range, please check whether the wiring is correct and firm.

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

## Appendix 1. Communication protocols

1. Compliant with standard MODBUS protocol (RTU method). Host query, transmitter answer master-slave method

Query Data	Device Address	Function Code	Memory start address	Data Number	CRC16 (L)	CRC16 (H)	Sample
Temperature	0X XX	0X03/0X04	0X0000	0X0001	CRCL	CRCH	010300000001840A Response Address 0302 Temperature H Temperature L CRCL CRCH
Humidity	0X XX	0X03/0X04	0X0001	0X0001	CRCL	CRCH	010300010001D5CA Response Address 0302 Humidity H Humidity L CRCL CRCH
Temperature Humidity	0X XX	0X03/0X04	0X0000	0X0002	CRCL	CRCH	010300000002C40B Response Address 0304 Temperature H Temperature L Humidity H Humidity L CRCL CRCH
Device Address	FF	0X03	0X0030	0X0001	CRCL	CRCH	FF030030000191DB Response Address 0302 Address H Address L CRCL CRCH
Baud rate	0X XX	0X03	0X0031	0X0001	CRCL	CRCH	010300310001D5C5 Response Address 0302 Baud rate code H Baud rate code L CRCL CRCH

2. The transmitter address can be changed through the serial port

Change of address (0X01 – 0XFE), modify the communication baud rate (**The modification of baud rate adaptation is particularly careful, modification error may cause failure of communication**) .

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	0X0030	New Address H	New Address L	CRCL	CRCH	After setting, the new address will take effect immediately after the power outage.  Changing the address to 02 operation for the transmitter with address 01 is: 01060030

								00020804 Response: The return value is the same as issued an order, that is, to set the success;
Baud rate	Address	0X06	0X0031	Baud rate code H	Baud rate code L	CRCL	CRCH	The communication baud rate is changed to 38400 operation: 010600310008D9C3 Response: The return value is the same as issued an order, that is, to set the success;

**Note: CRCH is the CRC check high byte and CRCL is the CRC check low byte.**

3.The baud rate code corresponds to the actual baud rate as follows

Baud rate code	3	4	5	6	7	8	9
Baud rate (kbps)	1200	2400	4800	9600	19200	38400	57600

4.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.

5. **Abnormal response:**

Machine Address	Abnormal Function Code: ( Function Code +0x80 )	Exception code 01 or 02 or 03 or 04	CRCL	CRCH
-----------------	--	-------------------------------------	------	------

Modbus exception code		
Code	Name	Meaning
01	Illegal functions	For the device, the function code received in the interrogation is not permitted
02	Illegal data address	For the device, the data address received in the interrogation is a disallowed address. In particular, the combination of register number and transmission length is invalid.
03	Illegal data values	For devices, the value of the number of disallowances contained in the data field is asked. It indicates an error in the structure of the remaining part of the combination request, such as an incorrect implied length. It in no way indicates that the data item in the register being submitted for storage has a value outside the application, since the Modbus protocol does not know the exact meaning of any particular value of any particular register.
04	Slave equipment failure	A non-recoverable error is generated when the device is attempting to perform the requested operation.