

WiFi Temperature Humidity Sensor User Manual



1. Product Overview

This product is a new temperature and humidity transmitter featuring a high-quality capacitive digital sensor independently developed by our company. The sensor offers high measurement accuracy, strong resistance to interference, and excellent stability, ensuring reliable measurement performance.

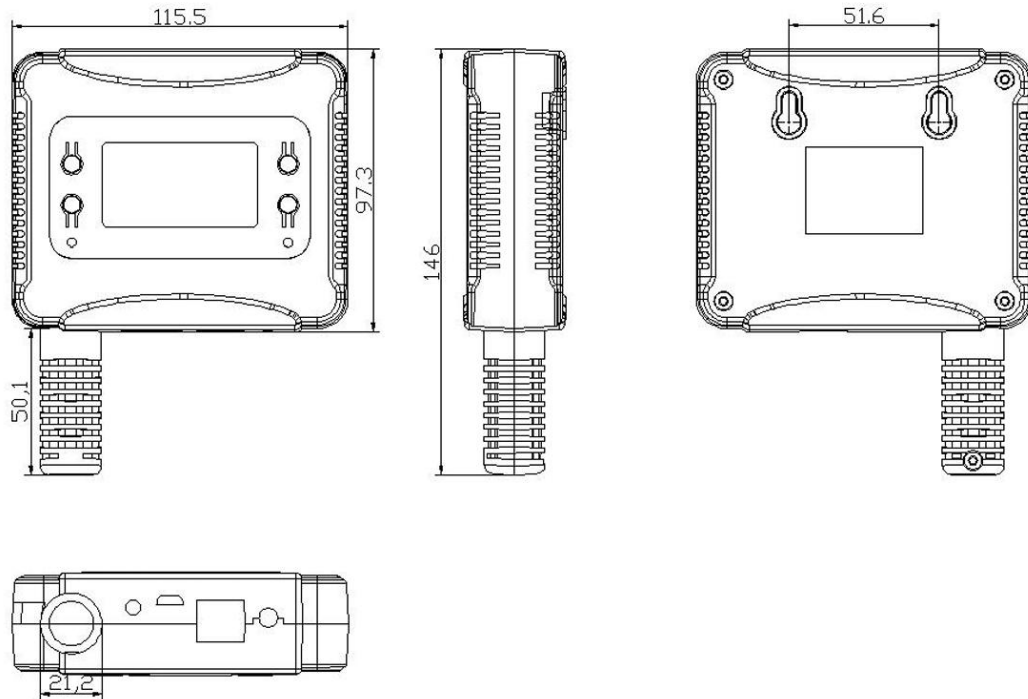
The transmitter provides strong anti-interference capability, high measurement accuracy, and a wide measuring range, making it suitable for most industrial environments. It features a high-definition LCD display for real-time temperature and humidity readings, a built-in alarm module with configurable high- and low-temperature and humidity alarms, WiFi signal output, and the standard Modbus TCP communication protocol. The maximum line-of-sight communication distance is up to 50 m. It also supports multi-device networked monitoring, with up to 254 units connected in a cascaded system, making it suitable for industrial temperature and humidity monitoring.

The product is widely used in industrial plants, telecommunication base stations, equipment rooms, HVAC systems, smart buildings, museums, archives, offices, and other environments requiring temperature and humidity monitoring.

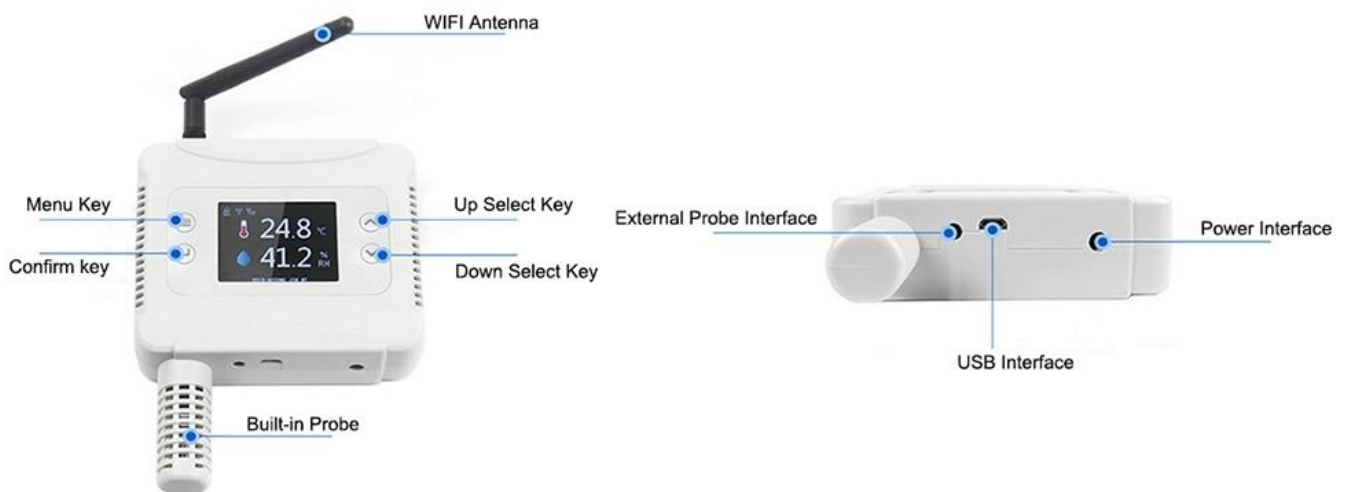
2. Technical Specifications

- Temperature range: -20°C to 60°C ; accuracy: $\pm 0.5^{\circ}\text{C}$
- Humidity range: 0 – 99.9% RH; accuracy: $\pm 3\%$ RH at 25°C
- Long-term drift: temperature $<0.1^{\circ}\text{C}/\text{year}$; humidity $<1\%$ RH/year
- Display resolution: temperature 0.1°C ; humidity 0.1% RH
- Sampling period: 2 s
- Current consumption: $\leq 50\text{ mA}$ at 24 V
- Power supply: 9 – 36 V DC or USB 5 V
- Wireless output: 2.4 GHz WiFi, IEEE 802.11n
- Communication protocol: Standard Modbus TCP
- Data storage capacity: Up to 12,800 records
- Net weight: 125.79 g

3. Product Dimensions



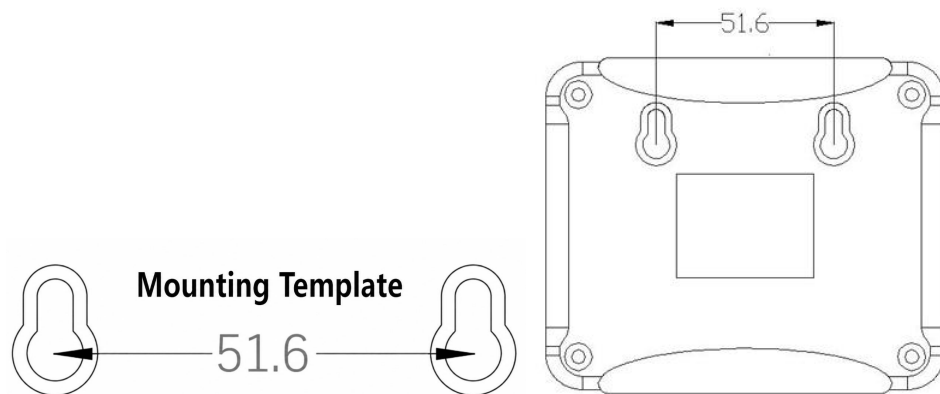
4. Panel Diagram and Product Installation



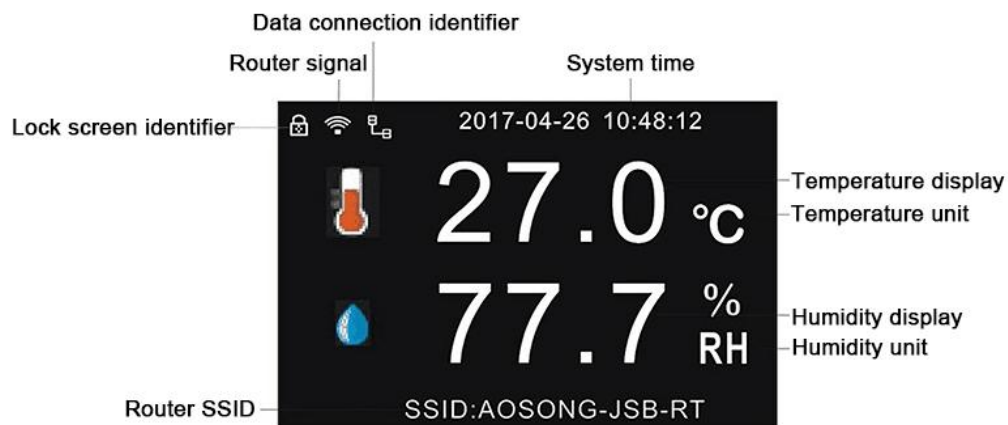
Installation Instructions:

- Before installation, apply the positioning stickers (included in the package) to the desired mounting locations on the product, as shown in Figure 3.
- Drill mounting holes according to the positions marked by the positioning stickers, then secure the product to the wall using two M4 screws (included in the package).

- Hang the product on the wall using the mounting holes shown in Figure 4.



5. System Menus and Settings



5.1. Startup Screen

After power is applied, the system starts automatically. Once startup is complete, the display shows the temperature and humidity readings by default. After 30 seconds, the screen locks automatically, and a lock icon appears in the upper-left corner.

5.2. Unlocking the Display

If no button is pressed within 30 seconds, the display locks automatically. To unlock it, press and hold the OK button. You can then access the menus and operate the device.

5.3. Network Settings

5.3.1 Router Configuration

The transmitter obtains the wireless router's SSID and password through the mobile configuration app. It can then connect to the router and access the internet.

Two IP configuration methods are available:

Obtain IP Automatically

Set IP Manually

(1) The Obtain IP Automatically method is recommended for most applications. Use Set IP Manually only when the device requires a fixed IP address.

Connecting to the Router by Obtaining an IP Address Automatically

1) Press and hold the OK button to unlock the display.

2) Press the MENU button to enter the settings menu. Select Network Settings, then press OK. Select Router Configuration, press OK, and then select Obtain IP Automatically. Press OK again. The display will show:

“Press OK to Start Configuration.”

Press OK. The display will show:

“Please Open the Mobile App to Configure.”

3) Make sure the phone and the device are connected to the same router. After connecting the phone to the router, open the Aosong Cloud Platform mobile app. The SSID field displays the name of the router currently connected to the phone. Enter the router password in the Password field, select the number of transmitters to be configured under Device Quantity, and then tap Confirm to begin configuration.

4) Configuration Completion

After successful configuration, the transmitter displays “Configuration Successful.” If the mobile app is not opened within 5 minutes, the transmitter displays:

“Configuration Timeout. Press OK to Reconfigure.”

After configuration is complete, press MENU to return to the previous menu. On the main screen, the SSID field displays the configured router name, and the WiFi icon indicates the signal strength.

5) Canceling Configuration

During configuration, press MENU. The display shows:

“Cancel Configuration?”

Use the Up/Down buttons to select Yes, then press OK to cancel. Select No, then press OK to continue the configuration.

(2) Connecting to the Router Using a Manually Assigned IP Address

1) Press and hold OK to unlock the display.

2) Press MENU to enter the settings menu. Select Network Settings, press OK, and then select Router Configuration.

Press OK to enter the submenu. Use the Up/Down buttons to select Set IP Manually, then press OK.

Select IP Address and press OK. The display shows:

192.168.001.010

The first section, 192, is highlighted. Press OK again, and the value begins flashing. Use the Up/Down buttons to change the value. Press OK after editing to confirm it. Use the Up/Down buttons to select and edit the remaining three sections in the same way.

Note: The manually assigned IP address must not be the same as the IP address of any other device on the local network. Duplicate IP addresses may cause communication failures.

3) Set the following parameters in the same way:

Subnet Mask: Default value is 255.255.255.0

Default Gateway: Default value is 192.168.1.1

After completing the settings, select Start Configuration. The display shows:

“Press OK to Start Configuration.”

4) Complete the remaining configuration by following Steps 3), 4), and 5) under the Obtain IP Automatically procedure.

3.2 Communication Mode Settings

Press and hold OK to unlock the display.

Press MENU to enter the settings menu. Select Network Settings, press OK, and then select Communication Mode.

Use the Up/Down buttons to select TCP or UDP.

Press MENU to return to the previous menu.

3.3 Remote Address

Press and hold OK to unlock the display.

Press MENU to enter the settings menu. Select Network Settings, press OK, and then select Remote Address.

The default remote address is:

14.23.92.147

Normally, this value does not need to be changed.

3.4 Remote Port Settings

Press and hold OK to unlock the display.

Press MENU to enter the settings menu. Select Network Settings, press OK, and then select Remote Port.

The default remote port is:

9002

Normally, this value does not need to be changed.

5.4. Alarm Settings

The transmitter supports high and low temperature and humidity alarms. Users can set individual alarm thresholds for temperature and humidity.

5.4.1 High-Temperature Alarm

Press and hold OK to unlock the display.

Press MENU to enter the main system menu. Select Alarm Settings, press OK, and then select High-Temperature Alarm.

Press OK to enter the high-temperature alarm settings screen.

Use the Up/Down buttons to set the alarm threshold and enable or disable the alarm.

5.4.2 Low-Temperature Alarm

Enter the Alarm Settings menu.

Press OK, select Low-Temperature Alarm, and press OK again to enter the settings screen.

Use the Up/Down buttons to set the alarm threshold and enable or disable the alarm.

5.4.3 High-Humidity Alarm

Enter the Alarm Settings menu.

Press OK, select High-Humidity Alarm, and press OK again to enter the settings screen.

Use the Up/Down buttons to set the alarm threshold and enable or disable the alarm.

5.4.4 Low-Humidity Alarm

Enter the Alarm Settings menu.

Press OK, select Low-Humidity Alarm, and press OK again to enter the settings screen.

Use the Up/Down buttons to set the alarm threshold and enable or disable the alarm.

When the measured temperature or humidity reaches a preset alarm threshold, the device automatically activates the alarm. A rapid buzzer sounds, and the corresponding alarm icon flashes on the display.

5.5. Parameter Settings

5.5.1 System Time Settings

Enter the System Time menu and press OK. The year is highlighted in red.

Use the Up/Down buttons to set the year. Press OK to move through the remaining date and time fields.

After completing the settings, return to the previous menu.

5.5.2 Upload Interval Settings

Enter the Upload Interval menu.

Press OK repeatedly to select and highlight the following items:

Normal upload interval

Time unit

Alarm upload interval

Use the Up/Down buttons to change the selected value.

Available time units are:

Seconds

Minutes

5.5.3 Data Logging Settings

(1) Logging Mode

Enter the Logging Mode submenu. Use the Up/Down buttons to select:

Automatic Logging

Logging On

Logging Off

When Logging On is selected, data logging remains active continuously.

When Automatic Logging is selected, the device does not store data while connected to the network. Data logging starts automatically if the network connection is lost.

(2) Logging Interval

Enter the Logging Interval submenu.

Press OK to select the item to be configured, and use the Up/Down buttons to change its value.

The unit is minutes.

(3) Loop Recording Mode

Enter the Loop Mode submenu and use the Up/Down buttons to enable or disable loop recording.

When loop recording is disabled, recording stops after 12,800 data points have been stored.

When loop recording is enabled, the oldest records are overwritten automatically when the memory becomes full.

(4) Clearing Stored Records

Enter the Clear Records submenu.

Use the Up/Down buttons to select Yes, then press OK to clear all stored records.

After the records are cleared, the device begins recording again.

6. System Settings

6.1 Language Settings

Enter the System Settings menu.

Press OK to enter the submenu, select Language Settings, and press OK again.

Use the Up/Down buttons to select the system menu language:

Chinese

English

6.2 Temperature Unit Settings

Enter the Display Settings menu.

Select Temperature Unit Settings and press OK.

Use the Up/Down buttons to select the temperature display unit.

6.3 Restore Factory Settings

Go to:

System Settings → Restore Factory Settings

Press OK.

Use the Up/Down buttons to select whether to restore the factory settings.

If Yes is selected, all configurable parameters are restored to their factory defaults.

6.4 Device Information

Press and hold OK to unlock the display.

Press MENU to enter the settings menu.

Open System Settings, select Device Information, and press OK to view the system and device parameters.

7. Installation and Use of the PC Monitoring Software

To monitor temperature and humidity from a computer, install the Temperature and Humidity Monitoring System software on the computer first.

Software download address:

<http://www.aosong.com/cn/downloads/index.asp>

Installation and Setup

Download and install Microsoft .NET Framework 2.0. If it is already installed, this step can be skipped.

Go to the download center on the company's official website and download the Temperature and Humidity Monitoring System PC software.

Extract the downloaded files and double-click:

TH_Monitor.exe

Follow the instructions to complete the installation.

Following the instructions in Section 3.2 Communication Mode Settings, set the transmitter communication mode to UDP.

The transmitter supports two communication modes:

Relay Mode

Broadcast Mode

In Relay Mode, the transmitter uploads data to the server through the internet. The PC monitoring software retrieves and displays the data from the server.

In Broadcast Mode, the PC monitoring software communicates directly with the transmitter over the local network without using the internet.

7.1 Relay Mode Settings

Set the transmitter's remote address and remote port to:

Remote Address: 14.23.92.147

Remote Port: 9002

These are the default values and normally do not need to be changed.

Click Add New Device on the menu bar.

In the dialog box, select:

TCP Network Device

Relay Mode

Enter the device access code and device ID.

Device Access Code: 12345678

Device ID: A 24-digit ID available under Device Information

Click OK to add the device.

After adding the device, click Start on the menu bar.

The PC software begins communicating with the transmitter. When communication is successful:

The device name in the software changes from gray to green.

A PC connection icon appears at the top of the transmitter display.

7.2 Broadcast Mode Settings

On the menu bar, select:

System → System Properties

In the System Properties dialog box, select Communication Settings.

Set the following parameters:

ACK Wait Time: 500 ms

Polling Interval: 500 ms

Click OK to save the settings.

(2) Click the “Scan Devices” icon (magnifying glass) in the menu bar to open the device scan dialog box. Select “Send

UDP Broadcast,” then click the “Start Scan” button. The host software will scan for transmitters on the same network segment; wait for the scan to complete.

Once the scan is complete, click the “Finish” button. The new device will be automatically added to the system, and a list of detected devices will pop up on the main interface.

Click the “Start” button in the menu bar to initiate communication between the host computer and the transmitter. Once communication is established, the device name on the host computer

will change from gray to green, and a host computer connection icon will appear at the top of the transmitter’s screen.

For specific instructions on software usage and monitoring parameter settings, please refer to the software help documentation or user manual. If you have any other questions,

please contact the relevant technical support staff at Aosong directly for assistance.

※ Temperature and Humidity Calibration

The system may occasionally exhibit measurement deviations. Temperature deviations within $\pm 0.5^{\circ}\text{C}$ and humidity deviations within $\pm 3\%\text{RH}$ are considered normal. Temperature and humidity calibration can be configured via the system’s hidden menu:

1. Press and hold the OK button to unlock the display.

2. Press and hold the OK button again while simultaneously pressing the Select button to open the calibration menu.
3. Use the menu navigation and the Up and Down selection buttons to set the temperature and humidity calibration values.