



Air Temperature and Humidity Sensor User Manual

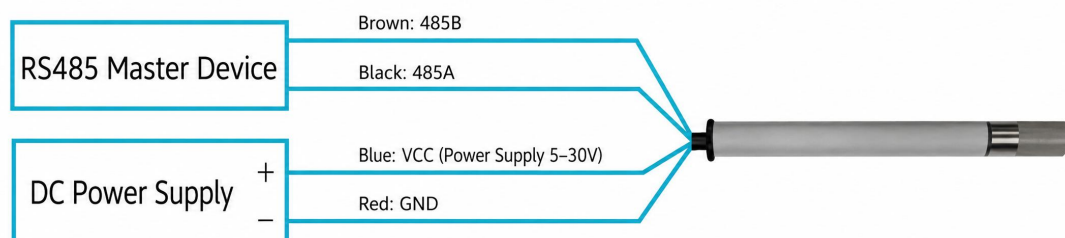


Specification

Power Supply Voltage Range	DC 2.7–5.5V
Sleep Mode Current	150nA
Output Signal	RS485
Average Power Current	1sps, measuring relative humidity (RH): 750nA
	1sps, measuring RH and temperature: 1.35μA
Temperature	Measuring Range: -40°C ~ +85°C
	Accuracy: ±0.2°C (typical)
	Output Resolution: 0.1°C
Humidity	Measuring Range: 0%RH ~ 100%RH
	Accuracy: ±0.2%RH (typical)
	Output Resolution: 0.1%RH
	Operating Environment

Interface Instructions

This product is equipped with terminals for user connection. Please wire the terminals according to their defined functions. Incorrect wiring may cause irreversible damage to the transmitter.



Communication Protocol

This product is equipped with a communication interface for maintenance purposes. If communication with the transmitter cannot be established, please check whether the wiring is correct and securely connected; whether the A/B lines of the RS485 interface or the T/R lines of the TTL interface are connected in the correct order; and whether the communication test software is configured correctly.

The transmitter is configured at the factory with the following default communication settings:

Baud rate: 9600

Data bits: 8

Parity: None

Stop bits: 1

1. Protocol Format

① Read Holding Registers, Byte Command Operation

Send Command:

Slave Address	Function Code	Register Start Address High Byte	Register Start Address Low Byte	Register Quantity High Byte	Register Quantity Low Byte	CRC High Byte	CRC Low Byte
0x01	0x03	0x00	0x32	0x00	0x02	0xFF	0xFF

Response Command:

Slave Address	Function Code	Returned Bytes	Data1H	Data1L	Data2H	Data2L	CRC High Byte	CRC Low Byte
0x01	0x03	0x04	0xA5	0xD4	0x18	0x12	0xFF	0xFF

Read Register Address List

Register Address	Data Length	Function
0001	1/2 Bytes	Byte 1: Current temperature value × 10
		Byte 2: Current humidity value × 10
000A	1 Byte	Read device version number

Example: Device address 01 — Read device data

Read Command: 01 03 00 01 00 02 XX XX

Response Data: 01 03 06 00 C6 01 F4 XX XX

Data Parsing:

00 C6 is the temperature data. Convert it from hexadecimal to decimal and divide by 10 to obtain 19.8° C.

01 F4 is the humidity data. Convert it from hexadecimal to decimal and divide by 10 to obtain 50.0% RH.

② Write Holding Registers, Byte Command Operation

Send Command:

Slave Address	Function Code	Register Start Address High Byte	Register Start Address Low Byte	DATAH	DATAL	CRC High Byte	CRC Low Byte
0x01	0x06	0x00	0x32	0x12	0x32	0xFF	0xFF

Write Register Address List

Register Address	Data	Function
000B	0x0001–0x00FE	Modify device address: valid range 1–254
0010	0x0001–0x00FF	Increase temperature by 0.1°C; input data × 10
0011	0x0001–0x00FF	Decrease temperature by 0.1°C; input data × 10
0012	0x0001–0x00FF	Increase humidity by 0.1% RH; input data × 10
0013	0x0001–0x00FF	Decrease humidity by 0.1% RH; input data × 10

2. Address Modification

① Query the Current Address

(Factory default address: 01)

Send Command: AA BB EE FF

Response: AA BB 01 EE FF

Explanation: 01 is the current address of the transmitter.

② Modify the Transmitter Address

(Supported address range: 01–FE, hexadecimal)

Example: The current address is 01, and the transmitter address is to be changed to 09.

Send Command: 01 06 00 0B 00 09 XX XX

Response: 01 06 00 0B 00 09 XX XX

After the address has been modified, disconnect the power supply and then power the transmitter on again to verify whether the address change was successful.

Precautions

Avoid installing the transmitter in locations with significant heat conduction or large temperature differences, as this may affect the accuracy of temperature and humidity measurements.

Install the transmitter in a stable environment. Keep it away from air-conditioning outlets, windows, doors, heating equipment, and other locations with strong airflow or temperature fluctuations. Avoid direct sunlight.

Keep the transmitter as far away as possible from high-power interference sources to prevent inaccurate measurements.

Before removing the sensor, disconnect the power supply. Do not touch internal components directly with metal objects or by hand.

Read this manual carefully before use and make sure all wiring is correct.

Prevent chemicals, oil, dust, and other contaminants from directly contacting the sensor. Do not use the sensor for extended periods in condensing environments or under extreme temperature conditions, and avoid thermal shock.

Maintenance

Long-term use may cause measurement drift. To ensure accurate output data, calibration is recommended once a year.

The sensor filter, if equipped, can be removed every 2–3 months for cleaning. Clean the filter mesh to maintain proper airflow.

Regularly check whether data is being uploaded normally and ensure that the network connection remains stable.

Transportation and Storage

Avoid strong vibration and impact during transportation. Handle the transmitter with care.

Recommended long-term storage conditions: 10°C–40°C, 20% RH–60% RH.

Keep the ventilation openings of the enclosure clean and unobstructed.

Other Notes

Do not store the product for extended periods in high-temperature and high-humidity environments.

After long-term use, a small amount of measurement drift may occur. This is normal and can be corrected through offset calibration.

If the product remains in a high-humidity environment for an extended period, readings may become higher than normal. The sensor can recover after high-temperature drying.