



Products

This product is a fully digital detection, high-precision sensors, is integrated by high-precision digital temperature, humidity chip, can accurately and quickly detect the atmospheric temperature, atmospheric humidity. Built-in signal processing unit can output the corresponding signal according to the user's needs, high-strength structural design can be accurately detected in harsh climatic environments, and can be widely used in meteorology, marine, environment, airports, harbors, laboratories, industry, agriculture and transportation and other fields.

Technical Parameters

| | Temperature | Humidity |
|--------------------|-------------|----------|
| Measurement range: | -50~100℃ | 0~100%RH |
| Accuracy: | ±0.5℃ | ±5%RH |
| Resolution: | 0.1℃ | 0.1%RH |

Power supply:

- DC 12V
- DC 24V
- DC 12~24V

Output form:

- 4~20mA
- RS485

Instrument cable length: Standard: 2.5 meters

Load resistance: Voltage type: $RL \geq 1K$

Current type: $RL \leq 250\Omega$

Operating temperature: $-40^{\circ}C \sim 70$

Relative humidity: 0~100%.

Product weight: 140g

Product power consumption: 4.8mW

Formula

Current type (4 to 20mA output)

$$C = (I - 4) / 16 \times 2000$$

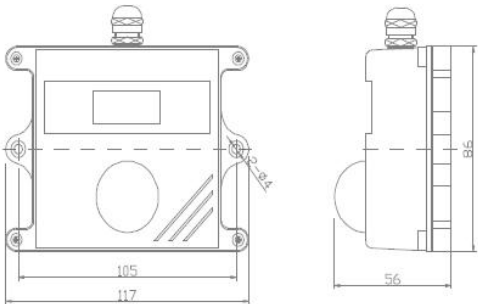
(C is the measured atmospheric temperature and humidity value, I is the output current (mA))

Wiring Method

- (1) If you are equipped with the collector produced by our company, you can directly use the sensor line to connect the sensor with the corresponding interface on the collector.
- (2) If the transmitter is purchased separately, the wiring sequence of the transmitter supporting wires are:

| Wire Color | Output form | | |
|---------------|----------------|--------------------|--|
| | Current Type | Communication Type | |
| Red | Power Positive | Power Positive | |
| Black (Green) | Power Ground | Power Ground | |
| Yellow | Current Signal | A+/TX | |
| Blue | | B-/RX | |

Dimensions of the structure



MODBUS-RTU communication protocol

I. Serial Port Format

Data bits 8 bits
 Stop bit 1 or 2 bits
 No parity bit
 Baud rate 9600 at least 1000ms between communications

Second, the communication format

[1] Write device address

Send: 00 10 Address CRC (5 bytes)

Return: 00 10 CRC (4 bytes)

Note: 1. The address bit of the read/write address command must be 00.

2. Address is 1 byte, the range is 0-255.

Example: Send 00 10 01 BD C0

Return 00 10 00 7C

[2] Read device address

Send: 00 20 CRC (4 bytes)

Return: 00 20 Address CRC (5 bytes)

Explanation: Address is 1 byte, the range is 0-255.

Example: Send 00 20 00 68

Return: 00 20 01 A9 C0

[3] Reading real-time data

Send: Address 03 00 00 00 02 XX XX

Explanation: As shown in the figure below:

| Code | Function Definition | Remark |
|---------|--------------------------|--------|
| Address | Station number (address) | |
| 03 | Function Code | |
| 00 00 | Starting address | |

| | | |
|-------|---|--|
| 00 02 | Read Points | |
| XX XX | CRC check code, front low and back high | |

Return: Address 03 04 QWQW SDSD XX XX

Description:

| Code | Function Definition | Remark |
|---------|---|-------------|
| Address | Station number (address) | |
| 03 | Function code | |
| 04 | Read unit byte | |
| QW QW | Temperature data (front high, back low) | Hexadecimal |
| SD SD | Humidity data (high before low) | Hexadecimal |
| XX XX | CRC check code | |

Steps to calculate the CRC code:

1. Preset the 16-bit register to hex FFFF (i.e., all ones). Call this register the CRC register;
2. Different or the first 8-bit data with the low bit of the 16-bit CRC register, and put the result in the CRC register;
3. shift the contents of the register one bit to the right (towards the low bit), fill the highest bit with 0, and check the lowest bit;
4. if the lowest bit is 0: repeat step 3 (shift again)
 If the lowest bit is 1: the CRC register is iso-orthogonal to the polynomial A001 (1010 0000 0000 0001);
5. Repeat steps 3 and 4 until it is shifted right 8 times so that the entire 8-bit data is all processed;
6. Repeat steps 2 through 5 for the next 8-bit data processing;
7. the final CRC register obtained is the CRC code;
8. When putting the CRC result into the information frame, the high and low bits will be exchanged, with the low bit coming first.

Directions for use

Wire the sensor according to the instructions in the wiring method, then place it in the position where you want to measure the concentration of atmospheric temperature and humidity, turn on the power supply and collector switch, and then you can obtain the value of atmospheric temperature and humidity at the measurement point.

Caveat

- 1, please check whether the packaging is intact, and check whether the product model is consistent with the selection;
- 2, do not be wired with electricity, wiring is completed to check that there is no error before energizing;
- 3, the sensor line length will affect the product output signal, do not change the use of the product has been welded at the factory components or wires, if there is a need to change, please contact the manufacturer;
- 4, the sensor is a precision device, the user in the use of the user should not disassemble, with sharp objects or corrosive liquids in contact with the sensor surface, so as not to damage the product;
- 5、 Please keep the calibration certificate and certificate of conformity, and return with the product when repairing.

Trouble clearing

- 1, analog output, the display value is obviously large / small. Please check whether there is oil and other dirt on the sensor housing and wipe it off with a clean rag;
- 2, When analog output, the display meter indicates that the value is 0 or not within the range. It is possible that the collector cannot get the information correctly due to the wiring problem. Please check whether the wiring is correct and firm;

3, If it is not the above reasons, please contact the manufacturer.

Selection table

| No. | Power supply | Output | Description |
|---|--------------|--------|---|
| - | | | Atmospheric temperature and humidity sensor (transmitter) |
| | 12V- | | 12V Power Supply |
| | 24V- | | 24V power supply |
| | | A1 | 4-20mA |
| | | W2- | RS485 |
| Example: -12V-A1: Atmospheric temperature and humidity sensor (transmitter) 12V power supply, 4-20mA current signal output | | | |

Contact US

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