SM1911M

4-20mA current type temperature and humidity sensor

User Manual

File Version: V23.8.22

SM1911M using the standard　DC4-20mA current output signal,easy access to PLC，DCS and other instruments or systems for monitoring temperature,humidity state quantities.The internal use of high-precision sensing core and related devices to ensure high reliability and excellent long-term stability,can be customized RS232,RS485,CAN,4-20mA,DC0~5V\10V,ZIGBEE,Lora,WIFI,GPRS and other output methods.

Technical Parameters

Technical parameter	Parameter value
Brand	SONBEST
Temperature measuring range	-30℃~80℃
Temperature measuring accuracy	±0.5℃ @25℃
Humidity measuring range	0~100%RH
Humidity accuracy	±3%RH @25℃
Communication Interface	DC4~20mA
Power	DC12~24V 1A
Running temperature	-30~85℃
Working humidity	5%RH~90%RH

Product Size
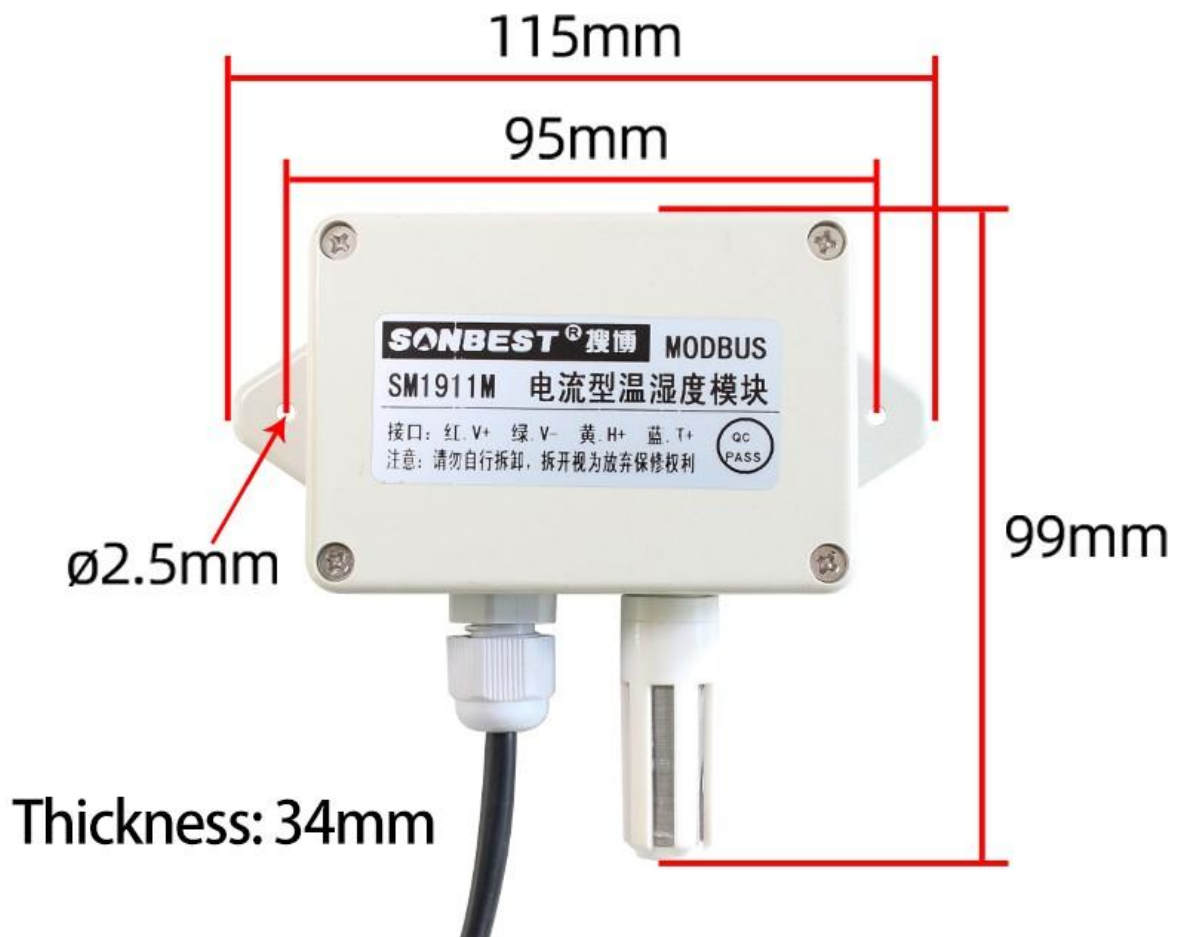
Wiring mode

RS485 Wiring

	RD	PWR+
🟥	RD	PWR+
🟩	GN	PWR-
🟨	YE	RS485 A+
🟦	BU	RS485 B-

mA/V Wiring

	RD	PWR+
🟥	RD	PWR+
🟩	GN	PWR-
🟨	YE	T Signal
🟦	BU	H Signal

※Note: When wiring, connect the positive and negative poles of the power supply first, and then connect the signal lines for

Wiring instructions

In the case of broken wires, wire the wires as shown in the figure. If the product itself has no leads, the core color is for reference.

How to use?

The current temperature and humidity module can be widely used to measure wind speed in greenhouses, environmental protection, weather stations, construction projects, docks, breeding environments, power plant flue gas treatment, clean rooms and other scenarios

Application solution

■ RS485 Communication ■
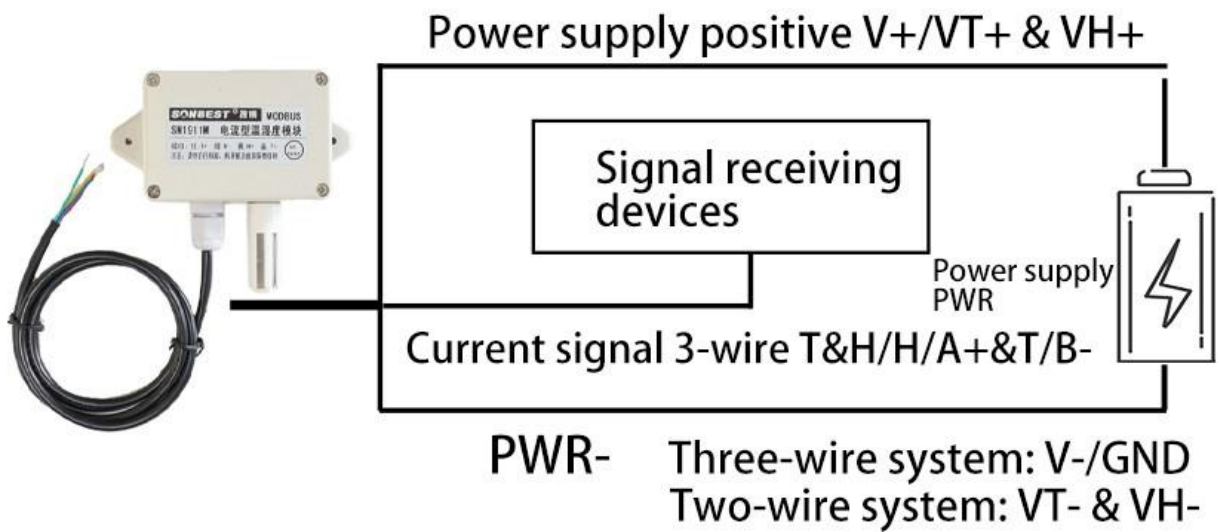
RS485 conversion module

Computer

■ DC0~5V/10V VOLTAGE ■
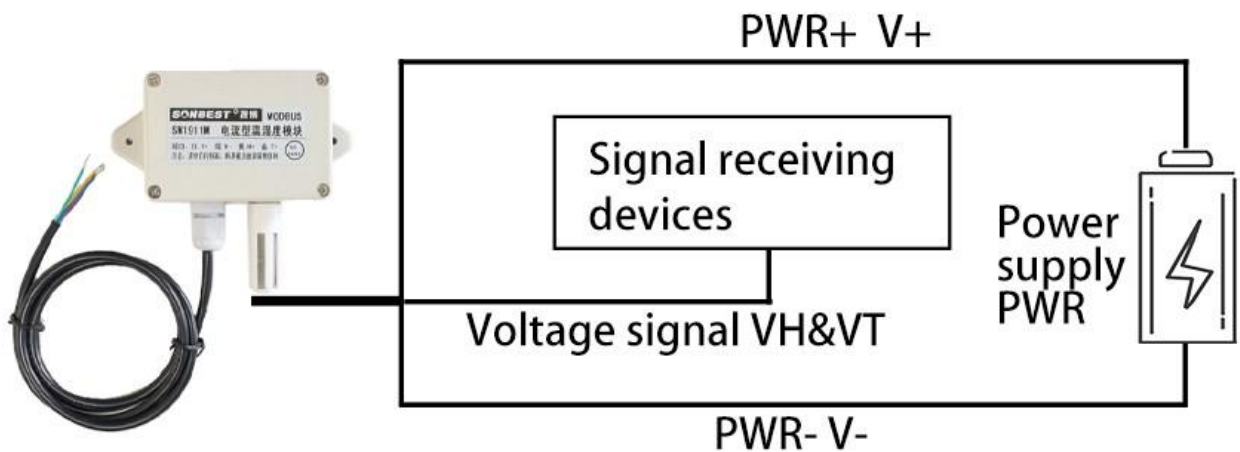

PWR+ V+

Signal receiving devices

Power supply PWR

Voltage signal VH&VT

PWR- V-

■ 4~20MA CURRENT ■

Power supply positive V+/VT+ & VH+

Signal receiving devices

Power supply PWR

Current signal 3-wire T&H/H/A+&T/B-

PWR-　Three-wire system: V-/GND
Two-wire system: VT- & VH-

Product List

Reminder card

Current type temperature and humidity module

Certificate

1. temperature and current computing relationship

For example, the range is -30~80℃, the analog output is 4~20mA current signal, temperature and current The calculation relationship is as shown in the formula: $C = (A2-A1) * (X-B1) / (B2-B1) + A1$, where A2 is temperature range upper limit, A1 is the lower limit of the range, B2 is current output range upper limit,

B1 is the lower limit, X is the currently read temperature value, and C is the calculated current value. The list of commonly used values is as follows:

current(mA)	temperatureValue (℃)	Calculation Process
4	-30	(80-(-30))*(4-4)÷(20-4)+-30
5	-23.125	(80-(-30))*(5-4)÷(20-4)+-30
6	-16.25	(80-(-30))*(6-4)÷(20-4)+-30
7	-9.375	(80-(-30))*(7-4)÷(20-4)+-30
8	-2.5	(80-(-30))*(8-4)÷(20-4)+-30
9	4.375	(80-(-30))*(9-4)÷(20-4)+-30
10	11.25	(80-(-30))*(10-4)÷(20-4)+-30
11	18.125	(80-(-30))*(11-4)÷(20-4)+-30
12	25	(80-(-30))*(12-4)÷(20-4)+-30
13	31.875	(80-(-30))*(13-4)÷(20-4)+-30
14	38.75	(80-(-30))*(14-4)÷(20-4)+-30
15	45.625	(80-(-30))*(15-4)÷(20-4)+-30
16	52.5	(80-(-30))*(16-4)÷(20-4)+-30
17	59.375	(80-(-30))*(17-4)÷(20-4)+-30
18	66.25	(80-(-30))*(18-4)÷(20-4)+-30
19	73.125	(80-(-30))*(19-4)÷(20-4)+-30
20	80	(80-(-30))*(20-4)÷(20-4)+-30

As shown in the above formula, when measuring 8mA, current current is 31.5℃。

2. humidity and current computing relationship

For example, the range is 0~100%RH, the analog output is 4~20mA current signal, humidity and current The calculation relationship is as shown in the formula: $C = (A_2 - A_1) * (X - B_1) / (B_2 - B_1) + A_1$, where A_2 is humidity range upper limit, A_1 is the lower limit of the range, B_2 is current output range upper limit, B_1 is the lower limit, X is the currently read humidity value, and C is the calculated current value. The list of commonly used values is as follows:

current(mA)	humidityValue (%RH)	Calculation Process
4	0.0	(100-0)*(4-4)÷(20-4)+0
5	6.3	(100-0)*(5-4)÷(20-4)+0
6	12.5	(100-0)*(6-4)÷(20-4)+0
7	18.8	(100-0)*(7-4)÷(20-4)+0
8	25.0	(100-0)*(8-4)÷(20-4)+0
9	31.3	(100-0)*(9-4)÷(20-4)+0
10	37.5	(100-0)*(10-4)÷(20-4)+0
11	43.8	(100-0)*(11-4)÷(20-4)+0
12	50.0	(100-0)*(12-4)÷(20-4)+0
13	56.3	(100-0)*(13-4)÷(20-4)+0
14	62.5	(100-0)*(14-4)÷(20-4)+0
15	68.8	(100-0)*(15-4)÷(20-4)+0
16	75.0	(100-0)*(16-4)÷(20-4)+0
17	81.3	(100-0)*(17-4)÷(20-4)+0
18	87.5	(100-0)*(18-4)÷(20-4)+0

| 19 | 93.8 | (100-0)*(19-4)÷(20-4)+0 |
| 20 | 100.0 | (100-0)*(20-4)÷(20-4)+0 |

As shown in the above formula, when measuring 8mA, current current is 29%RH 。

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