SM2110V-10

Protective DC10V voltage type temperature and humidity sensor

User Manual

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SM2110V-10 using the standard DC0 ~ 10V voltage 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℃
Output Interface	DC0~10V
Power	DC12~24V 1A
Running temperature	-40~80°C
Working humidity	5%RH~90%RH

Wiring instructions

Any incorrect wiring can cause irreversible damage to the product. Please carefully wire the cable as follows in the case of power failure, and then connect the cable to confirm the correctness and then use it again.

ID	Core color	Identification	Note
1	Red	V+	Power V+
2	Green	V-	Power V-
3	Yellow	H+	Humidity output
4	Blue	T+	Temperature output

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.

1. temperature and DC0-10Vvoltage computing relationship

For example, the range is -30~80℃, the analog output is 0~10V DC0-10Vvoltage signal, temperature and DC0-10Vvoltage 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 DC0-10Vvoltage output range upper limit, B1 is the lower limit, X is the currently read temperature value, and C is the

calculated DC0-10Vvoltage value. The list of commonly used values is as follows:

DC0-10Vvoltage(V)	temperatureValue (℃)	Calculation Process
0	-30	(80-(-30))*(0-0)÷(10-0)+-30
1	-19	(80-(-30))*(1-0)÷(10-0)+-30
2	-8	(80-(-30))*(2-0)÷(10-0)+-30
3	3	(80-(-30))*(3-0)÷(10-0)+-30
4	14	(80-(-30))*(4-0)÷(10-0)+-30
5	25	(80-(-30))*(5-0)÷(10-0)+-30
6	36	(80-(-30))*(6-0)÷(10-0)+-30
7	47	(80-(-30))*(7-0)÷(10-0)+-30
8	58	(80-(-30))*(8-0)÷(10-0)+-30
9	69	(80-(-30))*(9-0)÷(10-0)+-30
10	80	(80-(-30))*(10-0)÷(10-0)+-30

As shown in the above formula, when measuring 5V, current DC0-10Vvoltage is 55℃。

2. humidity and DC0-10Vvoltage computing relationship

For example, the range is 0~100%RH, the analog output is 0~10V DC0-10Vvoltage signal, humidity and DC0-10Vvoltage The calculation relationship is as shown in the formula: C = (A2-A1) * (X-B1) / (B2-B1) + A1, where A2 is humidity range upper limit, A1 is the lower limit of the range, B2 is DC0-10Vvoltage output range upper limit, B1 is the lower limit, X is the currently read humidity value, and C is the calculated DC0-10Vvoltage value. The list of commonly used values is as follows:

DC0-10Vvoltage(V)	humidityValue (%RH)	Calculation Process
0	0.0	(100-0)*(0-0)÷(10-0)+0
1	10.0	(100-0)*(1-0)÷(10-0)+0
2	20.0	(100-0)*(2-0)÷(10-0)+0
3	30.0	(100-0)*(3-0)÷(10-0)+0
4	40.0	(100-0)*(4-0)÷(10-0)+0
5	50.0	(100-0)*(5-0)÷(10-0)+0
6	60.0	(100-0)*(6-0)÷(10-0)+0
7	70.0	(100-0)*(7-0)÷(10-0)+0
8	80.0	(100-0)*(8-0)÷(10-0)+0
9	90.0	(100-0)*(9-0)÷(10-0)+0
10	100.0	(100-0)*(10-0)÷(10-0)+0

As shown in the above formula, when measuring 5V, current DC0-10Vvoltage is 50%RH。

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