Platinum resistance temperature sensor

Semiconductor temperature sensor

Temperature and humidity sensor

# Temperature and humidity measurement



### **Platinum resistance** temperature sensor



The platinum resistance temperature sensor measures temperature by utilizing the characteristic that the resistance of special metal changes with the temperature. The display instrument will indicate the temperature value corresponding to the resistance value of platinum resistance. When there is a temperature gradient in the measured medium, the measured temperature is the average temperature in the medium layer within the range of the temperature sensing element. The platinum resistance temperature sensor is the most precise and stable temperature sensor. Its linearity is better than that of thermocouple and thermistor, and it is suitable for application fields with strict requirements on precision.

Inquiry Soway

86-0755-88367005 soway@sowaysensor.com Data download -

www.sowaysensor.com/product/

High precision and good linearity

Good sealing performance and capable of withstanding 150 meters water depth

Digital bus interface, can be in series with 250 sensors

Unique interface mode for convenient wiring

### Product application example



Ground temperature inspection Ocean temperature monitoring Ocean temperature monitoring

### Basic performance parameter

Model	STP100
Supply voltage	DC 7 to 26V
Measuring temperature range	-10°C to +85°C
Measuring element	PT100
Response time	15S
Resolution	0.001 °C
Accuracy	±0.1 °C
Power consumption	<0.04W
Level of protection	IP68
Output mode	RS485
Protocol	Standard Mobus

#### Machine dimension



#### Shallow geothermal energy geotemperature measurement

The shallow geothermal energy geotemperature measurement adopts hinge bus technology to form a temperature probe induction chain. Multiple temperature sensors are connected in series by PUR cable and hinge structure, which can be widely applied in measuring the change of water temperature profile in lake, coastal and other environment, as well as in the measurement of soil temperature profile in geological departments and other application fields.





Ocean temperature monitoring

Position detection

Angle measurement

Speed measurement

Displacement measurement

Liquid level measurement

Flow measurement

Pressure measurement

Temperature and humidity measurement

Current measurement

Special sensor

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Temperature and midity sensor





NOTE: tools (e. g., locking pliers) must be adopted to tighten it when docking The torque is 30N to prevent seepage



Position detection

### Product structure

Angle measurement

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Displacement measurement

Liquid level measurement

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Current measurement

Special sensor

Platinum resistand temperature sense Semiconductor

temperature sense

Temperature and humidity sensor

Single buckle seal Housing design adopted, convenient to assemble; Can bear the weight of configured 300 m long cable;

Convenient to replace and easy to maintain;

Temperature measurement range:-10-+85°C;

Maximum number of nodes: 125 pcs/chain.

RS-485 bus output by adoption of Modbus protocol;

Accuracy of measurement: ± 0.1 °C;

Grade of protection IP68;

2. Hinge design

1. Temperature module:

The maximum diameter of the temperature chain is not more than 16 mm, which is very suitable for installation temperature measurement of compact-sized pipeline.

### 3. Cable

It adopts PUR waterproof cable with reinforced four-core shielding, which has high strength and can bear the weight of the configured 300 m long cable;

The distance between temperature nodes can be defined as per user's requirement.



### 4. Temperature collector

Temperature collector integrates data acquisition and wireless transmission device; Wireless transmission adopts modular design, and GPRS, Lora and NB-IOT module are optional; Built-in high capacity storage space is convenient to save data, and specific capacity needs to be determined; The equipment can be buried under the ground surface, which is very concealed and does not affect the data transmission; Field commissioning is optional.

### 5. Power supply system

It is equipped with solar cell and 24V/30AH backup battery, which can be used for more than 3 years with the collection frequency of half an hour;

With the warning function for low voltage.

Counterweight cable TS1 TS2 TSn Power supply system Temperature acquisition transmitter

### Temperature acquisition transmitter

### 153

### Memorandum


### **Semiconductor** temperature sensor



The temperature sensor is a device that converts the temperature information of physical characteristic that represents the degree of cold and heat of an object or space into electrical signal, which is adopted to inspect and control the relevant temperature characteristics. As there are various use requirements, the temperature sensors have many types.

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High sensitivity, low temperature delay

High measurement accuracy and good stability

Compact size, easy to install

High quality stainless steel pipe encapsulation, with internal sealing glue, waterproof, moisture-proof and rust-proof

### Product application example





Machine room temperature detection

Temperature detection of machinery and equipment

### Basic performance parameter

Model	ST116	ST117	ST119	
Supply voltage	3~5.5VDC	3.0~5.5VDC	5 VDC	
Measuring range	-40~+85 °C	-40~+85 ℃	-40~+80 °C	
Accuracy of detection	±1 °C (0~+70°C)	±0.5 ℃ (-10~+85℃)	±0.5°C (0~+70°C)	
Resolution	1	9 to 12 bits, the maximum working cycle of 12 bits is 750 milliseconds		
Output signal	Linear voltage: 0°C-500mV, 10mV/°C	Single bus data communication	Modbus、Baud rate9600bps	
Leve of protection	IP67	IP67	IP65	
Housing	Stainless steel 316	Stainless steel 316	Flame retardant engineering plastics UL94-V0	
Cable	Shielded cable 1 m	Shielded cable 1 m	4x0.12mm shielded cable 2 m	

### Machine dimension





ST116

Lead description

VCC power supply

GND ground line

Temperature signal

Wiring method

Red Grey

Yellow

	ST117	
Cable wire color definition	Lead description	Cable

	VCC power supply	
	GND ground line	
	DATA Signal	







Greenhouse temperature detection



Angle measurement

Speed measurement

Displacement measurement

Liquid level measurement

Flow measurement

Pressure measurement

### Temperature and humidity measuremen

Current measurement

Special sensor

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e wire color definition
Red
Grey
Yellow

### ST119

Lead description	Cable wire color definition
VCC power supply	Red
GND ground line	Black
485A	Green
485B	White

## **Temperature and** humidity sensor



T118 humidity sensitive capacitance digital temperature and humidity module is a temperature and humidity composite sensor with calibrated digital signal output. It adopts special digital module acquisition technology and temperature-humidity sensing technology to ensure the product has high reliability and excellent long-term stability. The sensor comprises a capacitive humidity sensing element and a high precision temperature sensing element, and is connected with a high performance ARM single chip computer. Therefore, this product has the advantages of excellent quality, super fast response, strong anti-interference capability and high cost performance, etc.

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High sensitivity, low temperature delay

High measurement accuracy and good stability

Compact size, easy to install

### Product application example





Machine room temperature detection

Temperature detection of machinery and equipment

#### Basic performance parameter

Model	ST118
Supply voltage	5VDC(Current ≤15Ma)
Measuring range	Temperature: -20~+70 °C 、Humidity: 0-100%RH
Accuracy of detection	Temperature: ±0.2°C ( 0~+60°C ) 、Humidity:2% ( 25°C )
Resolution	9 to 12 bits, the maximum working cycle of 12 bits is 750 milliseconds
Output signal	RS485(Modbus)
Housing	Flame retardant engineering plastics UL94-V0
Cable	4x0.12mm shielded cable 1 m

### Machine dimension



### Wiring method

Cable color	Item	Definition
Red	Vin	Power supply positive
Black	GND	Power supply negative
Blue	А	
White	В	KS485 Interface

when using:

dramatically.







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#### Precautions

Air relative humidity is the function of temperature. Air temperature has great influence on relative humidity, and many compounds have great influence on the physical, such as acid, alkali and salt, properties of water vapor. The following matters should be noted

1. The temperature and humidity sensor shall be installed in a place where the temperature is relatively stable and can best represents the temperature and humidity of measured ambient. 2. Avoid mounting in places where the temperature changes

3. Avoid installing in places where the air is flows violently.

4. Avoid installing in dead angle where air does not flow.

5、Avoid being used in salt fog environment6、Avoid being used in corrosive gas environments.