CHEEMI

CHEEMI TECHNOLOGY CO.,LIMITED

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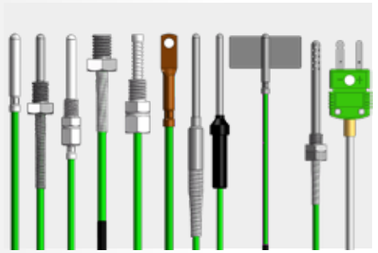
Product Selection Guide



Temperature and humidity transmitter

Temperature sensor

Temperature sensor

Cheemi Technology Co., Ltd

About Us

Nanjing Chenming Electronic Technology Co., Ltd. is a private high-tech enterprise with 20 years of experience in the research &development, production, and sales of current and voltage monitoring products. We have obtained ISO9001:2015 and IATF16949:2016 certifications. We provide current and voltage detection solutions for the national power grid, mobile communication base stations, urban subways, intercity high-speed railways, locomotives, and other fields, as well as the aerospace and industrial automation industries. Our products are mainly exported to Asian and European countries.

We currently have 105 personnel, 15 R&D technical teams, accounting for 14%, 70 production personnel, and 12 personnel in comprehensive department. In 2015, Cheemi Technology Co., Ltd. was established in Hong Kong, mainly for international sales of sensors and providing procurement services to global customers.

We have 18 patents, including 3 invention patents. The main products are current and voltage sensors, AC/DC leakage current sensors, proximity sensors, temperature sensors, pressure sensors, etc., and have passed CE and RoSH certificates.

The company covers an area of about 20000 square meters, with a production workshop of 10000 square meters. There is a dust automated SMT production lines; Other production lines include two semi-automatic reflow soldering production lines, three conventional product assembly production lines, two special product assembly production lines, one semi-automatic debugging production line, and one fully automated glue filling production line, a total of 12 production lines to ensure the daily output of about 12000 sensors of various types.

In order to provide customers with better one-stop service, we have established a procurement center, which mainly provides procurement services for electronic components other than sensors, and providing customers with the best logistics and transportation channels, saving logistics time and operating costs, and achieving a win-win situation.

Directory

Platinum Resistors

Temperature is a physical quantity that represents the degree of warmth or coldness of an object, and it can be indirectly measured through certain characteristics of the object that change with temperature, such as resistance and voltage changes. Research has shown that the resistance value of platinum (Pt) varies with temperature and has good reproducibility and stability. Sensors made using this physical property of platinum are called platinum resistance temperature sensors. Platinum resistance temperature sensors have high accuracy, good stability, and a wide range of temperature applications. They are the most commonly used temperature detector in the medium and low temperature range (-200~500 ° C), and are not only widely used in industrial temperature measurement, but also made into various standard thermometers for measurement and calibration.

Temperature coefficient of platinum resistance

According to the IEC60751 industrial platinum resistance standard, the temperature coefficient TCR is 0.003851, and PT100 (R0=100 Ω) and PT1000 (R0=1000 Ω) are uniformly designed platinum resistors.

Among them,$TCR=(R_{100}-R_0)/(R_0 \times 100)$

Resistance(Ω) / Graduation	Standard resistance at 0℃ R_0	Standard resistance at 100 ℃ R_{100}
PT100	100(Ω)	138.51(Ω)
PT1000	1000(Ω)	1385.1(Ω)

Temperature/Resistance Characteristics:

Resistance/temperature relationship of platinum thermistor:

$-200<t<0℃ \quad R_t=R0\cdot[1+At+Bt^2+C(t-100℃)t^3]$

$0<t<850℃ \quad R_t=R0\cdot(1+At+Bt^2)$

R_t Resistance value at t ℃

R_0 Resistance value at 0 ℃

Coefficient value at TCR=0.003851

Coefficient	A	B	C
Value	3.9083×10^{-3} ℃$^{-1}$	-5.775×10^{-7} ℃$^{-2}$	-4.183×10^{-12} ℃$^{-4}$

Temperature error

Level	Resistance error at 0 ℃	Temperature error℃	Temperature coefficient TCR errorΩ/Ω/℃
1/3DIN B	±0.04	±(0.10+0.017|t|)	0.003851±0.000004
A	±0.06	±(0.15+0.002|t|)	0.003851±0.000005
B	±0.12	±(0.30+0.005|t|)	0.003851±0.000012

Error Value Table (Absolute Value)

Temperature ℃	Nominal resistance value Ω	1/3DIN B		A		B	
		Temperature error	Resistance error	Temperature error	Resistance error	Temperature error	Resistance error
-200	18.52	0.44	0.16	0.55	0.24	1.3	0.56
-100	60.26	0.27	0.1	0.35	0.14	0.8	0.32
0	100	0.1	0.04	0.15	0.06	0.3	0.12
100	138.51	0.27	0.1	0.35	0.13	0.8	0.3
200	175.86	0.44	0.16	0.55	0.2	1.3	0.48
300	212.05	0.61	0.23	0.75	0.27	1.8	0.64
400	247.09	0.78	0.3	0.95	0.33	2.3	0.79
500	280.98	0.95	0.36	1.15	0.38	2.8	0.93
600	313.71	1.12	0.43	1.35	0.43	3.3	1.06
650	329.64	1.2	0.46	1.45	0.46	3.6	1.13

Stability of Platinum Resistance Sensor

Platinum resistors have good long-term stability, with typical experimental data showing a maximum temperature drift of 0.02 ℃ at 0 ℃ for 300 hours at 400 ℃.

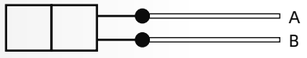
Self heating and test current of platinum resistance

The testing current for conventional products is 0.3~1mA for PT100 and 0.1~0.3mA for PT1000. In practical applications, the test current should not exceed the allowable value. For example, when the PT100 test current is 1mA and the temperature rise is 0.1 ℃, if the current is too high, the risk of self heating should be considered, and the data of self heating temperature rise is also closely related to the structure of the product, such as the diameter and material of the protective tube, the type of internal filling, and the testing conditions.

Guiding out specifications

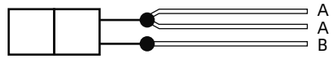
Two-wire system

The lead form of connecting one wire at each end of the thermal resistance temperature sensing element is a two-wire system. Suitable for situations with low precision requirements, it is not recommended to have leads that are too long.



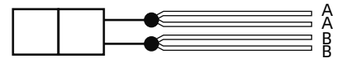
Three-wire system

The lead form in which two leads are connected at one end of a thermal resistance temperature sensing element and one lead is connected at the other end is called a three wire system. The length lines of the three leads are straight and consistent. The measurement accuracy is higher than that of the two-wire system, and the three wire wiring method is generally used in industry.



Four-wire system

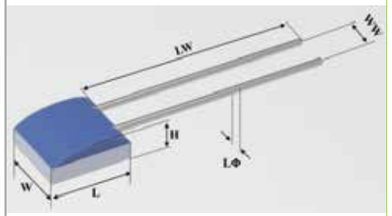
Connect two leads at each end of the thermal resistance temperature sensing element, and use a four wire system for high-precision measurement.



Introduction to Types of Temperature Sensors

Types of platinum resistance temperature sensing elements

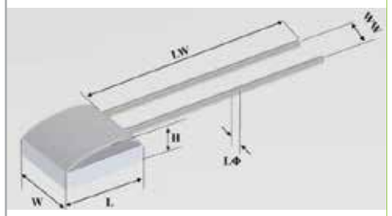
Pt100 series (Pt100-N500)



Technical Parameter

R₀℃ resistance	100Ω
Size(W*L*H)	1.6*2.3*1.0mm;2.0*2.3*1.0mm
Wire material	Nickel plating with platinum
Wire length (LW)	10±0.5mm
Wire diameter(LΦ)	0.2mm
Wire spacing (WW)	1mm
Measuring range	-50~300℃, A-class; -70~500℃, B\2B-class
Classes	1/3B、A、B、2B
Wire tension	≥9N
Long term stability	The resistance deviation of R0 after 1000 hours at 500°C is ≤ 0.04%
TCR	3850ppm/℃

Pt100 Low temperature series (Pt100-DW200)

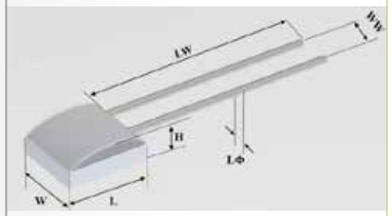


Technical Parameter

R₀℃ resistance	100Ω
Size(W*L*H)	1.6*2.3*1.0mm;2.0*2.3*1.0mm
Wire material	Silver palladium alloy wire
Wire length (LW)	10±0.5mm
Wire diameter(LΦ)	0.2mm
Wire spacing (WW)	1mm
Measuring range	-196~200℃
Classes	B、2B
Wire tension	≥8N
Long term stability	The resistance deviation of R0 after 1000 hours at 150°C is ≤ 0.04%
TCR	3850ppm/℃

Types of platinum resistance temperature sensing elements

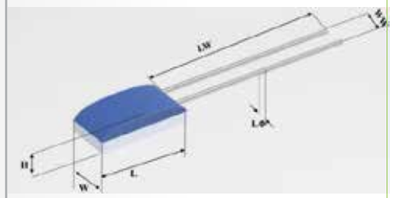
Pt100 High temperature series （Pt100-GW650)



Technical Parameter

R₀℃ resistance	100Ω
Size(W*L*H)	1.6*2.3*1.0mm;2.0*2.3*1.0mm
Wire material	Pure platinum wire
Wire length (LW)	4.5±0.5mm
Wire diameter(LΦ)	0.2mm
Wire spacing (WW)	1mm
Measuring range	-50~650℃
Classes	B、2B
Wire tension Long	≥9N
term stability TCR	The resistance deviation of R0 after 1000 hours at 650°C is ≤ 0.04% 3850ppm/℃

Pt1000 series (Pt1000-N500)



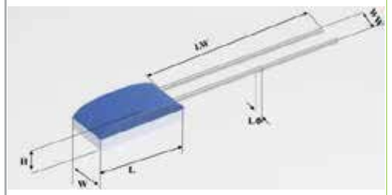
Technical Parameter

R₀℃ resistance	1000Ω
Size(W*L*H)	2.0*3.0*1.0mm;2.0*4.0*1.0mm
Wire material	Nickel plating with platinum
Wire length (LW)	10±0.5mm
Wire diameter(LΦ)	0.2mm
Wire spacing (WW)	1mm
Measuring range	-50~300℃, A-class; -70~500℃, B-class
Classes	A、B、2B
Wire tension	≥9N
Long term stability	The resistance deviation of R0 after 1000 hours at 500°C is ≤ 0.04%
TCR	3850ppm/℃

Introduction to Types of Temperature Sensors

Types of platinum resistance temperature sensing elements

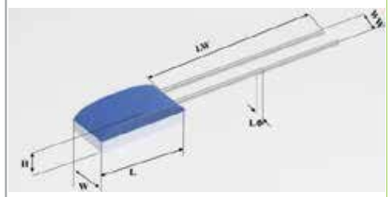
Pt500 series (PT500-N500)



Technical Parameter

Temperature Range	-200℃~+150℃
Classes	1/3B,A,B,2B
Ro(Ω)	500±0.2...500±1.2
Accuracy	±(0.1+0.0017/t/)
Lead specifications	Length:10mmm Diameter:0.2mm
Lead tension	≥9N
Component size	2.0mmx2.3mmx1.0mm
Working current	0.1-0.7mA
Natural coefficient	0°C 0.4°C/mw
Anti-vibration	Frequency acceleration >40g from 10 to 2000Hz

Pt300 series (PT300-N500)

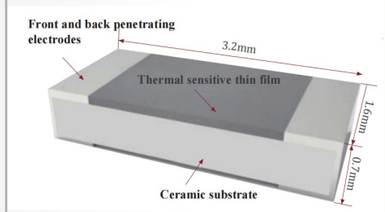


Technical Parameter

Temperature Range	-70℃~+500℃
Ro(Ω)	300±0.18...300±0.72
Component size	2.0mmx3.0mmx1.0mm
Lead specifications	Length:10mmm Diameter:0.2mm
Lead tension	≥9N
Insulation impedance	＞100MΩ at 20℃, ＞2MΩ at 500℃
Working current	0.3-1mA
Temperature coefficient	3850ppm/℃
Natural coefficient	0℃ 0.4℃/mW
Anti-vibration	Frequency acceleration >40g from 10 to 2000Hz

Types of platinum resistance temperature sensing elements

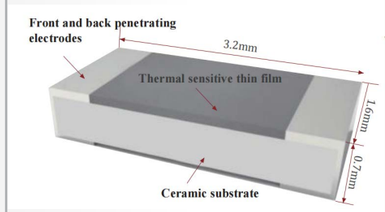
Pt100-SMD1206 series



Technical Parameter

Performance parameters	SMD type thin film platinum resistor
Lead specifications	3.2mmx1.6mmx0.7mm
R₀℃ resistance value	100Ω
Temperature coefficient	385₀ppm/℃
Measuring range	-50°C~+200°C
Long term stability	Drift of R0 ° C within 200 ° C and 1000 hours ≤ 0.04%
Welding terminals	Tin alloy terminals
Welding method	Reflow soldering or wave soldering, recommended to use high temperature solder paste, welding temperature 230-240 ° C
Accuracy	±(0.15+0.002|T|)...±(0.6+0.01|T|)

Pt1000-SMD1206 series



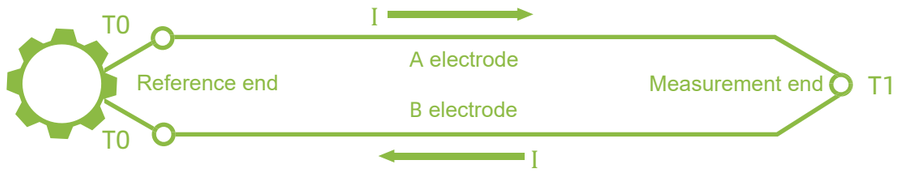
Technical Parameter

Performance parameters	SMD type thin film platinum resistor
Lead specifications	3.2mmx1.6mmx0.7mm
R₀℃ resistance value	100Ω
Temperature coefficient	385₀ppm/℃
Measuring range	-50°C~+200°C
Long term stability	Drift of R0 ° C within 200 ° C and 1000 hours ≤ 0.04%
Welding terminals	Tin alloy terminals
Welding method	Reflow soldering or wave soldering, recommended to use high temperature solder paste, welding temperature 230-240 ° C
Accuracy	±(0.15+0.002|T|)...±(0.6+0.01|T|)

Introduction to Temperature Sensor Types

Thermocouples

A thermocouple is made of two metal alloys of different materials, welded at both ends to form a circuit. When this welding point is heated, it will generate a force that moves the thermal current. Its size is equal to the temperature difference between the welding point with different temperatures and the other end (reference point). The direct measurement end is called the working end (hot end), and the wiring terminal end is called the cold end. When there is a temperature difference between the hot end and the cold end, a thermal current will be generated in the circuit. When connected to a display instrument, the instrument will indicate the corresponding temperature value of the generated thermoelectric potential, which increases with temperature.



Working principle diagram of thermocouple

The thermoelectric flow force of a thermocouple is independent of the wire diameter or length, and is related to the material of the thermocouple and the temperature at both ends.

Thermocouple Graduation

The main difference in the types of thermocouples lies in the material of their thermocouple cores (two thermocouple wires), and the electromotive force they output is also different. There are mainly the following types of thermocouples:

Graduation	Material	Measuring range	Allowable deviation°C
K-type	NiCr-NiSi	-200~+1300°C	±2.2 or 0.75%| t |
J-type	Fe-CuNi	-200~+950°C	±2.2 or 0.75%| t |
E-type	Ni-Cr-CuNi	-200~+800°C	±2.5 or 0.75%| t |
N-type	NiCrSi-Nisi	-200~+1300°C	±2.2 or 0.75%| t |
T-type	Cu-CuNi	-200~+350°C	±1.0 or 0.75%| t |
S-type	PtRh10-Pt	-200~+1600°C	±1.5 or 0.25%| t |
R-type	PtRh13-Pt	-200~+1600°C	±1.5 or 0.25%| t |
B-type	PtRh30-PtRh6	-200~+1800°C	±1.5 or 0.25%| t |

NTC Thermistor

NTC thermistor refers to a negative temperature coefficient thermistor. NTC thermistors are mainly made of metal oxides such as manganese, cobalt, nickel, and copper. These metal oxide materials all have semiconductor properties because their conductivity is completely similar to that of semiconductor materials such as germanium and silicon. When the temperature is low, the number of charge carriers (electrons and holes) in these oxide materials is small, so their resistance values are high; As the temperature increases, the number of charge carriers increases, so the resistance value decreases. The output resistance value (R) of the NTC thermistor temperature sensor varies from 100 Ω to 20000 Ω at room temperature, and the temperature coefficient (B) ranges from 2000 to 6500 (in K). NTC thermistor temperature sensors are generally inexpensive, with low temperature measurement accuracy and a detection range of around -40 ℃~300 ℃. They can be widely used in situations where precision and temperature range requirements are not high, such as temperature measurement, control, and compensation.

Parameters

The material constant (thermal index) of NTC thermistor can be calculated by measuring the resistance values of NTC thermistor at 25 ℃ and 50 ℃ (or 85 ℃). The B value is directly proportional to the temperature coefficient of resistance, which means that the larger the B value, the greater the temperature coefficient of resistance. But it cannot be simply said whether a high or low B value is good. When used for temperature measurement, a high B value indicates high sensitivity when measuring low and normal temperatures, while a low B value indicates the opposite when measuring high temperatures; When used for temperature compensation, the appropriate B value should be selected based on the characteristics of the components to be compensated; When used to suppress surges, a high B value results in strong current capability, low residual resistance, and low power consumption. B value and R value are defined as:

$$B=T1*T2/(T2-T1)Ln(R_{T1}/R_{T2})$$

B: B value; RT1、RT2： The resistance values at temperatures T1 and T2 respectively;

T1、T2： Absolute temperature scale

$$R_t=R*EXP(B*(1/T1-1/T2)$$

Rt: Resistance at T temperature; R： Nominal point resistance value; EXP: the nth power of e;

T1、T2： Kelvin temperature

Thermistor parameter table

R value	B value	Accuracy	Temperature resistance
5K,10K,50K,100K	3435,3470,3950,3945,3970,4390	1%,2%,3%	-40~+300 ℃

Digital temperature sensor DS18B20

- Unique single wire interface only requires one port pin for communication
- Each device has a unique 64 bit serial code stored in its internal memory
- Multi node capability simplifies distributed temperature sensing applications
- No external components required, power can be supplied through data cables, power supply range:
- 3.0V~5.5VDCTemperature measurement range: -55~+125 ℃, with an accuracy of ± 0.5 ℃ within the range of -10~+85 ℃
- The resolution of the thermometer can be selected from 9 to 12 bits
- Defined non-volatile (NV) alarm settings
- Alarm search command recognition and processing equipment, whose temperature exceeds the set limit
- The application scope includes temperature control, industrial systems, thermometers, or any heat sensitive systems

The output of DS18B20 temperature sensor is directly a digital signal. The resolution of this temperature sensor can be set by the user to 9, 10, 11, or 12 bits, corresponding to 0.5 ℃, 0.25 ℃, 0.125 ℃, and 0.0625 ℃, respectively. The default resolution is 12 bits when powered on. After DS18B20 is started, it maintains a low-power waiting state. When temperature measurement and AD conversion need to be performed, the bus controller must issue a [44h] command. The temperature data generated after conversion is stored in the temperature memory of the high-speed register in the form of 2 bytes, DS18B20 remains in a waiting state. When DS18B20 is powered by an external power source, the bus controller initiates a "read timing" after the temperature conversion command. DS18B20 returns 0 during temperature conversion and returns 1 after the conversion is complete. If DS18B20 is powered by a parasitic power source, there will be no return value unless the bus is pulled high by a strong pull-up resistor during temperature conversion.

Temperature/Data Relationship

Temperature°C	Data output (Binary)	Data output (Hexadecimal)
125	0000 0111 1101 0000	07D0h
85	0000 0101 0101 0000	0550h
25.625	0000 0001 1001 0001	0191h
10.125	0000 0000 1010 0010	00A2h
0.5	0000 0000 0000 1000	0008h
0	0000 0000 0000 0000	0000h
-0.5	1111 1111 1111 1000	FFF8h
-10.125	1111 1111 0101 1110	FF5Eh
-25.625	1111 1110 0110 1111	FE6Fh
-55	1111 1100 1001 0000	Fc90h

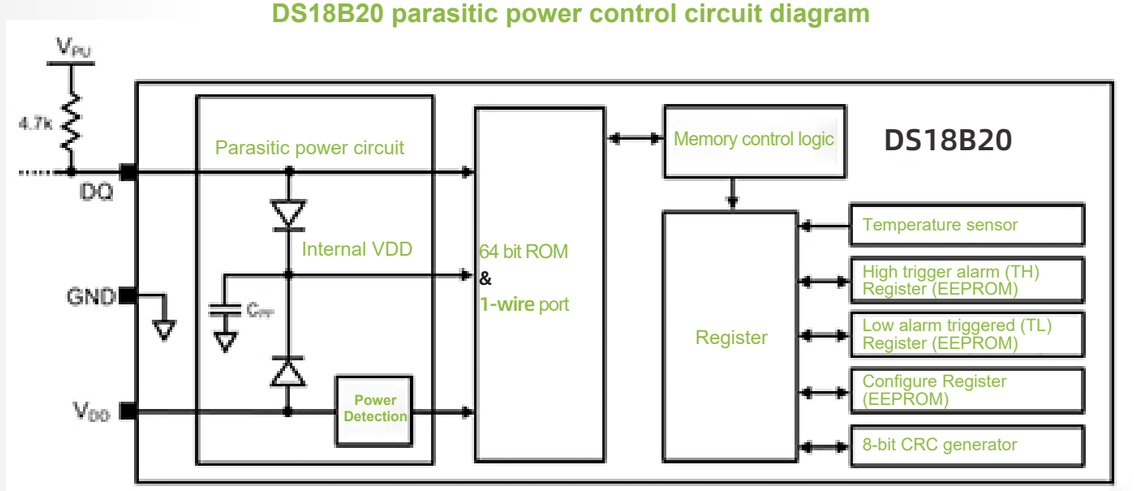
*The default value of the temperature register during power on reset is+85°C

Format of temperature register

	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
LS Byte	2^3	2^2	2^1	2^0	2^{-1}	2^{-2}	2^{-3}	2^{-4}
	bit 15	bit 14	bit 13	bit 12	bit 11	bit 10	bit 9	bit 8
MS Byte	S	S	S	S	S	2^6	2^5	2^4

DS18B20 can be directly powered by an external power source through the VDD pin, or it can be powered by a "parasitic power" mode. In the "parasitic power" mode, the VDD pin of DS18B20 is short circuited to GND, and the DQ pin is used to obtain power from a single bus in a high-level state, while charging the parasitic power capacitor (CPP). When the state on the single bus changes to a low level, the parasitic power capacitor discharges to power DS18B20.

DS18B20 parasitic power control circuit diagram



The parasitic power supply method is widely used in remote temperature measurement or places with limited space.

In most cases in parasitic power mode, a single bus and CPP capacitor can provide sufficient current to DS18B20 (sufficient current refers to the current that meets the timing and specified voltage) However, when DS18B20 is performing temperature conversion or copying data from temporary storage to EEPROM, its operating current may reach up to 1.5mA, far exceeding the current that CPP can provide, resulting in abnormal voltage drop of weak pull-up resistors on a single bus. To ensure sufficient power supply current for DS18B20, a strong pull-up is required for the single bus when performing temperature conversion or copying data from temporary storage to EEPROM.

NEW ENERGY VEHICLES SENSOR

Motor temperature sensor

Charging station/seat temperature sensor

Capacitive temperature sensor

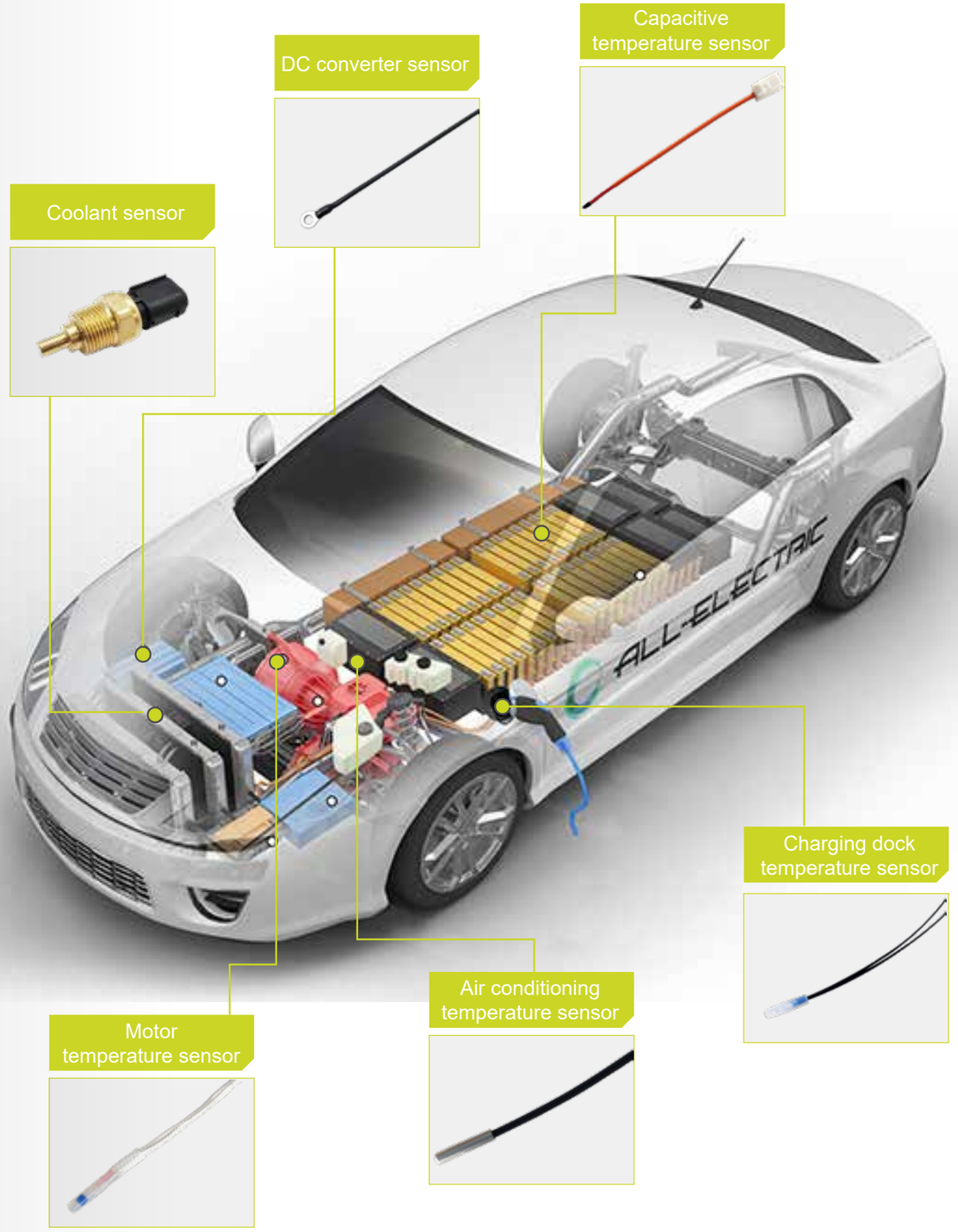
DC/DC converter temperature sensor

Automotive air conditioning temperature sensor

Car water temperature sensor

Exhaust gas temperature sensor

Temperature sensors for new energy vehicles



Motor temperature sensor

Feature
The product has the characteristics of small size, high voltage resistance, fast thermal response time, wide working temperature, good temperature measurement linearity, and long working life.

Application
Widely used for temperature detection of motors in new energy vehicles

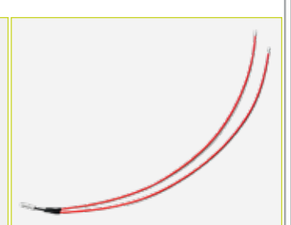
Working temperature range
-40~200℃

Thermal time constant
≤20S(Test in still air)

Withstanding voltage
3KV@AC &60S, 50Hz, leakage current less than 1mA (Tested at room temperature), no breakdown or arcing

Resistance value
$R_{25℃}$=100KΩ±1% Can be customized

B value
$B_{25℃/50℃}$=4390±1% Can be customized



Charging dock/pile temperature sensor

Feature
The product has the characteristics of small size, high voltage resistance, fast thermal response time, wide working temperature, good temperature measurement linearity, and long working life.

Application
Widely used for temperature detection of motors in new energy vehicles

Working temperature range
-40~200℃

Thermal time constant
≤20S(Test in still air)

Withstanding voltage
3KV@AC &60S, 50Hz, leakage current less than 1mA (Tested at room temperature), no breakdown or arcing

Resistance value
$R_{25℃}$=100KΩ±1% Can be customized

B value
$B_{25℃/50℃}$=4390±1% Can be customized

Capacitive temperature sensor

Feature
The product has the characteristics of small size, high voltage resistance, fast thermal response time, wide working temperature, good temperature measurement linearity, and long working life.

Application
Widely used in temperature control systems for new energy vehicles

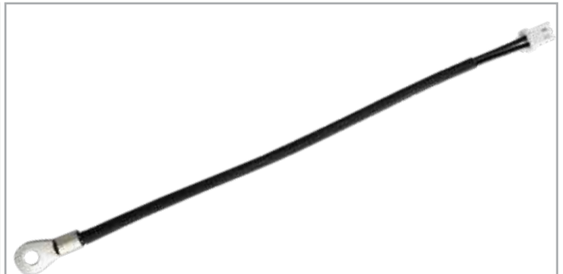
Working temperature range
-40~105℃

Thermal time constant
≤70S(Test in still air)

Wthstanding voltage
3.5KV@AC &60S, 50Hz, leakage current less than 1mA (Tested at room temperature), no breakdown or arcing

Resistance value
$R_{25℃}$=10KΩ±1% Can be customized

B value
$B_{25℃/50℃}$=3435±1% Can be customized



DC/DC converter temperature sensor

Feature
The product has the characteristics of small size, high voltage resistance, fast thermal response time, wide working temperature, good temperature measurement linearity, and long working life.

Application
Widely used in new energy charging systems, battery packs, and DC converters

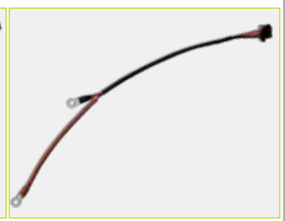
Working temperature range
-40~125℃

Insulation resistance
100MΩ@500Vdc(Tested at room temperature)

Wthstanding voltage
2.0KV@AC &60S, 50Hz, leakage current less than 1mA (tested at room temperature), no breakdown or flashover

Resistance value
$R_{25℃}$=50KΩ±1% Can be customized

B value
$B_{25℃/50℃}$=3950K±1% Can be customized



Air conditioning temperature sensor

Feature
The product has the characteristics of small size, high voltage resistance, fast thermal response time, wide working temperature, good temperature measurement linearity, and long working life.

Application
Widely used in automotive air conditioning and household refrigerators

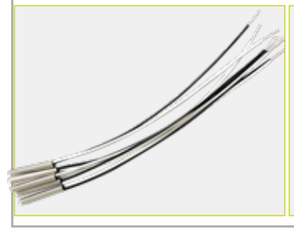
Working temperature range
-30~105℃

Shell pressure resistance
<0.5MPa

Withstanding voltage
1000V@AC &60S, 50Hz, leakage current less than 1mA
(Tested at room temperature), no breakdown alarm or flashover

Resistance value
$R_{25℃}$=10KΩ±1% Can be customized

B value
$B_{25℃/50℃}$=3470±1% Can be customized



Car water temperature sensor

Feature
The housing of the car water temperature and oil temperature sensor adopts brass anti impact damping, effectively protecting the stable operation of the internal structure.

Application
Widely used for detecting water temperature, oil temperature, and temperature in automobiles

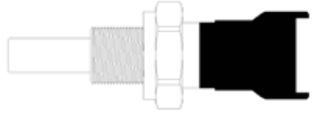
Working temperature range
-30~120℃

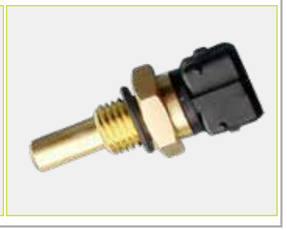
Shell pressure resistance
≤0.5MPa

Working current
≤100mA

Resistance value
$R_{25℃}$=2KΩ±1% Can be customized

B value
$B_{25℃/50℃}$=3470±1% Can be customized





CMTS01 Exhaust Temperature Sensor

Application
Diesel engine particulate filter, exhaust gas recirculation, catalytic converter control and detection of engine components (valves, air pipes), assembly in on-site diagnostic system, measurement of exhaust gas recirculation temperature.

Working temperature range
-40℃~+1000℃

Rated resistance value
0℃@200Ω

Insulation resistance
At 25℃, ≥10MΩ@500Vdc

Long term stability
≤0.04%@1000h

Anti vibration ability
10~5000Hz, 4G

CMTS02 Exhaust Temperature Sensor

Application
Diesel particulate filter, exhaust gas recirculation, catalytic converter.Control and detect engine components (valves, air pipes), assemble on-site diagnostic systems, measure exhaust gas recirculation temperature

Working temperature range
-40℃~+1000℃

Rated resistance value
0℃@200Ω

Insulation resistance
At 25℃, ≥10MΩ@500Vdc

Long term stability
≤0.04%@1000h

Anti vibration ability
10~5000Hz, 4G

INDUSTRIAL TEMPERATURE SENSOR

Direct tube encapsulated probe type temperature sensor

Thread mounted temperature sensor

Screw type temperature sensor

Spring-loaded temperature sensor

Surface mounted temperature sensor

Copper Lug OT Terminal Temperature Sensor

Step tube encapsulated temperature sensor

Handheld temperature sensor

Equipped with junction box temperature sensor

Hirschmann connection temperature sensor

Aviation joint temperature sensor

Card spring temperature sensor

Temperature sensor with mounting plate

Resin surface mount temperature sensor

Handheld temperature sensor with holes on tube

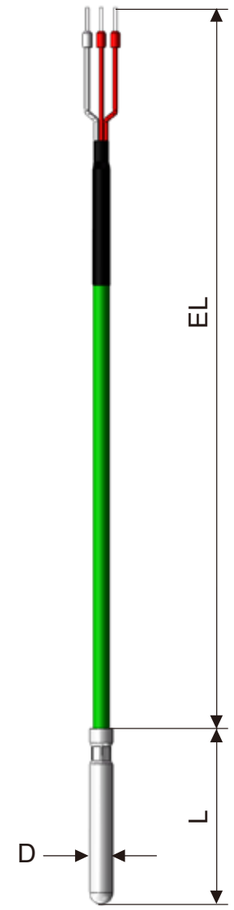
Plug in temperature sensor

01 Direct tube encapsulated probe type temperature sensor

Use a stainless steel tube (or other specified metal material) to encapsulate the temperature sensing element inside and lead out wires to achieve the purpose of protecting the temperature sensing element. Commonly used in humid, liquid, dust, corrosive, extruded, and conventional working environments. It is the most common form of packaging for temperature sensors.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20
2	Accuracy	RTD：Classes 1/3B, A, B Thermocouple：Class I, Class II Thermistor：1%, 2%, 3% DS18B20：nil
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal
6	Cable anti bending protection	W=No anti folding protection; T=spring; R=hose
7	Cable length EL (mm)	500,1000,2000 or specified
8	Probe diameter D(mm)	2,3,4,5,6,8,10....20 or specified
9	Probe length L (mm)	10~2000 or specified

Product schematic diagram



Card pressing process

Anti folding protection

Glue filling process

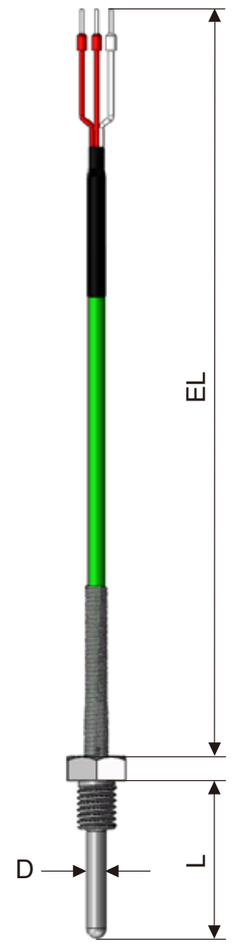
Brass shell

02 Fixed thread installation temperature sensor

Thread mounted temperature sensors are the most common installation method for temperature sensors, suitable for various industries. Their design purpose is mainly for temperature measurement of the medium inside pipelines.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20
2	Accuracy	RTD：Classes 1/3B, A, B Thermocouple：Class I, Class II Thermistor：1%, 2%, 3% DS18B20：nil
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose
7	Cable length EL(mm)	500,1000,2000 or specified
8	Probe diameter D(mm)	2,3,4,5,6,8,10....20 or specified
9	Probe length L(mm)	10~2000 or specified
10	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified

Product schematic diagram



Anti folding protection

Long probe

Short probe

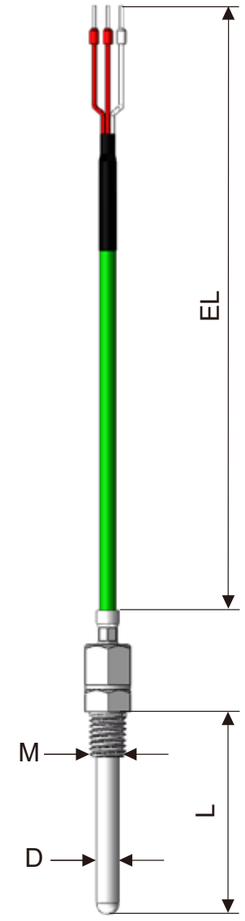
Corrugated tube

03 Movable thread installation temperature sensor

Thread mounted temperature sensors are the most common installation method for temperature sensors, suitable for various industries. Their design purpose is mainly for temperature measurement of the medium inside pipelines.

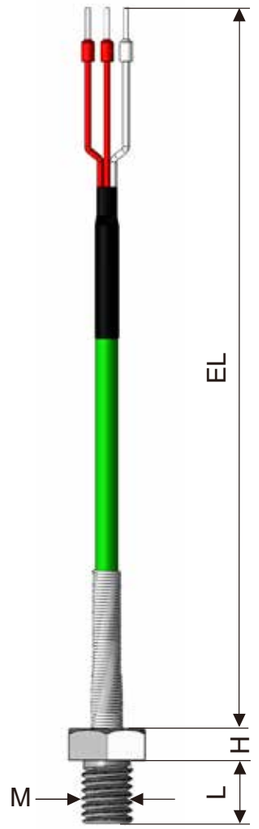
Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20
2	Accuracy	RTD：Classes 1/3B, A, B Thermocouple：Class I, Class II Thermistor：1%, 2%, 3% DS18B20：nil
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose
7	Cable length EL(mm)	500,1000,2000 or specified
8	Probe diameter D(mm)	2,3,4,5,6,8,10....20 or specified
9	Probe length L(mm)	10~2000 or specified
10	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified

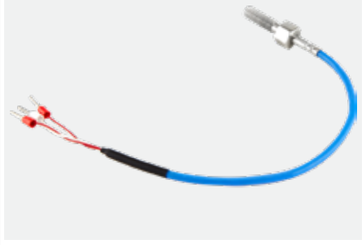
Product schematic diagram



04 Screw type temperature sensor

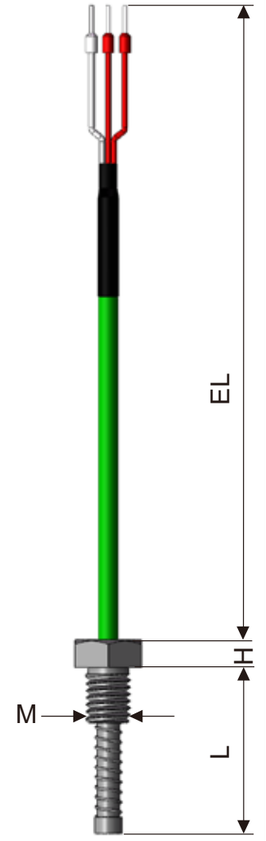
The installation method adopts a threaded sleeve that can slide and rotate, which is convenient to use and widely used for temperature measurement on the surface of heat dissipation plates and other boards. However, it is not waterproof and cannot be installed in situations where liquid medium measurement is carried out in pipelines.

Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20	
2	Accuracy	RTD：Classes 1/3B, A, B Thermocouple：Class I, Class II Thermistor：1%, 2%, 3% DS18B20：nil	
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C	
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil	
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal	
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose	
7	Cable length EL (mm)	500,1000,2000 or specified	
8	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified	



05 Spring-loaded temperature sensor

Adopting a spring that can be pressed as the installation method, it is convenient to use and widely used in industries such as rail transit, food machinery, molds, industrial equipment, and experimental equipment.

Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20	
2	Accuracy	RTD：Classes 1/3B, A, B Thermocouple：Class I, Class II Thermistor：1%, 2%, 3% DS18B20：nil	
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C	
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil	
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal	
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose	
7	Cable length EL (mm)	500,1000,2000 or specified	
8	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified	

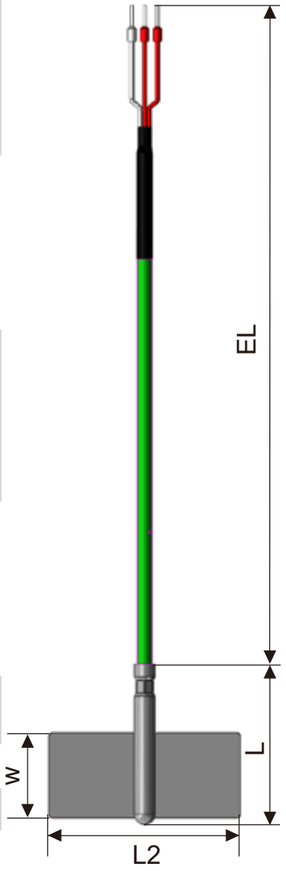



06 Surface mounted temperature sensor

The surface mounted temperature sensor has a large contact surface between the temperature sensing element and the measured object, good thermal conductivity, and more accurate measurement, making it suitable for temperature measurement on the surface of objects.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20
2	Accuracy	RTD：Classes 1/3B, A, B Thermocouple：Class I, Class II Thermistor：1%,2%,3% DS18B20：nil
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose
7	Cable length EL (mm)	500,1000,2000 or specified
8	Patch size	Can be specified

Product schematic diagram



Brass shell

Perforated shell

Equipped with transmitter

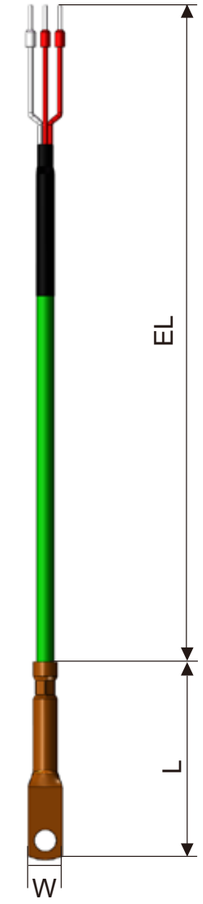
Bare wire terminal

07 Copper Lug OT Terminal Temperature Sensor

Using special technology and surface screw locking installation, suitable for temperature measurement in power, molds, heaters, control cabinets, etc.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20
2	Accuracy	RTD：Classes 1/3B, A, B Thermocouple：Class I, Class II Thermistor：1%, 2%, 3% DS18B20：nil
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose
7	Cable length EL (mm)	500,1000,2000 or specified
8	Patch size	Can be specified

Product schematic diagram

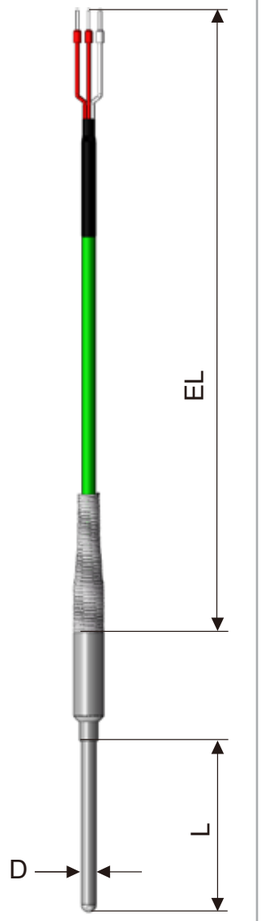


08 Step tube encapsulated temperature sensor

Step tube encapsulated temperature sensor is a type of temperature sensor that uses a stainless steel tube (or other specified metal material) with steps to encapsulate the temperature sensing element inside and lead out wires. It is commonly used in humid, liquid, dust, corrosive, extruded, and conventional working environments.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20
2	Accuracy	RTD: Classes 1/3B, A, B, Thermocouple：Class I, Class II Thermistor：1%, 2%, 3% DS18B20：nil
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose
7	Cable length EL (mm)	500,1000,2000 or specified
8	Probe diameter D (mm)	2,3,4,5,6,8,10....20 or specified
9	Probe length L (mm)	10~2000 or specified

Product schematic diagram



With corrugated pipe

Step pipe

With protective sheath

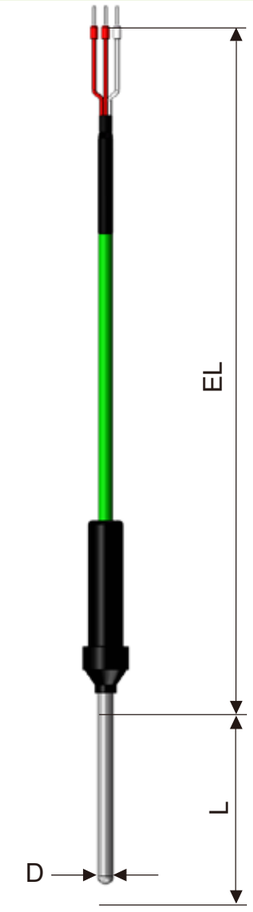
Equipped with aviation connection

09 Handheld temperature sensor

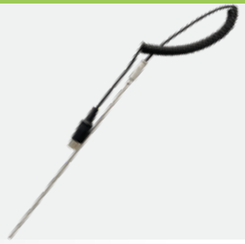
A temperature sensor specially designed and produced for experimental instrument manufacturers, with spring wire, convenient handheld measurement, high accuracy, and good waterproof performance.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20
2	Accuracy	RTD: Classes 1/3B, A, B, Thermocouple：Class I, Class II Thermistor：1%, 2%, 3% DS18B20：nil
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：nil Thermistor：nil DS18B20：nil
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose
7	Cable length EL (mm)	500,1000,2000 or specified
8	Probe diameter D (mm)	2,3,4,5,6,8,10....20 or specified
9	Probe length L (mm)	10~2000 or specified

Product schematic diagram

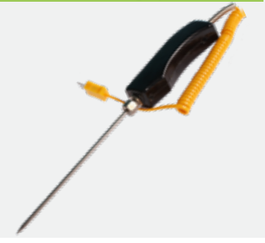


With spring tube



With handle

With handheld grip

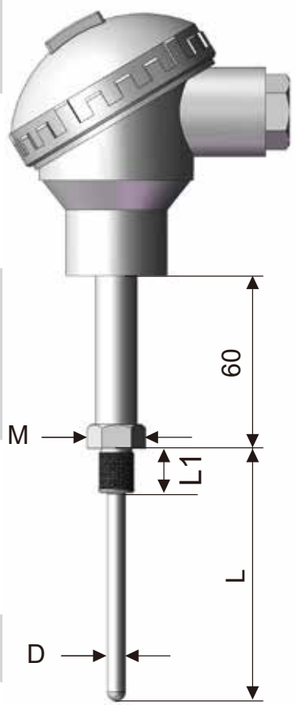


Equipped with USB port

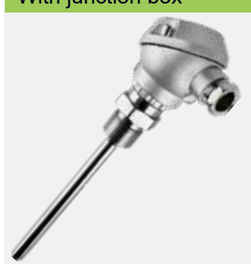
10 Threaded installation assembled temperature sensor

Assembled temperature sensors are made up of temperature sensing elements, metal protective tubes, insulation fillers, extension cords, junction boxes, and temperature transmitters. The product has a wide range of applications and can be made into explosion-proof, anti-corrosion, waterproof, wear-resistant, and high-temperature resistant types for use in different measurement environments.

Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20	
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor：1%, 2%, 3% DS18B20：Nil	
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C	
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：Nil Thermistor：Nil DS18B20：Nil	
5	Probe diameter D (mm)	2,3,4,5,6,8,10... 20 or as specified	
6	Probe length L (mm)	10-2000 or specified	
7	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified	



With junction box



Threaded type

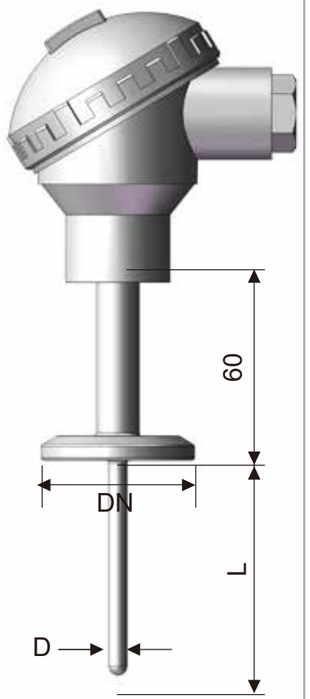
Explosion-proof type

With pull ring

11 Flange mounted assembled temperature sensor

A flange mounted temperature sensor is composed of temperature sensing elements, metal protective tubes, insulation fillers, extension cords, junction boxes, and temperature transmitters. The product has a simple structure and is widely used. It can be made into explosion-proof, anti-corrosion, waterproof, wear-resistant, and high-temperature resistant types according to the special needs of customers, making it easy to use in different measurement environments.

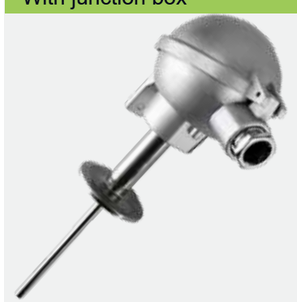
Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple：K/J/N/E/S/T/R/B Thermistor：5K,10K,100K,50K,2.2K DS18B20	
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor：1%, 2%, 3% DS18B20：Nil	
3	Temperature range	RTD：-200~850°C Thermocouple：-280~1820°C Thermistor：-50~300°C DS18B20：-55~125°C	
4	Connection	RTD：T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：Nil Thermistor：Nil DS18B20：Nil	
5	Probe diameter D (mm)	2,3,4,5,6,8,10... 20 or as specified	
6	Probe length L (mm)	10-2000 or specified	
7	Process connection	Flange mounting	



With flange

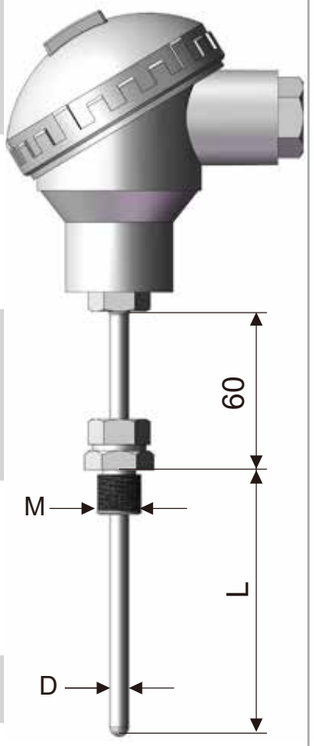
With buckle

With junction box



12 Threaded Temperature Sensor with Adjustable Screw Thread

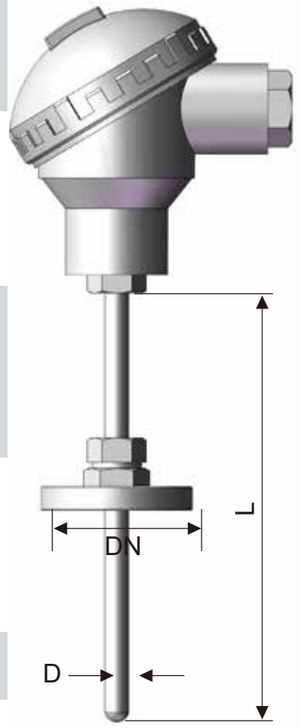
Assembled temperature sensors are made up of temperature sensing elements, metal protective tubes, insulation fillers, extension cords, junction boxes, and temperature transmitters. The product has a wide range of applications and can be made into explosion-proof, anti-corrosion, waterproof, wear-resistant, and high-temperature resistant types for use in different measurement environments.

Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple:：K/J/N/E/S/T/R/B Thermistor:：5K,10K,100K,50K,2.2K DS18B20	
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20： Nil	
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C	
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：Nil Thermistor：Nil DS18B20：Nil	
5	Probe diameter D (mm)	2,3,4,5,6,8,10... 20 or specified	
6	Probe length L (mm)	10-2000 or specified	
7	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified	

Movable thread	Explosion-proof	Cast aluminium	Threaded
			

13 Movable sleeve flange mounting assembled temperature sensor

A flange mounted temperature sensor is composed of temperature sensing elements, metal protective tubes, insulation fillers, extension cords, junction boxes, and temperature transmitters. The product has a simple structure and is widely used. It can be made into explosion-proof, anti-corrosion, waterproof, wear-resistant, and high-temperature resistant types according to the special needs of customers, making it easy to use in different measurement environments.

Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple:：K/J/N/E/S/T/R/B Thermistor:：5K,10K,100K,50K,2.2 DS18B20	
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20： Nil	
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C	
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple：Nil Thermistor：Nil DS18B20：Nil	
5	Probe diameter D (mm)	2,3,4,5,6,8,10... 20 or specified	
6	Probe length L (mm)	10-2000 or specified	
7	Process connection	Installation of movable flange	

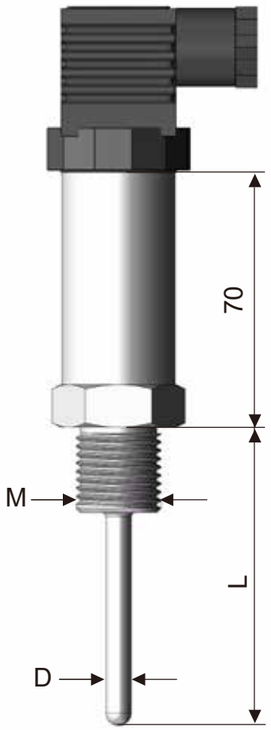



14 Hirschmann connector temperature sensor

A compact threaded installation for industrial measurement, equipped with a Hirschmann connector temperature sensor.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple: K/J/N/E/S/T/R/B Thermistor: 5K, 10K, 100K, 50K, 2.2K DS18B20
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20：Nil
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple: Nil Thermistor: Nil DS18B20：Nil
5	Probe diameter D (mm)	2,3,4,5,6,8,10... 20 or as specified
6	Probe length L (mm)	10-2000 or specified
7	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified

Product schematic diagram

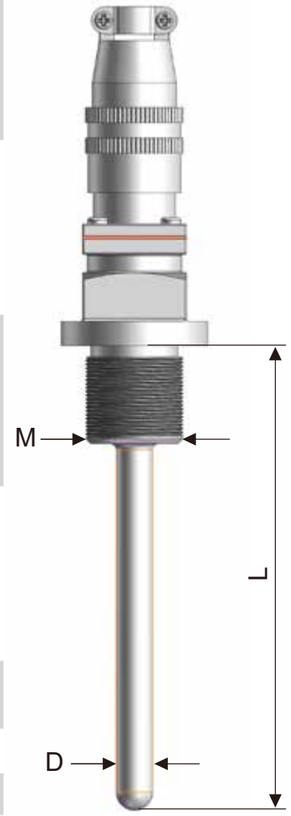


15 Aviation joint temperature sensor

A compact threaded installation for industrial measurement, equipped with a temperature sensor with a split aviation joint.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple: K/J/N/E/S/T/R/B Thermistor: 5K, 10K, 100K, 50K, 2.2K DS18B20
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20：Nil
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple: Nil Thermistor: Nil DS18B20：Nil
5	Probe diameter D (mm)	2,3,4,5,6,8,10... 20 or as specified
6	Probe length L (mm)	10-2000 or specified
7	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified

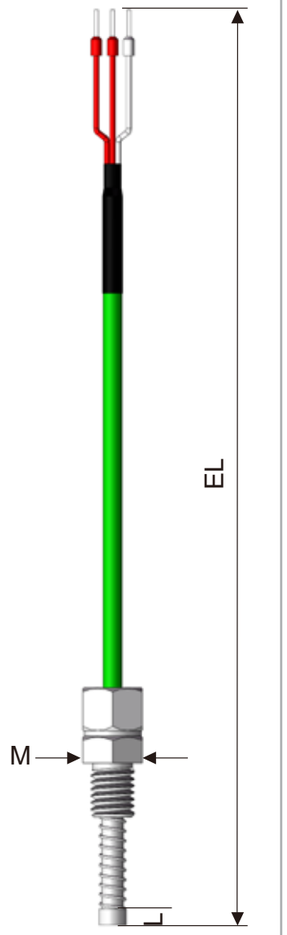
Product schematic diagram

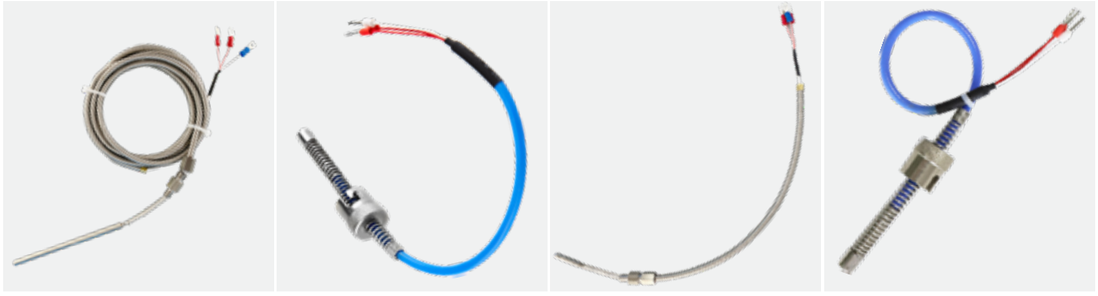


16 Card spring temperature sensor

A movable screw installation with a top tightening thread, adjustable insertion depth, which can be closely attached to the temperature sensor at the measuring point. Used in industries such as motor bearings, food machinery, experimental equipment, and power molds.

Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple: K/J/N/E/S/T/R/B Thermistor: 5K, 10K, 100K, 50K, 2.2K DS18B20	
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20： Nil	
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C	
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple: Nil Thermistor: Nil DS18B20： Nil	
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal	
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose	
7	Cable length EL (mm)	500,1000,2000 or specified	
8	Probe diameter D (mm)	2,3,4,5,6,8,10....20 or specified	
9	Probe length L (mm)	10~2000 or specified	
10	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified	

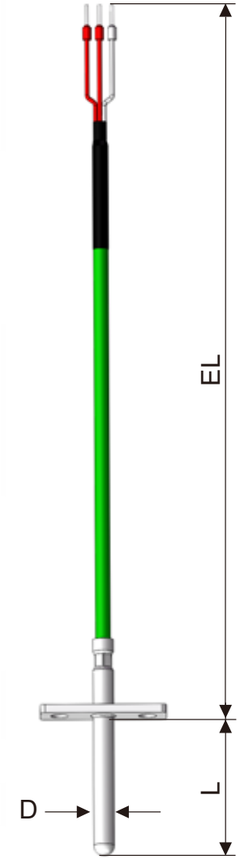


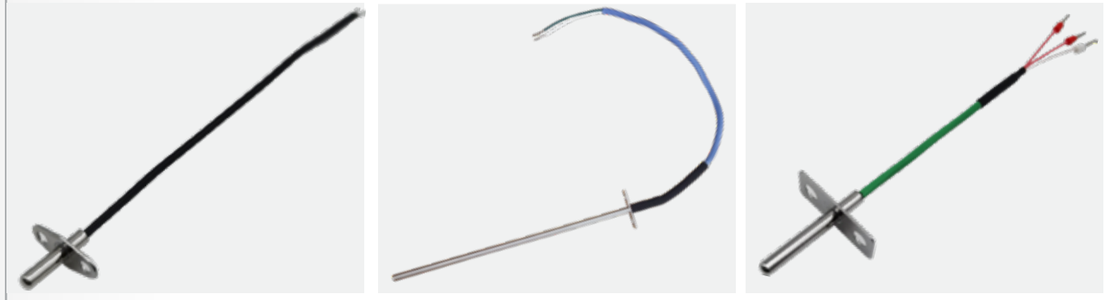


17 Temperature sensor with mounting plate

This series comes with an imported thin film chip package and is equipped with a temperature sensor for measuring solid, gas, liquid, and other temperature sensors.

Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple: K/J/N/E/S/T/R/B Thermistor: 5K, 10K, 100K, 50K, 2.2K DS18B20	
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20： Nil	
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C	
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple: Nil Thermistor: Nil DS18B20： Nil	
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O type terminal	
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose	
7	Cable length EL (mm)	500,1000,2000 or specified	
8	Outer diameter of magnet	DN	

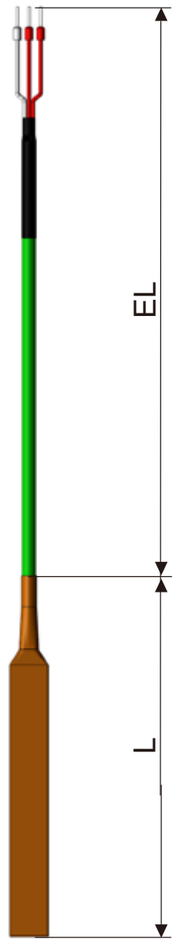




18 Resin surface mount temperature sensor

It is a temperature sensor for motor coils, commonly used in industries such as motor coils and power units.

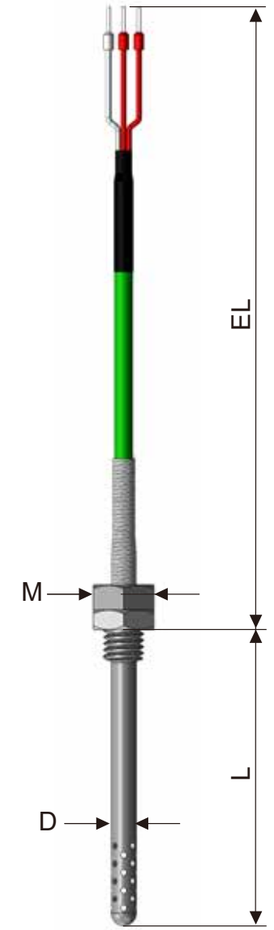
Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple: K/J/N/E/S/T/R/B Thermistor: 5K, 10K, 100K, 50K, 2.2K DS18B20	
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20：Nil	
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C	
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple: Nil Thermistor: Nil DS18B20：Nil	
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal	
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose	
7	Cable length EL (mm)	500,1000,2000 or specified	
8	Shell width W (mm)	2,3,4,5,6,8,10....20 or specified	
9	Shell length L (mm)	10~2000 or specified	
10	Shell thickness H (mm)	Can be specified	

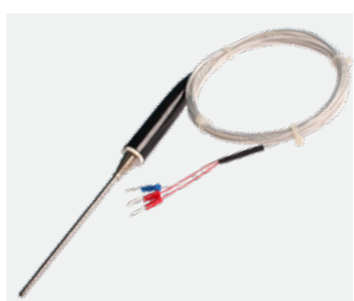


19 Handheld temperature sensor with holes on tube

Handheld temperature sensor, using heat-resistant electric wood as the handle, with holes drilled in the metal protective tube to meet the requirement of rapid sensor response. The size, quantity, and dimensions of the openings can be customized according to the customer's needs. Commonly used in industries such as test chambers, high and low temperature test chambers.

Number	Parameter	Detailed description	Product schematic diagram
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple: K/J/N/E/S/T/R/B Thermistor: 5K, 10K, 100K, 50K, 2.2K DS18B20	
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20：Nil	
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C	
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple: Nil Thermistor: Nil DS18B20：Nil	
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal	
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose	
7	Cable length EL (mm)	500,1000,2000 or specified	
8	Probe diameter D (mm)	2,3,4,5,6,8,10....20 or specified	
9	Probe length L (mm)	10~2000 or specified	
10	Thread specification	M5,M6,M8,M10,M12,M14,M20,or specified	



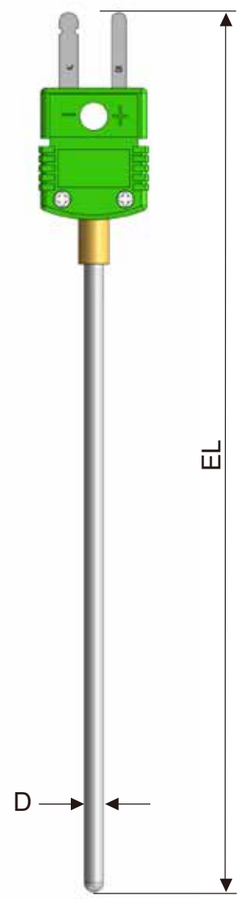


20 Plug in temperature sensor

Plug in temperature sensor, using a nylon connector housing filled with glass fiber and a plug-in connector, can fully utilize its performance even with extremely small diameters. This product can resist carburizing, oxidation, and chlorination in harsh environments.

Number	Parameter	Detailed description
1	Graduation	RTD：Pt100, Pt1000, Pt500, Pt200 Thermocouple: K/J/N/E/S/T/R/B Thermistor: 5K, 10K, 100K, 50K, 2.2K DS18B20
2	Accuracy	RTD: Classes 1/3B, A, B Thermocouple: Class I, Class II Thermistor: 1%, 2%, 3% DS18B20：Nil
3	Temperature range	RTD:-200~850°C Thermocouple:-280~1820°C Thermistor:-50~300°C DS18B20：-55~125°C
4	Connection	RTD: T=two-wire system; S=three-wire system; F=Four wire system Thermocouple: Nil Thermistor: Nil DS18B20：Nil
5	Wire tail processing method	L=exposed, U=U-shaped terminal, Z=pin terminal, Q=connector, O=O-type terminal
6	Anti folding protection	W=No anti folding protection; T=spring; R=hose
7	Cable length EL (mm)	500,1000,2000 or specified
8	Probe diameter D (mm)	2,3,4,5,6,8,10....20 or specified
9	Probe length L (mm)	10~2000 or specified
10	Thread specification	M5,M6,M8,M10,M12,M14,M20, or specified

Product schematic diagram




Bare wire terminal


Tin-plating


U-shaped terminal


Pin terminal


Aviation plug


Female insulation end


Automotive connectors


Car plug

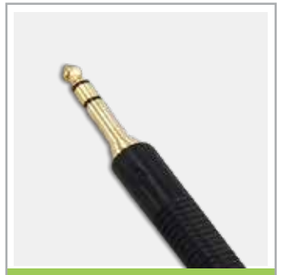

Aluminum terminal


Automotive terminals


Molex Automotive Terminals


Plug terminal


Six pin socket


Earphone plug


USB plug


Automotive terminals

More customized products

Due to various factors such as usage environment, measurement medium, installation location, and product usage, temperature sensors have different parameter requirements for each temperature probe. In order to meet the different needs of different customers, we provide customized services!
You can provide drawings or necessary parameters to customize the temperature sensor probe that is most suitable for you.

Fixed thread type

Adjustable thread
Anti folding

Spring-loaded screw
By compressing the spring, the sensor is tightly attached to the surface of the object being measured

Screw type

Epoxy adhesive encapsulation
Anti folding

Fiberglass sleeve
Semi encapsulated components, accurate temperature measurement, sensitive response

More customized products

Straight pipe type

Two-wire system dry-type transformer dedicated
3 lines as a group, different colors to distinguish three-phase temp. measurement.

DS18B20 digital temperature sensor
USB interface

Straight tube with spring

Threaded type

Used for air compressors
Measure oil temperature

Armored thermocouple with female insulation terminal

Straight pipe piercing type
Penetrating into the interior of an object for temperature measurement

Bend tube thermocouple

More customized products

Car charging system
PTC series connection

Tweezer type
Used for medical purposes

Automotive wiring harness
Used for trucks

Automotive capacitor wiring harness

Dual copper lug probes
Multi temperature point measurement

Temperature detection of automotive battery pack

Soldering TipsT29
Mostly used for automotive motors

Water drop point
Mostly used for automotive capacitors

Installation of copper lug
Mostly used for car charging stations and DC converters

More customized products

Ambient Temperature Sensor
Used for planar temperature measurement

Rolling groove type
Used for wind power temperature control

Pipe clamp type

Battery pack temperature detection

Automotive capacitor wiring harness

Cable type temperature measurement
Measurement of High Voltage Resistant Special Transformers

Installation with flange
Pipeline temperature measurement

With junction box
Threaded installation

Intake temperature measurement

More customized products

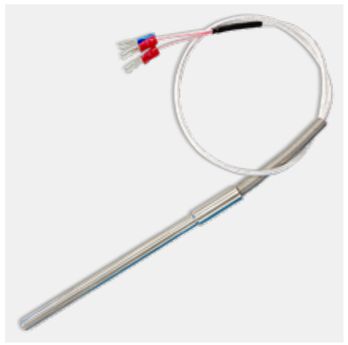
Screw installation
Hirschmann connector lead wire

Four pin plug
Mainly used for compressors

Hirschmann connector
Mainly used for temperature measurement of compressors and industrial equipment

Magnetic suction
Magnetic adsorption

Surface mount with holes
Surface temperature measurement of objects



Step tube type
Anti folding protection, easy to use

OT lug installation
Surface temperature measurement of objects

Right angle strap installation plate
Prevent breakage, Easy to use

Cable type temperature sensor
Surface temperature measurement of wrapped objects

TEMPERATURE AND HUMIDITY SENSOR

- Wall mounted temperature and humidity transmitter
- Duct type temperature and humidity transmitter
- Split-type temperature and humidity transmitter
- Wall mounted temperature and humidity transmitter
- Intelligent temperature and humidity transmitter
- Integrated installation of temperature transmitter
- DIN-Rail Mounting type temperature transmitter
- Intelligent temperature transmission isolation safety barrier

Wall mounted temperature and humidity transmitter

Introduction

Integrated design of sensing and transmission, suitable for temperature and humidity measurement in HVAC indoor environments. Adopting dedicated temperature compensation circuit and linearization processing circuit. The sensor has reliable performance, long service life, and fast response speed.

Application

Suitable for temperature and humidity measurement in communication rooms, offices, factories, workshops, warehouses, hospitals, archives, museums, HVAC systems, building automation and other environments.

Feature

① Beautiful appearance and easy installation
② Accurate measurement and stable output
③ LCD displays temperature and humidity simultaneously
④ Humidity full range temperature compensation
⑤ Wide range operating voltage
⑥ Intelligent processing of single-chip microcontroller with high anti-interference design.

Technical Parameter

Power supply	Current output type (4-20mA three wire system)	DC24V（15V~36VDC）
	Network output type (RS485)	DC24V（12V~36VDC）
Range	Temperature	-20 ~100℃,Customizable range
	Humidity	0~100%RH
Accuracy	Temperature	±0.5℃（0-50℃）
	Humidity	±3%RH（5%-95%RH，25℃）
Work environment	Temperature	-20 ~85℃
	Humidity	10—95%RH
Load capacity	Current output type	≤ 500Ω
	RS485	≤ 1000M
Response time	≤ 15s（Wind speed 1m/s）	
Long term stability	Temperature	≤ 0.1℃ / year
	Humidity	≤ 1%RH/ year
Installation method	Wall-mounted	Screw fixed wall surface
Shell size	ABS （99mm×83mm×22mm）	

Duct type temperature and humidity transmitter

Introduction

Integrated design of sensing and transmission, using dedicated temperature compensation circuit and linearization processing circuit. The sensor has reliable performance, long service life, and fast response speed.

Application

Suitable for temperature and humidity measurement in communication rooms, offices, factories, workshops, warehouses, hospitals, archives, museums, HVAC systems, building automation and other environments.

Feature

① Beautiful appearance and easy installation
② Accurate measurement and stable output
③ Full range humidity and temperature compensation
④ Wide range operating voltage
⑤ Intelligent processing and high anti-interference design of single-chip microcomputer

Technical Parameter

Power supply	Current output type (4-20mA three wire system)	DC24V（15V~36VDC）
	Network output type (RS485)	DC24V（12V~36VDC）
Range	Temperature	-40 ~120℃,Customizable range
	Humidity	0~100%RH
Accuracy	Temperature	±0.5℃（0-50℃）
	Humidity	±2%RH、±3%RH、±5%RH
Work environment	Temperature	-20 ~85℃
	Humidity	10—95%RH
Load capacity	Current output type	≤ 500Ω
	RS485	≤ 1000M
Response time	≤ 15s（Wind speed 1m/s）	
Long term stability	Temperature	≤ 0.1℃ / year
	Humidity	≤ 1%RH/ year
Installation method	Air duct type	Fixed activity flange
Shell size	197mm	

Split-type temperature and humidity transmitter

Introduction

Integrated design of sensing and transmission. Adopting dedicated temperature compensation circuit and linearization processing circuit. The sensor has reliable performance, long service life, and fast response speed.

Application

Suitable for temperature and humidity measurement in communication rooms, offices, factories, workshops, warehouses, hospitals, archives, museums, HVAC systems, building automation and other environments.

Feature

① Beautiful appearance and easy installation
② Accurate measurement and stable output
③ Humidity full range temperature compensation
④ Wide range operating voltage
⑤ Single chip intelligent processing and high anti-interference design

Technical Parameter

Power supply	Current output type (4-20mA three wire system)	DC24V（15V~36VDC）
	Network output type（RS485）	DC24V（12V~36VDC）
Range	Temperature	-20 ~70℃，Customizable range
	Humidity	0~100%RH
Accuracy	Temperature	±0.5℃（0-50℃）±2%RH、
	Humidity	±3%RH、±5%RH
Work environment	Temperature	-20 ~85℃
	Humidity	10—95%RH
Load capacity	Current output type	≤ 500Ω
	RS485	≤ 1000M
Response time	≤ 15s（Wind speed 1m/s）	
Long term stability	Temperature	≤ 0.1℃ / year
	Humidity	≤ 1%RH/ year
Installation method	Wall Mount	
Lead length	Customizable (≤ 1.5m）	

Wall mounted temperature and humidity transmitter

Introduction

Integrated design of sensing and transmission, using dedicated temperature compensation circuit and linearization processing circuit. The sensor has reliable performance, long service life, and fast response speed.

Application

Used in harsh environments such as tobacco, textiles, cold storage, as well as indoor and outdoor environments.

Feature

① Standard current/voltage signal output;
② Specialized digital circuits for precise and stable measurement;
③ Optional local LCD display;
④ Automatic anti condensation function, extending the service life of humidity sensitive components

Technical Parameter

Power supply	Current output type (4-20mA three wire system)	DC24V（15V~36VDC）
	Voltage output type（0-5V/10V）	DC24V（12V~36VDC）
Range	Temperature	-40 ~80℃，Customizable range
	Humidity	0~100%RH
Accuracy	Temperature	＜±0.3℃（25℃）
	Humidity	＜±3%RH（25℃，30%RH～80%RH）
Work environment	Temperature	-20 ~85℃
	Humidity	10—95%RH
Load capacity	Current output type	≤ 50KΩ
	Voltage output type	≤ 50KΩ
Response time	≤ 15s（Wind speed 1m/s）	
Long term stability	Temperature	≤ 0.1℃ / year
	Humidity	≤ 1%RH/ year
Installation method	4-position wiring terminal (spacing 5.0mm)	
Housing material	ABS engineering plastic	

Intelligent temperature and humidity transmitter

Application

Industrial process detection and control; Industrial drying and humidifiers; Urban pipe gallery monitoring; Food and medicine; Meteorological and environmental chamber; Clean room, cultivation room, incubation room, storage room, cooling room; Electronic factory; Agricultural green greenhouse; Aquaculture industry; Indoor water pool; HVAC HVAC system; Building control.

Feature

① Lightning protection, anti surge, anti pulse group, anti RF interference, anti leakage interference;
② Supports multiple signal outputs such as 4... 20mA, O... 10V, RS485, etc;
③ Support isolated output of two current analog signals;
④ Support outputs related to temperature, humidity, dew point, absolute humidity, mixing ratio, etc;
⑤ Wall mounted, air duct mounted, and split probe types are available for selection;
⑥ Adopting advanced coating technology, it has excellent anti pollution ability;
⑦ Compact shell design with IP67 protection capability;
⑧ 15mm probe or 14mm stainless steel probe, supporting sensor fault alarm;
⑨ Can be configured and corrected through the PC configuration tool.

Technical Parameter

Power supply	Current output type (4-20mA three wire system)	DC24V（10V~30VDC）
	Network output type (RS485)	DC24V（10V~30VDC）
Range	Temperature	-40 ~125℃,Customizable range
	Humidity	0~100%RH
Accuracy	Temperature	±0.3℃（0-50℃）
	Humidity	±2%RH
Work environment	Temperature	-20 ~85℃
	Humidity	10—95%RH
Load capacity	Current output type	≤ 500Ω
	RS485	≤ 1000M
Response time	1S	
Long term stability	Temperature	≤ 0.1℃ / year
	Humidity	≤ 0.05%RH/ year
Installation method	Installation of air ducts or wall installations	
Shell material	pc	

Integrated installation of temperature transmitter

Introduction

The temperature transmitter module is a 4-20mA DC output module designed specifically for thermal resistance and thermocouple temperature sensors. Equipped with reverse power protection and temperature sensor open circuit alarm output function. Upgrade the sensor to an integrated temperature transmitter installed in the temperature sensor header.

Feature

① Linearization of thermocouple and thermistor inputs, converted to standard current output
② Convert mV voltage signal input to standard current output
③ Conversion of resistance signal input to standard current output
④ 0~20mA (expandable to 40mA) current input converted to standard current output
⑤ Can feed power to on-site two-wire or three wire equipment and connect the on-site equipment
⑥ Convert the output voltage or current signal into a standard current output
⑦ Output two standard current signals

Technical Parameter

Communication interface	Dual pin interface
Supply Voltage	8.5 ~ 32 VDC
Response time	≦0.4S
Accuracy	±0.1%
Minimum operating voltage	8.5V
Temperature drift	±0.01%/℃
Voltage resistance between input/output/power terminals	≧1500VAC：1min
Resistance between input/output/power terminals	≧100MQ/500V
Input signal	PT100、PT1000、S、R、B、K、E、J、N、T
Output signal	4~20mAD0 (two-wire system)
Working voltage	24VDC(12V~40VDC)
Load capacity	0-500Ω
Protective output current	Maximum output current ≤ 22mA, Minimum output current ≤ 3.9mA
External dimensions	φ45mm H22mm
Installation hole spacing	36mm
Protection level: shell/terminal	IP50/IP20

DIN-Rail mounting type temperature transmitter

Introduction

This series temperature transmission conversion module is a specialized module for current or voltage output that is matched with thermal resistance or thermocouple temperature sensors; This module adopts imported original components, assembled by surface mount technology, with stable and reliable performance, compact size, and easy installation.

Feature

① Output 4-20mA, 0-10mA, 0-20mA; The standard constant current signal is only linearly related to the measured temperature and is independent of the size of the load resistance.
② Output high impedance, large signal, and no RF interference impact; It has explosion-proof, shockproof, moisture-proof, and heat-resistant functions.
③ Equipped with reverse polarity protection function for power supply; And it has functions such as input signal open circuit and misconnection alarm, normal operation indication, output protection, etc.
④ It has strong remote transmission function and is extremely easy to install and use; The thermocouple transmitter itself has cold end compensation, does not require external compensation wires, and other compensation measures.
⑤ Compact size, beautiful appearance, suitable for dense installation, integrated isolation and transmission; Good linearity, good temperature characteristics, high conversion accuracy, and stable performance.
⑥ Guide rail installation, easy loading and unloading; Fully isolated between input/output/power supply, with strong anti-interference ability.

Technical Parameter

Input signal	PT100、PT1000、S、R、B、K、E、J、N、T
Output signal	4~20mA/0~5V/0~10V/1~5V/1~10V
Temperature range	-200℃~+500℃
Working voltage	24VDC(12~30VDC)
Accuracy	±0.2%FS/±0.5%FS
Protective output current	Min≥3.6mA~Max≤27mA
Temperature drift	0.01%FS/1℃
Temperature range	20℃~+80℃，Non corrosive gas
Ambient humidity	5~95% RH (non condensing)
Housing material	ABS
Installation method	Installation of card slot track (track slot width 36mm)
Shell size	94×24 mm H 41mm

Intelligent temperature transmission isolation safety barrier

Introduction

Thermocouples, thermistors, or other millivolt signal inputs suitable for hazardous areas on site are isolated and converted into standard DC signals for output to control systems or other instruments in safe areas. It is an intelligent temperature transmission isolation safety barrier with a USB interface. It can be programmed through a PC and control software to set the input thermocouple type and range, and can verify the zero and full range of the output signal. Single channel, one input, one output. The isolation safety barrier is powered by an independent DC power supply, and the input-output power supply channels are isolated from each other.

Feature

① Adopting advanced digital technology, it performs excellently in suppressing high and low frequency interference signals
② Internally, advanced technologies such as digital calibration, zero free and full-scale potentiometers, automatic dynamic zero calibration, and automatic compensation for temperature drift are adopted.

Technical Parameter

Input signal	PT100、PT1000、S、R、B、K、E、J、N、T
Output signal	4-20mA, other specified currents; 1-5V, other specified voltages
Working voltage	24VDC(12V~40VDC)
Load capacity	When outputting 4-20mA, ≤ 350 Ω
Ambient temperature	-20℃~ +60℃
Compensation accuracy	±1℃ (Compensation range -20℃~+60℃)
Temperature drift	0.01%F.S./℃
Response time	< 0.4s
Isolating power	
Insulation resistance	Between input and output power supplies, ≥100MΩ / 500VDCFlame retardant
Shell material/Protection level	ABS/IP20
External dimensions	16×116×110(mm)