



Xiaogan Huagong Gaoli Electronics Co., Ltd.

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Sales Office

Domestic Market

Home Appliance East China Key Accounts Region
Phone Number: + 8615607290065

Haier /Hisense Key Accounts Region
Phone Number: +8615571275888

GREE Key Accounts Region
Phone Number: +8618871880302

Midea Key Accounts Region
Phone Number: +8618871880308

Home Appliance South China Key Accounts Region
Phone Number: +8615607290070

Automotive Shanghai Region
Phone Number: +8615607290036

Automotive Changzhou Region
Phone Number: +8615607290073

Automotive Guangzhou Region
Phone Number: +8615607290079

Automotive Shenzhen Region
Phone Number: +8615607290062

Automotive Ningbo Region
Phone Number: +8618871880307

Automotive Chongqing Region
Phone Number: +8618871880309

Automotive Liuzhou Region
Phone Number: +8615607290051

Automotive North China Region
Phone Number: +8615607290093

Pressure Sensor Project Team
Phone Number: +8618871880301

Photovoltaic/Energy Storage
/Industrial Manufacturing Project Team
Phone Number: +8618871880303

Ultraviolet Disinfection Module
Project Team
Phone Number: +8615571275888

Overseas Market

Japan Region
Phone Number: +8618871880316

South Korea Region
Phone Number: +8615607290097

The Europe and America Region
Phone Number: +8615607290087



Sensor

PRODUCT CATALOG



COMPANY INTRODUCTION

ENTERPRISE INTRODUCTION

HGGaoli Electronics Co., Ltd. was founded in 1988. With more than 30 years of expertise in sensor industry, HGGaoli has developed into a world-leading supplier of multifunctional sensors and PTC thermal management systems.

Born out of Huazhong University of Science and Technology, HGGaoli holds eight innovation platforms at both provincial and national levels, including the Engineering Research Center for Functional Ceramics of Ministry of Education and the National CNAS Laboratory. HGGaoli has won the title of "Single-product Champion Enterprise in Manufacturing Industry" and the title of "Intellectual Property Demonstration Enterprise" in China, and owns the independent core technologies of chip manufacturing and packaging.

Today, HGGaoli has built up one of the world's largest manufacturing site for multifunctional sensors and PTC heaters in Xiaogan National High-tech Zone, with more than 2000 employees and 2 subsidiaries--Wuhan HG Xin Gaoli Electronics Co., Ltd. and HGGaoli Electronics(Thailand) Co., Ltd. Meanwhile, a new overseas manufacturing base is planned to be established in Europe, and will be put into service in 2026. We currently provide services for numerous well-known enterprises across the world, spreading our business over more than 30 countries and regions including Europe and the United States, Japan and South Korea, and Southeast Asia.

ENTERPRISE SPIRIT

Open Professional Efficient

COMPANY QUALIFICATION



IATF 16949



ISO 9001



ISO 14001



ISO 45001



CQC-Product Certification



VDE-Product Certification



UL-Product Certification



TUV-Product Certification

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Sensing Product Category



Temperature

NTC temperature sensor
/Pt sensor
--Home appliances,
Vehicle, Industrial applications



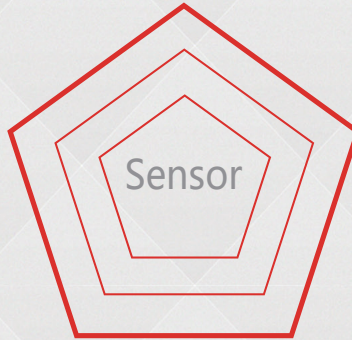
Humidity

MEMS capacitive
humidity sensor
(relative)
--Home appliances,
Vehicle



Air Quality Solution

PM2.5 sensor
AQS sensor
All-in-one air quality sensor
Speed regulation module
Negative ion



Light

Solar/ Ambient light sensor
Solar/ Light/ Rain/
Defogging sensor
Turbidity sensor



Gas

CO₂ Sensor
- applied in fresh air ventilation
system for home/vehicle
Refrigerant leakage sensor
-A2L/A3/combustible gas
sensor and alarm



Pressure

Automotive air duct pressure sensor
Engine oil pressure sensor
Gear-box pressure sensor
Integrated temperature-pressure sensor
Commercial air conditioning duct
pressure sensor



NTC thermistor

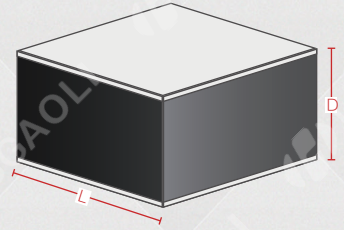
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NTC Thermistor

Thermistor chips

Features

- Small size, high sensitivity and excellent compatibility
- Appearance, dimensions and electrical performance parameters can be customized
- Surface electrode materials can use gold, silver or palladium, etc., according to customer requirements
- High consistency and uniformity in appearance/structure/dimensions, easy for automated equipment assembly and integration



- 银电极和金电极芯片外观示意图
- Silver / gold electrode chip

Applications

- Multi-functional hybrid-design IGBT module, thermopile temperature sensing module
- Temperature measurement, compensation and over-temperature safety protection for intelligent control circuit board
- Thermistors or temperature sensors sealed in glass, resin, spray vulcanization, etc.

Technical Parameters

| Product Type | D (mm) | L (mm) | Nominal Resistance (KΩ) | B Value | Operating Temperature | Time Constant |
|--------------|-------------|-------------|-------------------------|-------------|-----------------------|---------------|
| 1 | 0.20 ~ 0.60 | 0.30 ~ 1.50 | 1.0 ~ 1300 | 3200 ~ 4500 | -50 ~ +130℃ | < 5s |



NTC thermistor



NTC Thermistor

SMD NTC thermistor



Features

- Miniaturized, lightweight, high sensitivity
- High reliability with coated chips
- The accuracy of B value can reach up to $\pm 0.5\%$, and parameters can be customized

Applications

- Temperature sensing and measurement for rechargeable batteries on intelligent devices, such as smart phones, wearable devices, etc.
- Temperature compensation for IC and crystal oscillator on mobile communication devices
- Energy storage, power battery cell temperature detection

Technical Parameters

| Product Type | Size L × W × T(mm) | Nominal Resistance (K Ω) | B Value(25/50)(K) | Operating Current(25 $^{\circ}$ C)(mA) |
|--------------|--------------------|----------------------------------|-------------------|--|
| 0603 | 1.60 × 0.80 × 0.80 | 1.0~1300 | 3380~4500 | 0.02~1.00 |
| 0805 | 2.00 × 1.25 × 0.85 | 1.0~1300 | 3380~4500 | 0.02~1.40 |
| 1206 | 3.20 × 1.60 × 0.85 | 1.0~1300 | 3380~4500 | 0.03~0.66 |



NTC thermistor

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NTC Thermistor

Radial glass-encapsulated (GRT) thermistor



Features

- Small head size: 0.8~2.2mm
- Operating temperature: $-60^{\circ}\text{C} \sim +400^{\circ}\text{C}$
- Glass-encapsulated technology
- Small size, fast response, stable structure
- Compatible to all kinds of packaging technologies
- Stable and reliable performance in high temperature and high humidity environments

Applications

- Kitchen appliances: electric iron, dishwasher, coffee machine, induction cooker, rice cooker, microwave oven, barbecue machine, bread machine
- Hot water supply system: water purifier, water heater, wall-mounted furnace, boiler
- Industrial equipment: battery unit, engine, oil tank
- Medical care: body surface thermometer, medical probes

Technical Parameters

| Product Type | P/N | Nominal Temperature($^{\circ}\text{C}$) | Nominal Resistance($\text{K}\Omega$) | B Value | Operating Temperature |
|--------------|-------------|---|--|---------|---|
| GRT | GRI33222100 | 100 | 3.3 | 3970 | $-60^{\circ}\text{C} \sim +400^{\circ}\text{C}$ |
| | GRI10411025 | 25 | 100 | 3950 | $-60^{\circ}\text{C} \sim +400^{\circ}\text{C}$ |
| | GRK10235200 | 200 | 1 | 4537 | $-60^{\circ}\text{C} \sim +400^{\circ}\text{C}$ |
| | GRB34211050 | 50 | 3.485 | 3450 | $-60^{\circ}\text{C} \sim +400^{\circ}\text{C}$ |
| | GRB10311025 | 25 | 10 | 3435 | $-60^{\circ}\text{C} \sim +400^{\circ}\text{C}$ |

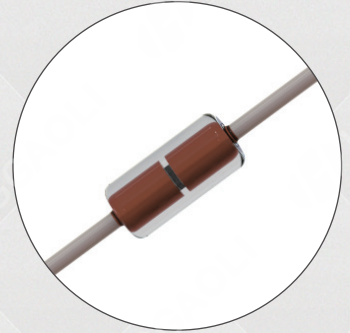


NTC thermistor



NTC Thermistor

Axial glass-encapsulated (GAT) thermistor



Features

- Adopt glass-encapsulated technology, good sealing performance
- Stable and reliable performance in high temperature and high humidity environments
- Small size, high accuracy, fast response, uniformity in structure
- D0-35 packaging, available for automatic installation on PCB

Applications

- Kitchen appliances: air purifier, refrigerator, freezer, air conditioner, washing machine, dryer, dishwasher
- Cooking appliances: induction cooker, rice cooker, microwave oven, barbecue machine, bread machine
- Hot water supply system: water heater, hot water kettle
- Industrial equipment: intelligent electricity meter, container, refrigerator, water generator, dehumidifier
- Medical care: body surface thermometer, eye care instrument, massager

Technical Parameters

| Product Type | P/N | Nominal Temperature(°C) | Nominal Resistance(K Ω) | B Value | Operating Temperature |
|--------------|-------------|-------------------------|---------------------------------|---------|-----------------------|
| GAT | GAH63222000 | 0 | 6.35 | 3830 | -60°C ~ +300°C |
| | GAC50211025 | 25 | 5 | 3470 | -60°C ~ +300°C |
| | GAI50211025 | 25 | 5 | 3950 | -60°C ~ +300°C |
| | GAA50211025 | 25 | 5 | 3274 | -60°C ~ +300°C |
| | GAB10311025 | 25 | 10 | 3380 | -60°C ~ +300°C |
| | GAF10311025 | 25 | 10 | 3700 | -60°C ~ +300°C |
| | GAI10311025 | 25 | 10 | 3950 | -60°C ~ +300°C |
| | GAJ10311025 | 25 | 10 | 4100 | -60°C ~ +300°C |
| | GAI15311025 | 25 | 15 | 3950 | -60°C ~ +300°C |
| | GAI20311025 | 25 | 20 | 3950 | -60°C ~ +300°C |
| | GAI50311025 | 25 | 50 | 3950 | -60°C ~ +300°C |
| | GAI10411025 | 25 | 100 | 3950 | -60°C ~ +300°C |
| | GAK10235200 | 200 | 1 | 4537 | -60°C ~ +300°C |
| | GAR50322080 | 80 | 50 | 4450 | -60°C ~ +300°C |
| | GAI50211090 | 90 | 5 | 3950 | -60°C ~ +300°C |
| | GAF32222060 | 60 | 3.243 | 3760 | -60°C ~ +300°C |

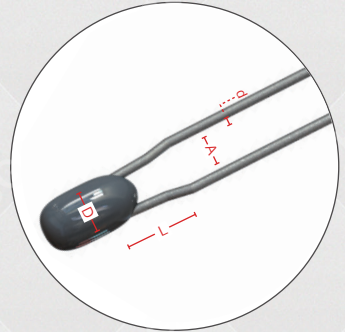


NTC thermistor



NTC Thermistor

Radial epoxy-encapsulated (ERT) thermistor



Features

- High accuracy
- Small size, fast response
- Long-term stable performance, good consistency and connectivity with high cost-effectiveness
- Excellent compatibility, can be directly connected to PCB or be applied with various packaging structures

Applications

- Smart home, medical treatment, automotive electronics and other fields
- Digital remote control
- Refrigerator air compressor, refrigerator, freezer
- Car air conditioner duct and inside car temperature measurement
- Temperature measurement inside and outside the car, air conditioner duct, water tank, etc.
- EV / HEV battery pack
- Portable thermometer
- Massager
- Eye care instrument

Technical Parameters

| Product Type | Wire Diameter d (mm) | Diameter D (mm) | Length (mm) | Center Distance A (mm) |
|--------------|----------------------|---------------------|-------------|------------------------|
| ERT | 0.4 ± 0.02 | 2.5 ~ 4.0 | 4.0 ~ 7.0 | 2.0 + 0.3 |
| | 0.4 ± 0.02 | Max2.0 or 2.0 ~ 4.0 | 4.0 ~ 7.0 | 1.8 ± 0.3 |
| | 0.4 ± 0.02 | 2.0 ~ 4.0 | 4.0 ~ 7.0 | 2.1 ± 0.2 |
| | 0.5 ± 0.02 | 2.0 ~ 4.0 | 4.0 ~ 7.0 | 2.7 ± 0.4 |
| | 0.5 ± 0.02 | 2.0 ~ 4.0 | 4.0 ~ 7.0 | 3.2 ± 0.4 |

* The size and line diameter can be customized according to the requirement



NTC thermistor



NTC Thermistor

Insulated lead epoxy-encapsulated (ERT) thermistor



Features

- High accuracy
- Small size, fast response
- Long-term stable performance, good consistency and connectivity with high cost-effectiveness
- Excellent compatibility, can be directly connected to PCB or be applied with various packaging structures

Applications

- Digital display remote control, refrigerator, air conditioner, automobile, thermometer, electric tools mobile power supply, wireless charger, battery pack, etc.

Technical Parameters

| Product Type | Wire Skin Material | Wire Mode | Diameter D (mm) | Length (mm) | Wire Length (mm) |
|--------------|--------------------|-----------|-----------------|-------------|------------------|
| ERT | PVC | 30AWG | 2.0 ~ 2.5 | 6.0 ~ 8.0 | 20 ~ 200 |
| | PVC | 28AWG | 2.5 ~ 3.0 | 6.0 ~ 8.0 | 20 ~ 200 |
| | PVC | 26AWG | 3.0 ~ 3.5 | 6.0 ~ 9.0 | 20 ~ 200 |
| | XLPE | 30AWG | 2.0 ~ 2.5 | 6.0 ~ 8.0 | 20 ~ 200 |
| | XLPE | 28AWG | 2.5 ~ 3.0 | 6.0 ~ 8.0 | 20 ~ 200 |
| | XLPE | 26AWG | 3.0 ~ 3.5 | 6.0 ~ 9.0 | 20 ~ 200 |
| | FEP | 30AWG | 2.0 ~ 2.5 | 6.0 ~ 8.0 | 20 ~ 200 |
| | FEP | 28AWG | 2.0 ~ 2.5 | 6.0 ~ 8.0 | 20 ~ 200 |



NTC temperature sensor - Home appliances



Air conditioning/ Water heater/ Air heater temperature sensor



Features

- Specialized waterproof package, excellent waterproof / moisture-resistant performance
- High thermal stability and low annual drift rate on the resistance
- Time constant: 5~20s

Applications

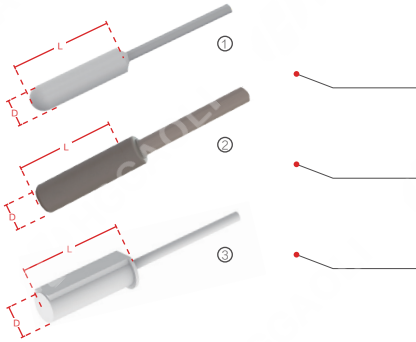
- For air conditioner to detect indoor/outdoor temperature, and temperature of coil and compressor
- For electric/air energy water heater to measure the temperature of water tank

Technical Parameters

| Product Type | P/N | D (mm) | L (mm) | Nominal Temp(°C) | Nominal Resistance (KΩ) | B Value | Operating Temperature |
|--------------|--------------|------------------|--------|------------------|-------------------------|--------------|-----------------------|
| 1 | WF41503XX025 | φ5-7 | 24-30 | 25 | 50 | 3950 (25/50) | -40°C~+150°C |
| | WF41203XX025 | φ5-7 | 24-30 | 25 | 20 | 3950 (25/50) | -40°C~+105°C |
| | WF4C502XX025 | φ5-7 | 24-30 | 25 | 5 | 3470 (25/50) | -40°C~+105°C |
| | WF4J103XX025 | φ5-7 | 24-30 | 25 | 10 | 4100 (25/50) | -40°C~+105°C |
| | WF41212XX085 | φ5-7 | 24-30 | 85 | 2.113 | 4000 (25/50) | -40°C~+125°C |
| | WF4R503XX080 | φ5-6 | 24-30 | 80 | 50 | 4450 (25/50) | -40°C~+150°C |
| 2 | WF4F103XX025 | φ4.2-6.0 | 24-25 | 25 | 10 | 3700 (25/50) | -40°C~+105°C |
| | WF11203XX025 | φ4-5 | 15-19 | 25 | 20 | 3950 (25/50) | -40°C~+105°C |
| | WF1C502XX025 | φ4-5 | 15-19 | 25 | 5 | 3470 (25/50) | -40°C~+105°C |
| | WF1J103XX025 | φ4-5 | 15-19 | 25 | 10 | 4100 (25/50) | -40°C~+105°C |
| 3 | WF1F103XX025 | φ4-5 | 15-19 | 25 | 10 | 3700 (25/50) | -40°C~+105°C |
| | WF7C502XX025 | (φ5-6) * (10-11) | 35-40 | 25 | 5 | 3470 (25/50) | -40°C~+105°C |

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HGGAOINTC temperature sensor
- Home appliances

Temperature sensor for refrigerator/ freezer/ refrigerating machine



Features

- Excellent low-temperature performance
- Time constant: 15-30s
- Low annual drift rate

Applications

- Temperature measurement of cold storage, freezer, evaporator for refrigerator

Technical Parameters

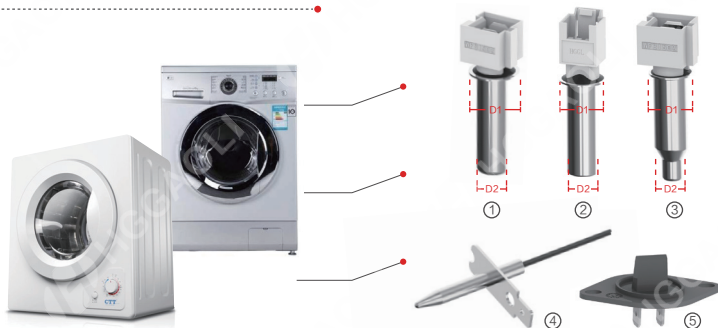
| Product Type | P/N | D (mm) | L (mm) | Nominal Temp (°C) | Nominal Resistance (K Ω) | B Value | Operating Temperature |
|--------------|--------------|--------------------|---------|---------------------|-----------------------------------|--------------|-----------------------|
| 1 | WF5B602XX000 | ϕ 6.0 | 25 | 0 | 6 | 3298(0/25) | -40°C ~ +80°C |
| | WF5C602XX000 | ϕ 7.0 | 25 | 0 | 6 | 3416(0/25) | -40°C ~ +105°C |
| | WF5H502XX005 | ϕ 6 ~ 7 | 25 | 5 | 5.06 | 3839(5/25) | -50°C ~ +80°C |
| | WF5H602XX000 | ϕ 6 ~ 7 | 25 | 0 | 6.35 | 3830(0/25) | -50°C ~ +80°C |
| | WF5H173XX-18 | ϕ 6 ~ 7 | 25 | -18 | 16.9 | 3771(-18/25) | -50°C ~ +80°C |
| 2 3 | WF5H193XX-20 | ϕ 6 ~ 7 | 25 | -20 | 18.9 | 3770(-20/25) | -50°C ~ +80°C |
| | WF51163XX000 | ϕ 8.0 | 30 | 0 | 6.33 | 3931(25/50) | -40°C ~ +80°C |
| | WF51323XX000 | ϕ 9.8 ~ 10.45 | 30-43.5 | 0 | 32.51 | 3977(25/85) | -40°C ~ +80°C |



NTC temperature sensor – Home appliances

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Temperature sensor for automatic washing machine/ dryer



Features

- CTI testing: 250V
- GWT testing: 650/750 °C
- Time constant: 10~30s
- Ball pressure test: 125 °C
- Suitable for RAST 2.5/5.0 connector system

Applications

- Water temperature of washing machine
- Dryer vent temperature of washing- drying machine or dryer

Technical Parameters

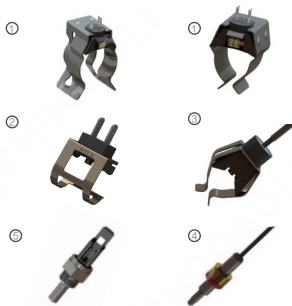
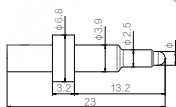
| Product Type | P/N | D1 Dimension1(mm) | D2 Dimension2(mm) | Nominal Resistance (K Ω) | Operating Temperature |
|--------------|--------------|----------------------|----------------------|--|-----------------------|
| 1 | WF31122XX060 | 14.5 | 10 | R60°C=1.204KΩ ± 2%, R25°C=4.815KΩ ± 3.5% | -30 ~ +130°C |
| | WF31322XX060 | 12.4 | 10 | R60°C=3.243KΩ ± 2%, B25/100=3760KΩ ± 1.5% | -30 ~ +130°C |
| 2 | WF31103XX025 | 12.4 | 10 | R25°C=10KΩ ± 1.5%, B25/85=3975KΩ ± 1.5% | -30 ~ +130°C |
| 3 | WF31122XX060 | 12.4 | 10 | R60°C=1.204KΩ ± 2%, R25°C=4.815KΩ ± 3.5% | -30 ~ +130°C |
| 4 | WF31103XX025 | / | / | R25°C=10KΩ ± 1.5%, B25/85=3975KΩ ± 1.5% | -30 ~ +150°C |
| 5 | WF71123XX060 | / | / | R60°C=12.44KΩ ± 2%, R25°C=50KΩ ± 5% | -30 ~ +150°C |

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NTC temperature sensor
– Home appliances



Temperature sensor for hot water supply system/ hanging furnace/ water heaters/ bidets/ intelligent toilet cover



Features

- Unique patented pipe clamp sensor, with high sensitivity and excellent performance
- Miniaturized temperature probe with fast and accurate response

Applications

- Direct or indirect temperature measurement of inlet and outlet pipes of water heater/ hanging furnace/ intelligent toilet

Technical Parameters

| Product Type | P/N | Nominal Temp (°C) | Nominal Resistance (KΩ) | B Value | Operating Temperature |
|--------------|--------------|-------------------|-------------------------|--------------|-----------------------|
| 1 | WF7B10311025 | 25 | 10 | 3435 (25/85) | -20 ~ +105°C |
| 2 | WF4B10322025 | 25 | 10 | 3450 (0/100) | -20 ~ +105°C |
| 3 | WF4B10311025 | 25 | 10 | 3435 (25/85) | -20 ~ +105°C |
| 4 | WF3I50311025 | 25 | 50 | 3950 (25/50) | -20 ~ +105°C |
| 5 | WF4B10311025 | 25 | 10 | 3450 (0/100) | -20 ~ +105°C |



NTC temperature sensor
- Home appliances

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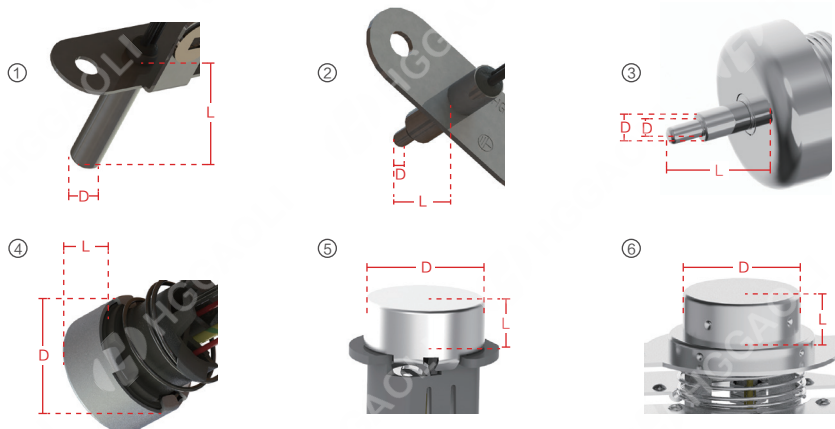
Temperature sensor for rice cooker/ pressure cooker lid

Temperature sensor for rice cooker/ pressure cooker chamber



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NTC temperature sensor
- Home appliances



Features

- Fast response and high sensitivity
- Adaptable to different installation options
- Shell can be grounded, contact resistance $< 0.05 \Omega$
- Time constant: 3~10s

Applications

- Lid and steam temperature of rice cooker/pressure cooker
- The bottom temperature of rice cooker/pressure cooker

Technical Parameters

| Product Type | P/N | D (mm) | L (mm) | Nominal Temp (°C) | Nominal Resistance (K Ω) | B Value | Operating Temperature |
|--------------|--------------|--------------------------|--------|-------------------|----------------------------------|-------------|-----------------------|
| 1 | WF3I104XX025 | $\phi 4$ | 18 | 25 | 100 | 3950(25/50) | -30°C ~ +150°C |
| | WF3G592XX085 | $\phi 4$ | 18 | 85 | 5.91 | 3820(25/85) | -30°C ~ +150°C |
| 2 | WF3I104XX025 | $\phi 2.1 \sim \phi 4.5$ | 13.4 | 25 | 100 | 3950(25/50) | -30°C ~ +150°C |
| | WF3I332XX100 | $\phi 2.1 \sim \phi 4.5$ | 13.4 | 100 | 3.3 | 3970(0/100) | -30°C ~ +150°C |
| 3 | WF3K352XX114 | $\phi 2.1 \sim \phi 3.5$ | 10 | 114 | 3.4513 | 4200(25/50) | -30°C ~ +150°C |
| 4 | WF6I104XX025 | $\phi 17.3$ | 7.3 | 25 | 100 | 3950(25/50) | -30°C ~ +250°C |
| 5 | WF6I104XX025 | $\phi 27$ | 11.5 | 25 | 100 | 3950(25/50) | -30°C ~ +250°C |
| 6 | WF6I104XX025 | $\phi 27$ | 15 | 25 | 100 | 3950(25/50) | -30°C ~ +250°C |



NTC temperature sensor - Home appliances

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Temperature sensor and anti-overflow bar for health kettle/ soy milk maker/ water purifier/ coffee machine



Features

- Fast response and high sensitivity
- Adaptable to different installation methods
- Comply with food/ drinking water safety standards
- Time constant: 0.5~10s

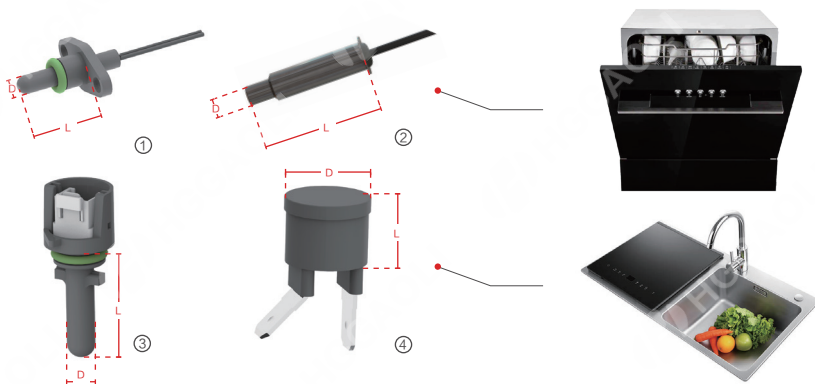
Applications

- Temperature measurement of liquid or heater base of water appliances, such as soy milk maker, kettle, water purifier, coffee machine, etc.

Technical Parameters

| Product Type | P/N | D (mm) | L (mm) | Nominal Temp (°C) | Nominal Resistance (KΩ) | B Value | Operating Temperature |
|--------------|--------------|--------|--------|-------------------|-------------------------|---------|-----------------------|
| 1 | WF3167222100 | φ 2.5 | 19 | 100 | 6.71 | 3950 | -40°C ~ +150°C |
| 2 | WF3110411025 | φ 11 | 20.5 | 25 | 100 | 3950 | -40°C ~ +150°C |
| 3 | WF3K10422025 | φ 4 | 71.2 | 25 | 100 | 4200 | -40°C ~ +105°C |
| 4 | WF3110412025 | φ 4 | 23 | 25 | 100 | 3950 | -40°C ~ +125°C |

Temperature sensor for dishwasher and smart faucet



Features

- Fast response and high sensitivity
- Various temperature measurement methods

Applications

- Inlet and outlet liquid temperature of dishwasher or faucet

Technical Parameters

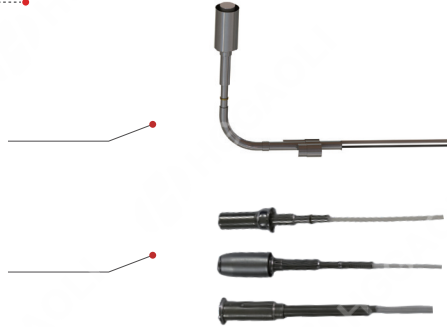
| Product Type | P/N | D (mm) | L (mm) | Nominal Temp (°C) | Nominal Resistance (KΩ) | B Value | Operating Temperature |
|--------------|--------------|---------|--------|-------------------|-------------------------|---------|-----------------------|
| 1 | WF5B103XX025 | φ 3.9 | 14.7 | 25 | 10 | 3435 | -30°C ~ +105°C |
| 2 | WF3I103XX025 | φ 3.5 | 22 | 25 | 10 | 3988 | -30°C ~ +105°C |
| 3 | WF5I173XX050 | φ 8.5 | 36 | 50 | 17 | / | -30°C ~ +105°C |
| 4 | WF5I103XX025 | φ 15.85 | 12.32 | 25 | 10 | / | -30°C ~ +105°C |



NTC temperature sensor
- Home appliances



Anti dry overheating temperature sensor for gas stove



Features

- Multiple patented designs, high temperature resistance and thermal stability
- Satisfy customer's needs in product's frying and baking functions
- Cold and hot shock test 350 °C, 10000 cycles, Change Impact of product resistance $\Delta R \leq \pm 3\%$

Applications

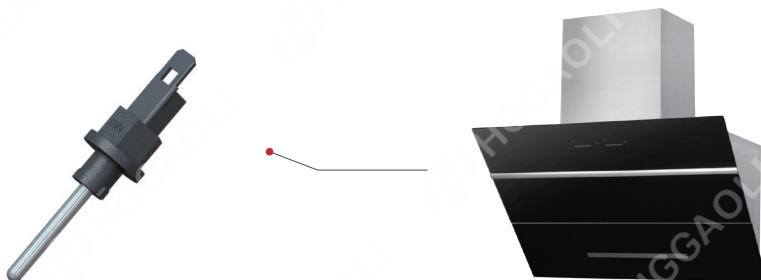
- Anti dry overheating temperature sensor for gas stove and intelligent ignition device for gas stove

Technical Parameters

| Product Type | P/N | L1 (mm) | L2 (mm) | Nominal Temp (°C) | Nominal Resistance (KΩ) | B Value | Operating Temperature | Allowable Maximum Power |
|--------------|--------------|-----------|---------|-------------------|-------------------------|---------|------------------------------|-------------------------|
| 1 | WF7O112XX200 | 123/111.5 | 94.5/83 | 200 | 1.1 | 4500 | -50°C ~ +350°C , Max650°C | 10mW |
| 2 | WF7H118XX200 | 123/111.5 | 94.5/83 | 200 | 1.8 | 4200 | | 10mW |
| 3 | WF7K102XX200 | 123/111.5 | 94.5/83 | 200 | 1 | 4537 | | 10mW |
| 4 | WF7K102XX200 | 123/111.5 | 94.5/83 | 200 | 1 | 4600 | | 10mW |
| 5 | WF7S802XX200 | 123/111.5 | 94.5/83 | 200 | 8 | 5300 | | 10mW |

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HGGAOINTC temperature sensor
– Home appliances

Temperature probe for range hood



Features

- High degree of standardization: convenient for distributed installation and replacement
- Good heat conduction and fast response

Applications

- Chimney temperature sensor of range hood

Technical Parameters

| Product Type | P/N | Nominal Temp (°C) | Nominal Resistance (KΩ) | B Value | Operating Temperature |
|--------------|--------------|---------------------|---------------------------|--------------|-----------------------|
| 1 | WF3B103XX025 | 25 | 10 | 3450 (0/100) | -30°C ~ +120°C |



NTC temperature sensor - Home appliances



Oven temperature sensor



Features

1

- Measure air temperature in the chamber of steam/ baking/microwave oven
- Unique patented inner packaging technology, with both fast response and excellent insulation performance
- Highly consistent response speed, satisfying the pot core temperature CPK > 1.33
- (PT) Standard temperature resistant scheme MAX250°C & MAX528°C

2

- Meet food contact materials standards of GB/LFGB/FDA
- Can directly contact/ be inserted into food to measure temperature
- Adaptable to 2.5mm, 3.5mm and 6.35mm plugs
- Accompanied by 450 °C ultra-high temperature resistant cavity connector, matching the oven's self-cleaning function
- Operating Temperature Range: -30°C~+300°C

3

- Monitor the temperature of the heating plate, control the power of the heating plate, trigger water replenishment and other functions
- Meet the high temperature requirement up to 400 °C
- Patented design of heat collecting ring, matching the wall-mounting installation method

Technical Parameters

| Product Type | P/N | Nominal Temp (°C) | Nominal Resistance (K Ω) | Operating Temperature | B Value |
|---------------|--------------|---------------------|----------------------------|-----------------------|---------------|
| Chamber Temp. | WF71104XX025 | 25 | 100 | -40°C ~ +250°C | 4300(100/200) |
| | WF60102XX200 | 200 | 1 | -40°C ~ +250°C | 4600(100/200) |
| Plate Temp. | WF31104XX025 | 25 | 100 | -40°C ~ +250°C | 3950(25/50) |
| | WF3K102XX200 | 200 | 1 | -40°C ~ +250°C | 4537(100/200) |
| Probe Temp. | WF71503XX100 | 100 | 3.27 | -40°C ~ +250°C | 3970(0/100) |
| | WF71503XX075 | 75 | 7.214 | -40°C ~ +250°C | 3970(0/100) |

Pt platinum resistance

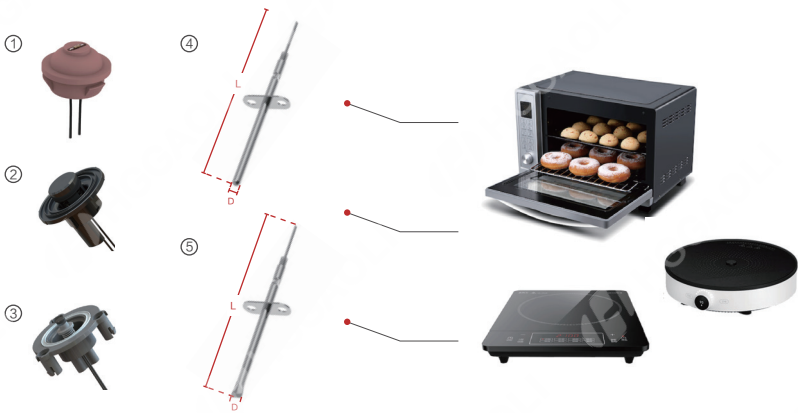
| Product Type | P/N | Nominal Temp (°C) | Nominal Resistance (K Ω) | Operating Temperature | TCR |
|------------------------|---------------|---------------------|----------------------------|-----------------------|-------------------|
| Pt Platinum Resistance | WF3PT3850X102 | 0 | PT100/500/1000 | WF3PT3850X102 | TCR=3850/TCR=3750 |

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NTC temperature sensor
– Home appliances



Temperature sensor for induction cooker/ microwave oven / steam oven



Features

- High-temperature resistant, superior thermal stability
- Can integrate with fuse and other temperature protection devices
- Multiple temperature measuring points

Applications

- Measure heating plate and bottom temperature of induction cooker, microwave oven
- Measure chamber temperature of microwave oven and steam oven

Technical Parameters

| Product Type | P/N | D (mm) | L (mm) | Nominal Temp (°C) | Nominal Resistance (KΩ) | B Value | Operating Temperature |
|--------------|---------------|---------|----------|-------------------|-------------------------|---------------|-----------------------|
| 1 | WF71104XX025 | / | / | 25 | 100 | 4300(100/200) | -40°C ~ +250°C |
| 2 | WF60102XX200 | / | / | 200 | 1 | 4600(100/200) | -40°C ~ +250°C |
| 3 | WF6H104XX025 | / | / | 25 | 100 | 3950 (25/50) | -40°C ~ +250°C |
| 4 | WF3K102XX200 | φ4 ~ φ6 | 50 ~ 180 | 200 | 1 | 4537(100/200) | -40°C ~ +250°C |
| 5 | WF3PT10XXX000 | φ4 ~ φ6 | 50 ~ 180 | | PT100/500/1000 | | -40°C ~ +535°C |



NTC temperature sensor – Home appliances

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Air fryer/ fryer temperature sensor



Features

- Unique patented inner packaging technology, with both high response speed and excellent insulation performance
- Consistent response speed, meeting the requirements of pot core temperature $CPK > 1.33$ and pot bottom temperature damage $< 10\text{ }^{\circ}\text{C}$
- Operating temperature: $-30\text{ }^{\circ}\text{C} \sim +300\text{ }^{\circ}\text{C}$

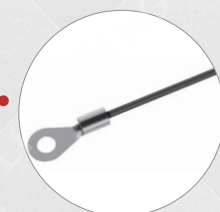
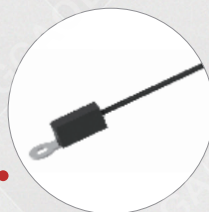
Applications

- Measure the cavity temperature of the air fryer
- Measure the pan temperature of the fryer

Technical Parameters

| Product Type | P/N | Nominal Temp ($^{\circ}\text{C}$) | Nominal Resistance ($\text{K}\Omega$) | B Value | Operating Temperature |
|--------------|--------------|-------------------------------------|---|---------------|---|
| 1 | WF71104XX025 | 25 | 100 | 3950 (25/50) | $-40\text{ }^{\circ}\text{C} \sim +250\text{ }^{\circ}\text{C}$ |
| 2 | WF60102XX200 | 200 | 1 | 4537(100/200) | $-40\text{ }^{\circ}\text{C} \sim +250\text{ }^{\circ}\text{C}$ |

Temperature sensor for photovoltaic inverter & energy storage



Features

- Meet higher requirements for insulation, able to withstand AC4000V
- Plane time constant: 7–20s, temperature–difference heat loss <15°C
- Operating temperature: – 40°C~+200°C

Applications

- IGBT module temperature control and battery pack temperature control system in photovoltaic inverter and energy storage converter



NTC temperature sensor
- Industrial control appliances

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Cell Connection System



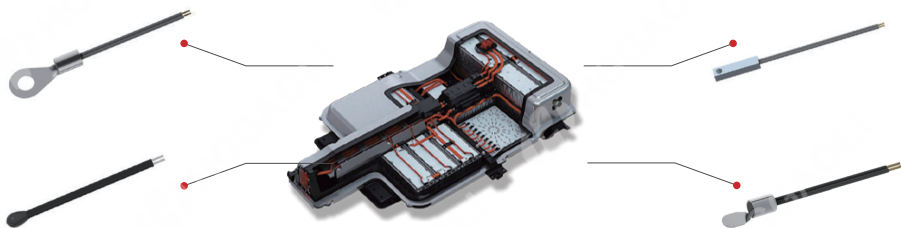
■ Features

- Highly integrated, enabling connection of cells, data acquisition of voltage & temperature, and fast response
- Insulation and withstand voltage performance: withstand voltage DC4300V $\leq 0.1\text{mA}$, insulation DC1000V $\geq 500\text{M}\Omega$
- Operating temperature: $-40^{\circ}\text{C} \sim +100^{\circ}\text{C}$

■ Applications

- From power generation, transmission, transformation, distribution to electricity consumption, it can be comprehensively used in power battery field, and energy storage at pack/ cluster/ cabin/ station level
- Products are involved in multiple fields including household energy storage, industrial/ commercial energy storage, 5G base stations, data centers and automobile/ freighter power battery, etc.

EV/HEV battery package temperature sensor



Features

- Fast response, high measurement accuracy, up to 0.1 °C
- Easy to assemble, with a variety of installation options
- Flexible and can be close to the battery cell, the minimum installation thickness can be less than 3mm

Applications

- EV/HEV battery package temperature detection

Technical Parameters

Resistance, B value
can be customized

Withstand Voltage \geq AC 3500V

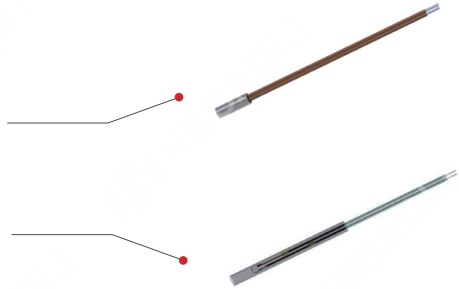
Operating Temperature
-40°C ~ +150°C



NTC temperature sensor In-vehicle applications



Temperature sensor for EV/HEV charging gun, charging pole



Features

- Moisture resistant, corrosion resistant, withstand high voltage
- High sensitivity, can achieve real-time temperature monitoring
- Small size, flexible space for installation and easy for integration
- Structure and wire can be customized

Applications

- Temperature measurement module in EV charging pole
- Real-time temperature monitoring of charging gun for new energy vehicles

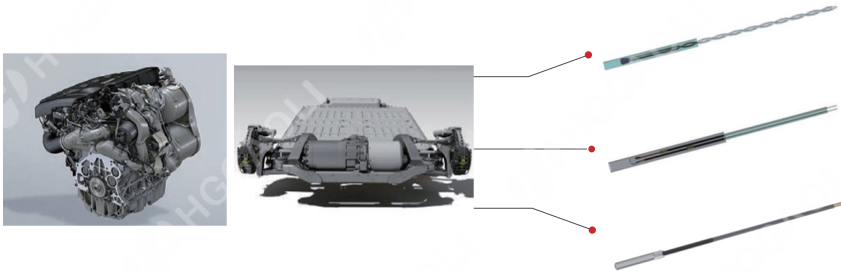
Technical Parameters

Resistance, B value
can be customized

Withstand Voltage \geq AC 3500V

Operating Temperature
-40°C~+200°C

EV/HEV motor stator winding temperature sensor



Features

- Fast response, temperature-resistant up to 200°C
- Oil-resistant and corrosion-resistant
- Easy to assemble, and can adopt built-in or wall-mounted installation methods
- Structure and wire can be customized

Applications

- EV motor stator winding temperature detection

Technical Parameters

Resistance, B value
can be customized

Withstand Voltage \geq AC 2000V

Operating Temperature
-40°C~+200°C



NTC temperature sensor
In-vehicle applications

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In-car temperature sensor



■ Features

- Specifications can be customized according to customer requirements
- Designed with bellows
- Easy to install, with multiple interfaces
- Operating temperature: $-40^{\circ}\text{C}\sim+100^{\circ}\text{C}$

■ Applications

- For car air conditioning system to measure inside car temperature

Temperature sensor for air conditioning evaporator



Features

- Specifications can be customized according to customer requirements
- The accuracy can reach $\leq \pm 1\%$
- High sensitivity, the maximum response time $\leq 5s$
- Temperature-resistant and moisture-resistant, excellent sealing performance and humidity-proof capability
- Operating temperature: $-40^{\circ}\text{C}\sim+100^{\circ}\text{C}$

Applications

Temperature measurement of evaporator for automotive air conditioning system



NTC temperature sensor In-vehicle applications

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Air duct temperature sensor



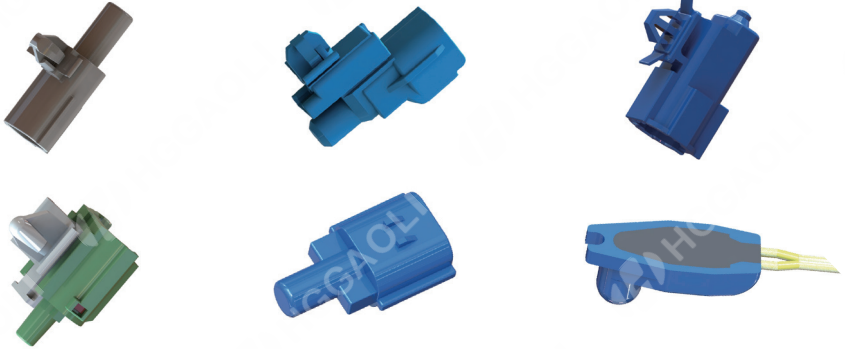
■ Features

- Specifications can be customized according to customer requirements
- Simple structure, and can sense the air temperature in all directions
- Designed with sponge or sealing ring, easy to fit the air conditioning shell
- Screw turn buckle or double lug buckle, easy for removal and installation
- Operating temperature: $-40^{\circ}\text{C}\sim+100^{\circ}\text{C}$

■ Applications

- Temperature measurement of air duct for automotive air conditioning system

Ambient temperature sensor for vehicles



■ Features

- Specifications can be customized according to customer requirements
- Adopt injection molding or potting technology for packaging
- Good waterproof capability, protection level can reach IP67
- Designed with corrosion-resistant materials
- Operating temperature: $-40^{\circ}\text{C}\sim+100^{\circ}\text{C}$

■ Applications

- Detecting ambient temperature outside the vehicle for automotive air conditioning system



NTC temperature sensor
In-vehicle applications

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Automotive water/ coolant/ refrigerant temperature sensor



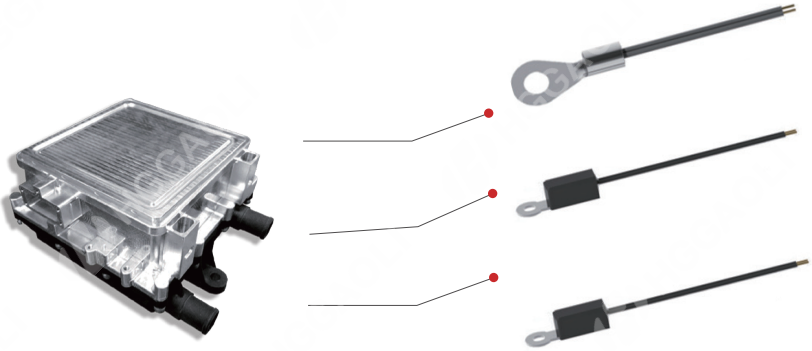
■ Features

- Specifications can be customized according to customer requirements
- Stainless steel shell, can achieve efficient heat conduction
- The product adopts threaded/wall-mounting/pipe connection methods, can be fixed properly
- Operating temperature: -40°C ~ $+150^{\circ}\text{C}$

■ Applications

- Measure the temperature of automotive battery coolant/ refrigerant/ built-in condenser, water pump, and oil

Temperature sensor for EV/HEV PTC heater module



Features

- Fast response, high-temperature resistance up to 200°C
- High level of insulation and withstand voltage
- Small size, easy to install, fast response

Applications

- PTC stone temperature detection
- IGBT stone temperature detection

Technical Parameters

Resistance, B value
can be customized

Insulation withstand voltage
DC500V+ AC3500V+

Operating Temperature
-40°C~+200°C

Resistance 1KΩ - 1MΩ

B value 3200 ~5000k



Light sensor- Solar/Ambient light

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Solar sensor



■ Features

- Low angular sensitivity, easy to calibrate with air conditioning system
- Operating temperature: $-40\text{ }^{\circ}\text{C}\sim+100\text{ }^{\circ}\text{C}$
- Operating voltage: 5V
- Single zone or dual zone function

■ Applications

- Used for measurement of illuminance of light radiation, compensation control for air conditioning system

Ambient light sensor



■ Features

- Operating voltage: 9 ~ 16V
- Integrate functions of ambient light sensor and solar sensor
- The structure is UV-resistant, convenient for installation with panels
- Support linear, switching, LIN signal output
- Operating temperature: $-40\text{ }^{\circ}\text{C}\sim+100\text{ }^{\circ}\text{C}$

■ Applications

- Auto on/off control of automotive headlights

Solar/ Light/ Rain/ Defogging sensor



Features

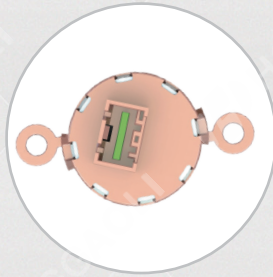
- Rated voltage: 12V, operating voltage: 9~16V
- LIN2. X communication, baud rate 19.2kbps
- The rain sensing area of the product is about 200mm², with 7 sensitivity levels
- Multi-functional sensor with rain/ light/ solar/ humidity detecting capabilities, and different functions can be integrated flexibly
- Operating current ≤40mA@12V, sleep current ≤30uA@12V
- Operating temperature: - 40℃~+90℃

Applications

- Mounted in the front windshield, used for automatic wiper control, auto window shut-down when raining, automatic headlights, air conditioning temperature, automatic anti-fog, etc., to achieve automatic control of automobiles, low power consumption and safe driving



Temperature and turbidity sensor



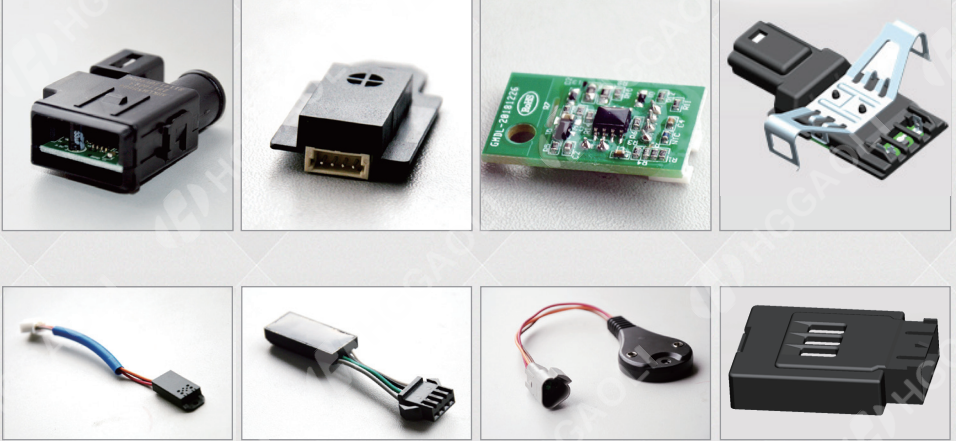
■ Features

- Rated voltage: 5V
- Operating temperature: $-25\sim+85^{\circ}\text{C}$
- Consumption current: $\leq 20\text{mA}$
- NTU detection: 0~4000 standard,
Output voltage: 0~3.8V($R_{\text{load}} = 1.4\text{K}\Omega$)
- Temperature value: $R_{25^{\circ}\text{C}}=10\text{K}\Omega \pm 1\%$, $B_{25/85}=4080\text{K} \pm 2\%$
- Response time: $<500\text{ms}$
- UL certified (safety level 2)
- Advantages: Support customized development, simple and convenient installation, and good compatibility

■ Applications

- Used for temperature and turbidity detection of liquids in washing machines and dishwashers

Humidity sensor



Features

- Operating voltage: DC 5V, DC 12V
- Output accuracy: $\pm 3\%$ RH, $\pm 5\%$ RH
- Output range: 0 ~ 100% RH
- Output control: analog output, IIC, LIN2.X
- Humidity response time: $\leq 30s$
- Operating temperature: $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$

Applications

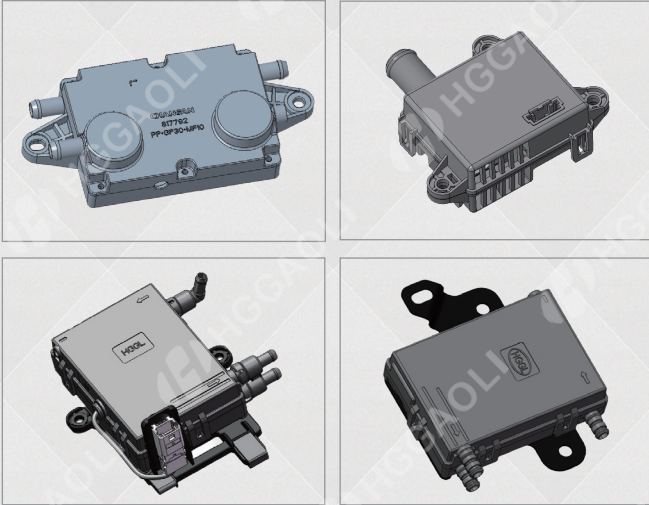
- Home: temperature and humidity detection of air conditioning, refrigerator, dehumidifier;
- Automobile: windshield anti-fog, temperature and humidity detection of vehicle refrigerator and in-car environment



Air quality sensor-PM2.5

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PM2.5 sensor



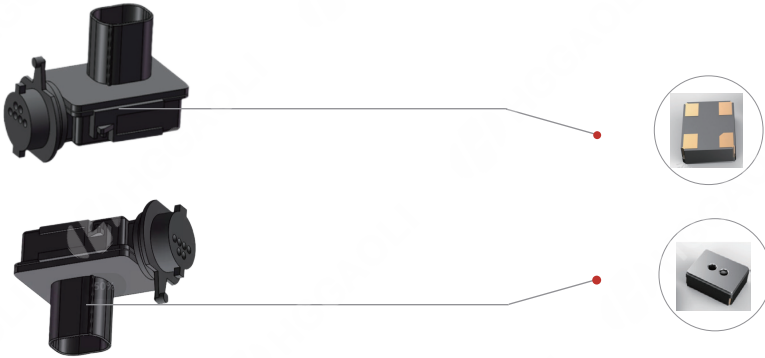
■ Features

- Rated voltage: 12V
- Operating temperature: $-40^{\circ}\text{C}\sim+85^{\circ}\text{C}$
- Single-channel or dual-channel
- Response time $<6\text{S}$
- Operating current $\leq 150\text{mA}$
- Operating noise $<30\text{dB(A)}@10\text{cm}$
- Support LIN2, X and CAN communication
- Detectable concentration range is $0\sim 999\mu\text{g}/\text{m}^3$, with an accuracy of $\pm 15\mu\text{g}/\text{m}^3$ ($0\sim 100\mu\text{g}/\text{m}^3$), $\pm 15\%$ ($100\sim 999\mu\text{g}/\text{m}^3$)

■ Applications

- Used in automotive air conditioning system for real-time detection of PM2.5 concentration inside and outside passenger compartment

Vehicle AQS sensor



■ Features

- Technical principle: Metal oxide semiconductor (MOX)
- Gas detection: CO, NOx, NH3
- Operating temperature: $-40^{\circ}\text{C}\sim+85^{\circ}\text{C}$
- Storage temperature: $-40\sim+120^{\circ}\text{C}$
- Relative humidity: 0~99%RH (non-condensing)
- Communication: LIN/CAN/PWM

■ Applications

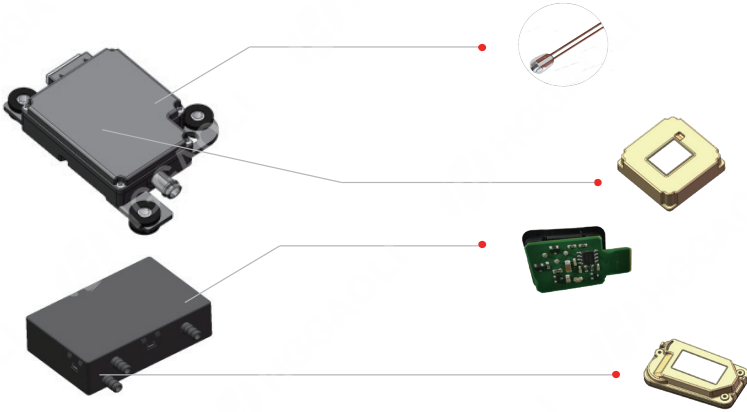
- Applied to detect concentration of gases such as NOx, CO, NH3 in vehicle air conditioning systems



Air quality sensor -All-in-one

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All-in-one air quality sensor



Features

- Rated voltage: 12V
- Operating temperature: -40°C ~ $+85^{\circ}\text{C}$
- Multi-functional detection system with integrated PM2.5/ CO₂/ AQS/ temperature/ humidity monitoring capabilities, suitable for flexible integration
- Response time <6S
- Operating current $\leq 150\text{mA}$
- Operating Noise <30dBA@10cm
- Support LIN2. X and CAN communication
- PM2.5 detectable concentration range is 0~999 $\mu\text{g}/\text{m}^3$, with an accuracy of $\pm 15 \mu\text{g}/\text{m}^3$ @0~100 $\mu\text{g}/\text{m}^3$, $\pm 15\%$ @100~999 $\mu\text{g}/\text{m}^3$
- CO₂ detectable concentration range is 400~40000PPM, with an accuracy of $\pm (30\text{PPM}+3\%$ of reading) @400~5000ppm; $\pm (50\text{PPM}+5\%$ of reading)@5000~40000ppm

Applications

- Used in automotive air conditioning systems to detect real-time concentration of ambient PM2.5, CO₂ and harmful gases

Refrigerant leakage detection sensor



Features

- Strong anti-interference ability and selectivity, no interference from other organic gases
- Good reliability, and long service life, with self-heating anti-condensation function
- High sensitivity, fast response
- Calibrated at the factory
- Sensor fault self-diagnosis
- Communication protocol can be customized
- Accuracy $\pm 2.5\%$ LFL
- Range 0–100%LFL
- Certified by UL 60335–2040 ED4 Standard

Applications

- For A2L/ A3 refrigerant (R32/ R454B/ R1234ZE) leak detection



Carbon dioxide sensor



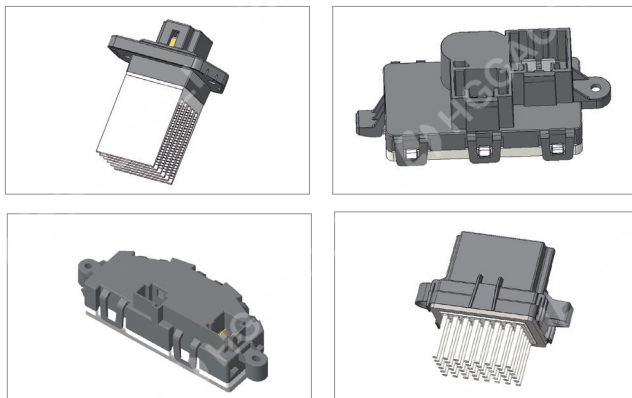
■ Features

- Strong anti-interference ability and selectivity, no interference from other gases
- High sensitivity, fast response, T90 < 120s
- Detectable range is 400 ~ 5000ppm/5000 ~ 40000ppm
- Accuracy of detection is
± (30PPM+3% of Reading)@400 ~ 5000ppm
± (50PPM+5% of Reading)@5000 ~ 40000ppm
- Low power consumption, average operating current less than 40mA
- Calibrated at the factory; sensor fault self-diagnosis
- Customized shell, dimensions can be miniaturized to 42X42X16mm
- Output supports CAN/LIN bus; support FOTA

■ Applications

- CO₂ leakage from car air conditioning and heat pump
- Automotive air purification system, life presence detection/ fatigue regulation

Automobile air conditioner blower speed regulation module



Features

- Rated voltage: 12V/24V
- Operating voltage range: 9–16V/18–32V
- Operating temperature: $-40\sim+85^{\circ}\text{C}$
- Input and output methods:
voltage linear control/ voltage output(Linear FET),
PWM control/ PWM output(PWM),
LIN communication control/ PWM output(LIN),
PWM control/ voltage output(LPM)
- Quiescent current $< 100\mu\text{A}$
- Rated current $\leq 25\text{A}$
- Maximum operating current $\leq 30\text{A}$
- Equipped with over-temperature protection
(the protection temperature can be customized
according to customer needs)
- LIN communication controlled products support
LIN2.X
- PWM and LIN controlled speed regulation
module has over/ under-voltage protection,
open/ short-circuit protection, over-temperature
/ over-current/ locked rotor protection,
power reverse connection protection

Applications

- Car air conditioning systems



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