



Xiaogan Huagong Gaoli Electronics Co., Ltd.

Address: HUAGONG SCIENCE AND TECHNOLOGY PARK, NO. 1, XIAOHAN AVE., XIAOGAN, HUBEI, CHINA

Post Code: 432000 Website: <https://en.hgxingaoli.com/>

Marketing Dept. Contact Number Phone Number: 0712 – 2584936

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



New energy vehicle Electronic products

PRODUCT CATALOG

<https://en.hgxingao.li.com/>

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HGGAOLI
HGGAOLI

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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



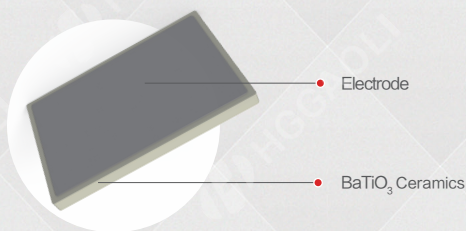
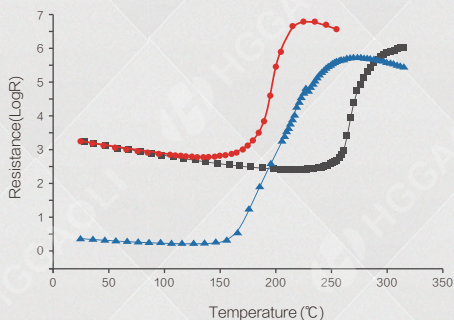
TUV-Product Certification



PTC thermistor

PTC ELECTRONIC PRODUCTS

PTC Thermistor



Features

- Wide operating temperature range
- Long service life
- Energy saving
- Automatic constant temperature
- Wide operating voltage
- High reliability

Applications

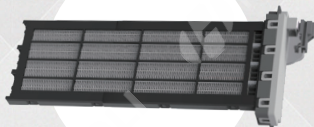
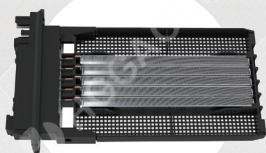
- Constant temperature heating unit in automotive air conditioning system and power battery, household appliances (air conditioning heater, etc.), constant temperature heating unit in small household appliances, motor starting, over-current protection

NEW ENERGY VEHICLE ELECTRONIC PRODUCTS

Vehicle PTC heater



LV APTC heater assembly



Applications

- Low temperature auxiliary heating for fuel vehicles, NEV, etc.

Technical Parameters

Operating voltage	12~48V
Power	500~1500W @ 0℃, 300kg/h
Impact current	<1.5 times steady current
Control mode	Relay/PWM/LIN
Operating temperature range	-40~+90℃

*Can be customized



Vehicle PTC heater

NEW ENERGY VEHICLE
ELECTRONIC PRODUCTS

HV APTC heater assembly (without control)



Applications

- NEV

Technical Parameters

Power	2 ~ 7KW
Voltage range	72 ~ 1000VDC
Control mode	Relay
Partition heating mode	Customized according to requirements
Electrical strength	2800VDC, No breakdown or flicker phenomenon
Insulation resistance	> 100MΩ@1000VDC
IP Level	IP67
Operating temperature range	-40℃ ~ +90℃

*Can be customized

NEW ENERGY VEHICLE ELECTRONIC PRODUCTS

Vehicle PTC heater



HV APTC heater assembly (with control)



Applications

- NEV

Technical Parameters

Power	2 ~ 7KW
Voltage range	200 ~ 1000VDC
Control mode	PWM
Communication mode	CAN / LIN
Partition heating mode	Customized according to requirements
Electrical strength	2800VDC, No breakdown or flicker phenomenon
Insulation resistance	> 100MΩ@1000VDC
IP Level	IP67
Operating temperature range	- 40℃ ~ +90℃

*Can be customized

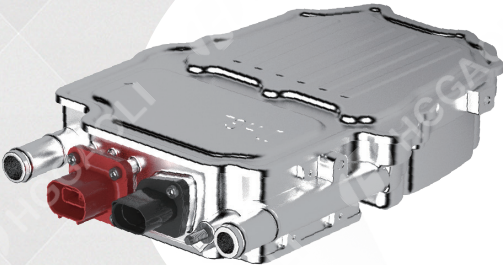


Vehicle PTC heater

NEW ENERGY VEHICLE
ELECTRONIC PRODUCTS

HV WPTC heater assembly

220-500V_{PLATFORM}



Applications

· NEV

Technical Parameters

Power	5KW, 350VDC, 10L/min, 60℃	7KW, 350VDC, 10Lmin, 60℃
Coolant	50 (Water) +50 (Glycol)	
Voltage range	220 ~500V (High voltage)	9 ~ 16V (Low voltage)
Pressure loss	≤5KPa (10L/min, 60℃)	
Control mode	PWM	
Communication mode	LIN2.1	
Electrical strength	2150VDC, No discharge breakdown	
Insulation resistance	1000VDC> 100MΩ	
IP Level	IP6K9K & IP67	
Mass	≤2.7Kg	

*Can be customized

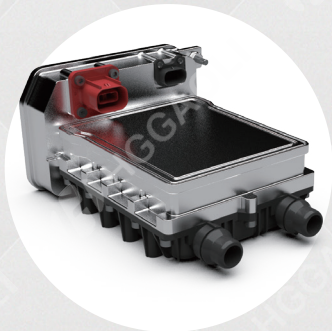
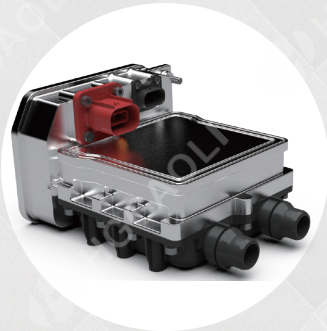
NEW ENERGY VEHICLE
ELECTRONIC PRODUCTS

Vehicle PTC heater



HV WPTC heater

220-500V_{PLATFORM}



Applications

· NEV

Technical Parameters

Power	5KW, 350VDC, 10L/min, 60℃	7KW, 50VDC, 10Lmin, 60℃
Coolant	50 (Water) +50 (Glycol)	
Voltage range	220 ~500V (High voltage)	9 ~ 16V (Low voltage)
Pressure loss	≤5KPa (10L/min, 60℃)	
Control mode	PWM / Relay control	
Communication mode	CAN / LIN	
Electrical strength	2700VDC, No discharge breakdown	
Insulation resistance	1000VDC> 100MΩ	
IP Level	IP6K9K & IP67	
Mass	≤2.1Kg	≤3Kg

*Can be customized

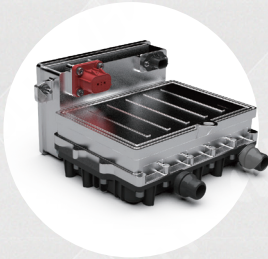
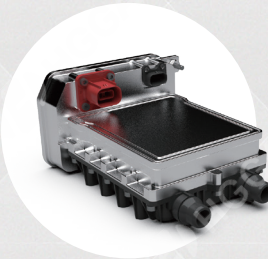
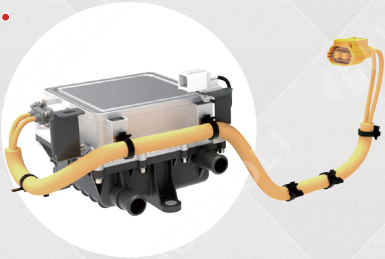


Vehicle PTC heater

NEW ENERGY VEHICLE
ELECTRONIC PRODUCTS

High voltage WPTC heater

500-1000V PLATFORM



Applications

· NEV

Technical Parameters

Power	6KW,640VDC, 10L/min, 25℃	5KW,750VDC, 10L/min, 60℃	7KW,750VDC, 10L/min, 60℃	8.5KW,647VDC, 20L/min, 60℃
Coolant	50 (Water) +50 (Glycol)			
Voltage range	500 ~1000V (High voltage)		9 ~ 16V (Low voltage)	
Pressure loss	≦5KPa (10L/min, 60℃)			
Control mode	PWM / Relay control mode			
Communication mode	CAN / LIN			
Electrical strength	3600VDC, No discharge breakdown			
Insulation resistance	1000VDC > 100MΩ			
IP Level	IP6K9K & IP67			
Mass	≦2.9Kg	≦3Kg	≦3Kg	≦3.8Kg

*Can be customized

NEW ENERGY VEHICLE
ELECTRONIC PRODUCTS

Vehicle PTC heater



High voltage WPTC heater

220VAC/380VAC
PLATFORM



Applications

- Photovoltaic energy storage

Technical Parameters

Power	≥1.5KW (220VAC, 16L/min, 40℃)	≥8KW (380VAC, 10L/min, 60℃)
Coolant	50 (Water) +50 (Glycol)	50 (Water) +50 (Glycol)
Voltage range	220 ~240VDC (High voltage) 1 ~ 30VDC (Low voltage)	322 ~552VDC (High voltage) 1 ~ 30VDC (Low voltage)
Pressure loss	16L/min, 1.8KPa	100L/min, 60℃, 45.2KPa
Control mode	/	/
Communication mode	/	/
Electrical strength	2500VDC, Leakage current < 20mA	2300VDC, Leakage current < 20mA
Insulation resistance	>500MΩ @1000VDC	>500MΩ @1000VDC
IP Level	IP67 / IP69	IP65
Mass	< 1Kg	≤5Kg

*Can be customized

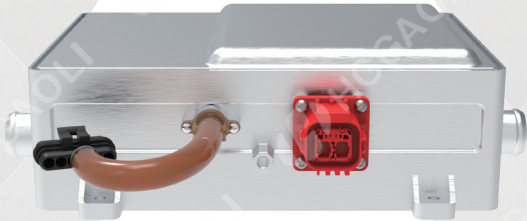


Vehicle PTC heater

NEW ENERGY VEHICLE
ELECTRONIC PRODUCTS

High voltage WPTC heater

500-1000V PLATFORM



Applications

- Construction vehicles

Technical Parameters

Power	≥14KW(@20℃, 60L/min, 800VDC	≥24KW(@20℃, 60L/min, 800VDC)
Coolant	50 (Water) +50 (Glycol)	50 (Water) +50 (Glycol)
Voltage range	500 ~1000VDC (High voltage) 16 ~ 32VDC (Low voltage)	500~1000VDC (High voltage) 16~32VDC (Low voltage)
Pressure loss	≤60KPa(@60L/min, 20℃)	≤100KPa(@60L/min, 20℃)
Control mode	PWM	PWM
Communication mode	CAN	CAN
Electrical strength	3800VDC, No discharge breakdown	3800VDC, No discharge breakdown
Insulation resistance	>500MΩ @1000VDC	>500MΩ @1000VDC
IP Level	IP6K9K & IP67	IP6K9K & IP67
Mass	≤5Kg	≤10Kg

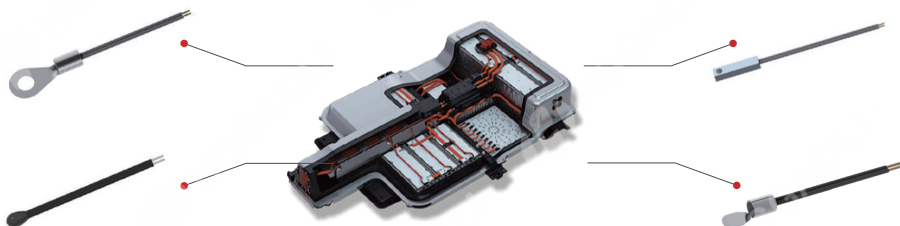
*Can be customized

AUTOMOTIVE SENSOR

NTC temperature
sensor



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

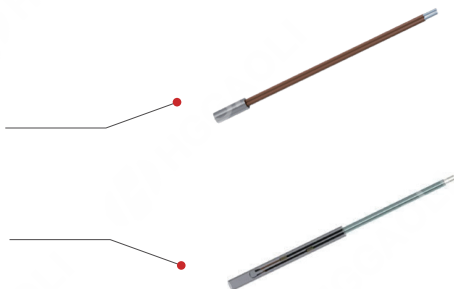
Operating Temperature
-40°C~+150°C



NTC temperature
sensor

AUTOMOTIVE SENSOR

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
 $-40^{\circ}\text{C} \sim +200^{\circ}\text{C}$

AUTOMOTIVE SENSOR

NTC temperature
sensor



EV/HEV motor stator winding temperature sensor



Features

- Fast response, temperature-resistant up to 200℃
- 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℃~+200℃



NTC temperature
sensor

AUTOMOTIVE SENSOR

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

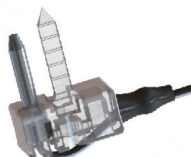
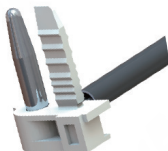
- For car air conditioning system to measure inside car temperature

AUTOMOTIVE SENSOR

NTC temperature
sensor



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

AUTOMOTIVE SENSOR

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

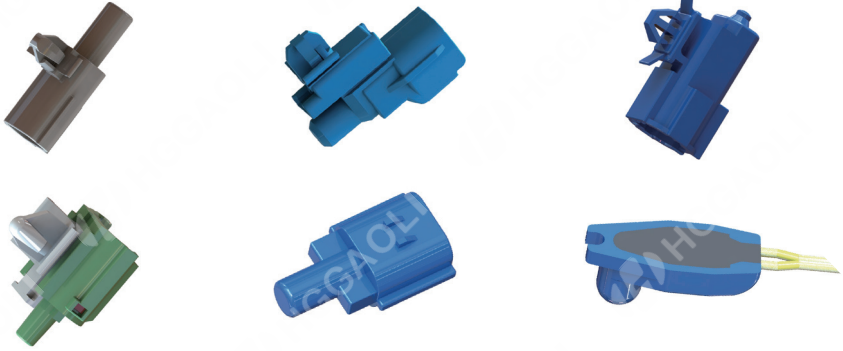
- Temperature measurement of air duct for automotive air conditioning system

AUTOMOTIVE SENSOR

NTC temperature
sensor



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

AUTOMOTIVE SENSOR

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: $-40^{\circ}\text{C}\sim+150^{\circ}\text{C}$

Applications

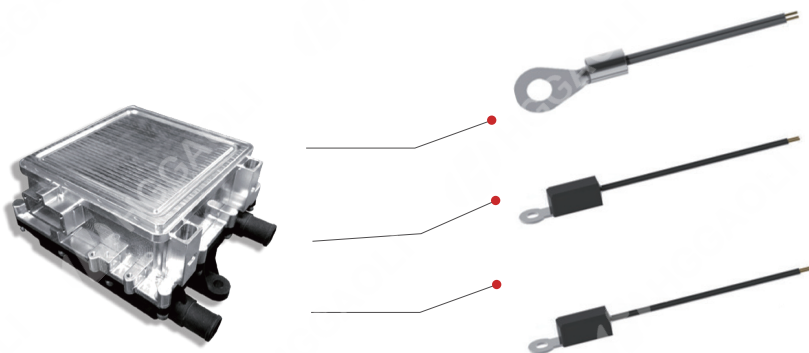
- Measure the temperature of automotive battery coolant/ refrigerant/ built-in condenser, water pump, and oil

AUTOMOTIVE SENSOR

NTC temperature
sensor



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



Solar/Ambient
Light sensor

AUTOMOTIVE SENSOR

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

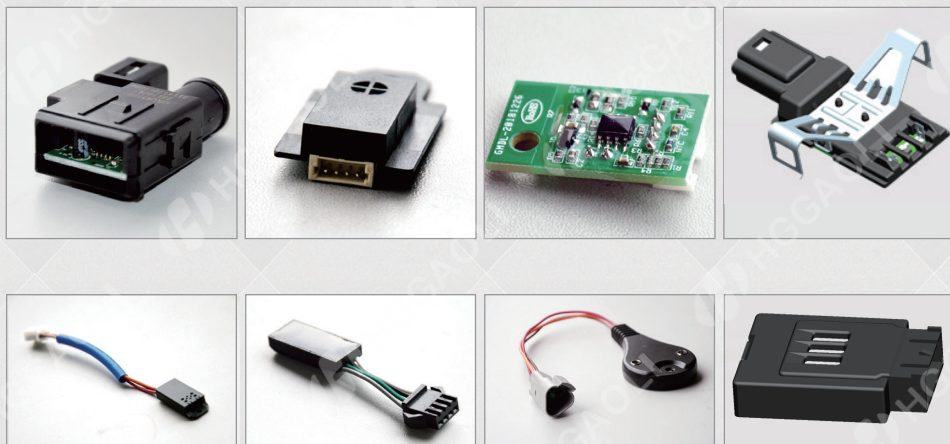
- Auto on/off control of automotive headlights

AUTOMOTIVE SENSOR

Humidity sensor



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

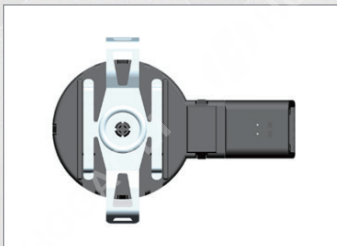
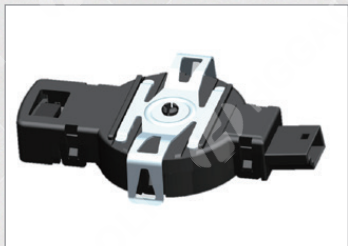
- Home: temperature and humidity detection of air conditioning, refrigerator, dehumidifier;
- Automobile: windshield anti-fog, temperature and humidity detection of vehicle refrigerator and in-car environment



Solar/ Light/ Rain
/ Defogging sensor

AUTOMOTIVE SENSOR

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 $\leq 40\text{mA}@12\text{V}$, sleep current $\leq 30\mu\text{A}@12\text{V}$
- Operating temperature: $-40^{\circ}\text{C}\sim+90^{\circ}\text{C}$

Applications

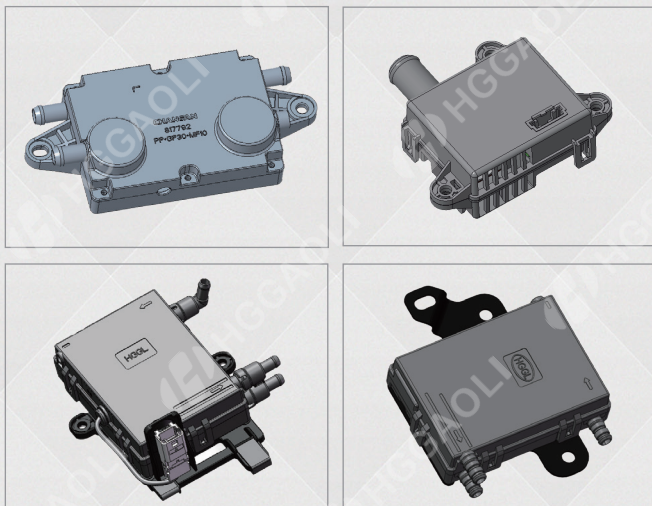
- Mounted in the front windshield, used for automatic wiper control, auto window shut-down when raining, automatic headlights, air conditioning temperature, automatic anti-fog, etc., to achieve automatic control of automobiles, low power consumption and safe driving

AUTOMOTIVE SENSOR

PM2.5 sensor



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



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

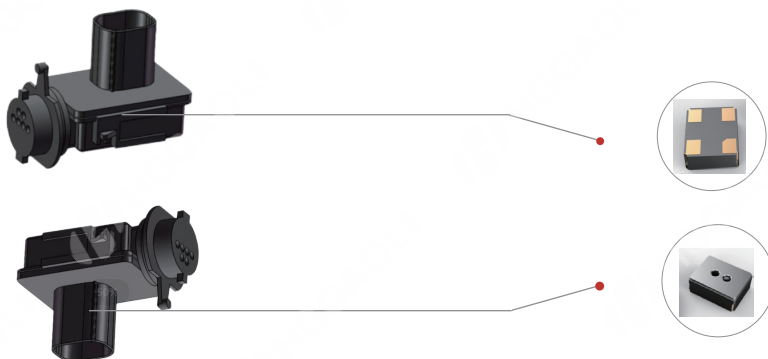
- CO₂ leakage from car air conditioning and heat pump
- Automotive air purification system, life presence detection/ fatigue regulation

AUTOMOTIVE SENSOR

Vehicle AQS sensor



Vehicle AQS sensor



Features

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

Applications

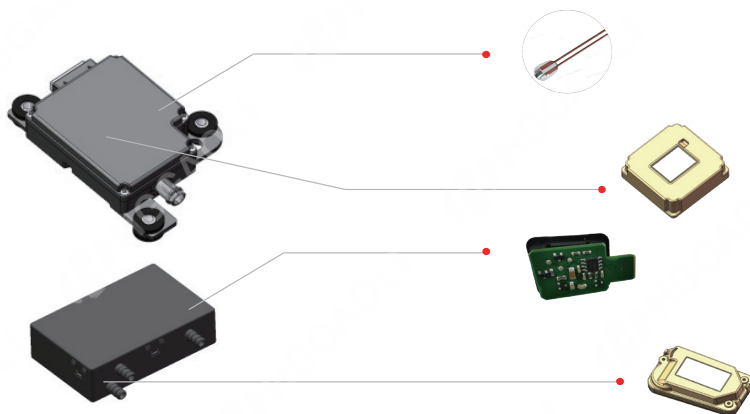
- Applied to detect concentration of gases such as NOx, CO, NH3 in vehicle air conditioning systems



Air quality sensor
-All-in-one

AUTOMOTIVE SENSOR

All-in-one air quality sensor



Features

- Rated voltage: 12V
- Operating temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Multi-functional detection system with integrated PM2.5/ CO_2 / 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 $0 \sim 999 \mu\text{g}/\text{m}^3$, with an accuracy of $\pm 15 \mu\text{g}/\text{m}^3$ @ $0 \sim 100 \mu\text{g}/\text{m}^3$, $\pm 15\%$ @ $100 \sim 999 \mu\text{g}/\text{m}^3$
- CO_2 detectable concentration range is $400 \sim 40000\text{PPM}$, with an accuracy of $\pm (30\text{PPM} + 3\% \text{ of reading})$ @ $400 \sim 5000\text{ppm}$; $\pm (50\text{PPM} + 5\% \text{ of reading})$ @ $5000 \sim 40000\text{ppm}$

Applications

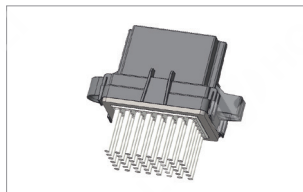
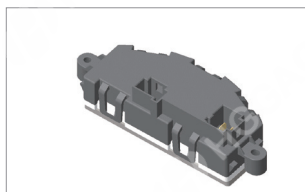
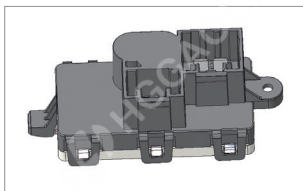
- Used in automotive air conditioning systems to detect real-time concentration of ambient PM2.5, CO_2 and harmful gases

AUTOMOTIVE SENSOR

Automobile air conditioner blower
speed regulation module



Automobile air conditioner blower speed regulation module



Features

- Rated voltage: 12V/24V
- Operating voltage range: 9~16V/18~32V
- Operating temperature: -40~+85°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 < 100uA
- Rated current ≤25A
- Maximum operating current ≤30A
- 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

04

CUSTOMERS

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*In no particular order