

SOLUTIONS FOR CLEAN ENERGY APPLICATIONS

HGGAOLI ELECTRONICS

— A world-leading supplier of sensing solutions

Xiaogan Huagong Gaoli Electronics Co., Ltd. (hereinafter referred to as "HGGaoli") was founded in 1988, and is a national hi-tech electronics company. With more than 38 years of expertise in sensor industry, HGGaoli has become a world-leading supplier of multifunctional sensors and PTC thermal management systems. Leveraging proprietary technologies spanning "material-chip-component-system", the company can ensure full-chain controllability.

Qualifications

"Single-Product Champion Enterprise in Manufacturing Industry" granted by MIIT. 1 National Science & Technology Progress Award, 2 Third Prizes, 40+ Provincial/Ministerial Science & Technology Progress Awards from the Ministry of Science & Technology, the Ministry of Education, etc. Participated in the development of 30 national/industry standards, 10 items passed scientific and technological achievements appraisal in recent years, a total of 1000+ patents applied and granted.



National CNAS Lab



Received USA UL and NA CUL safety certifications, Germany VDE, CQC and IATF 16949, ISO 9001, ISO 14001, ISO 45001, ISO27001, TISAX system certificates



Application Scenario

Battery/Charging System

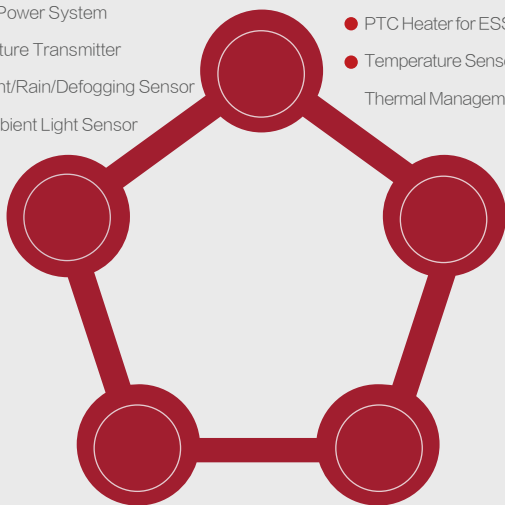
- Cells Contacting System
- Battery Cell Temperature Sensor
- Charging System Temperature Sensor

Wind Power

- Temperature Sensor for Wind Power System
- Temperature Transmitter
- Solar/Light/Rain/Defogging Sensor
- Solar/Ambient Light Sensor

Thermal Mgmt.

- PTC Heater for ESS
- Temperature Sensor for Thermal Management System



Industrial Safety

- Thermal Runaway Sensor
- Refrigerant Leak Sensor
- Water Pressure Sensor
- High-Pressure Sensor
- Small-size High-Pressure Sensor

Air Conditioning

- A/C Temperature Sensor
- A/C Pressure Sensor
- Temperature&Pressure Sensor
- Temperature&Humidity Sensor

Featured Products

Cells Contacting System



- Proprietary self-developed NTC thermistor, UL certified and compliance with AEC-Q200 requirements
- Versatile structural options including die-cut PC and thermoformed PC
- Adaptable to diverse cell configurations with customizable design
- Recommended parameters: $R_{25}=10K\Omega \pm 1\%$ $B_{25/85}=3435 \pm 1\%$
- High precision and fast response

Application: ①Large-scale/C&I Energy Storage ②Residential/Portable Energy Storage, Communications Base Station ③Commercial logistics trucks, Urban delivery vans, Mining haul trucks, Heavy-duty trucks, Low-speed vehicles, Marine powertrain solutions

Temperature Sensor

■ Battery Cell Temperature Sensor

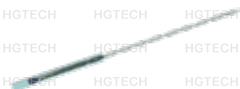
Application: Energy Storage, NEVs, Industrial



- Proprietary self-developed NTC thermistor, UL certified and compliance with AEC-Q200 requirements; Recommended parameters: $R_{25}=10K\Omega \pm 1\%$ $B_{25/85}=3435 \pm 1\%$
- Easy to integrate; Fast Response with high accuracy up to $\pm 0.1^{\circ}C$
- Operating Temperature: $-40^{\circ}C \sim +150^{\circ}C$

■ NTC Temperature Sensor for Motor

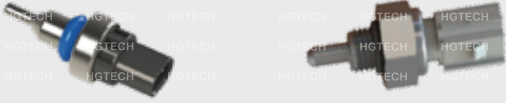
Application: Wind Turbine, Motor, Charging System



- Proprietary self-developed NTC thermistor, UL certified and compliance with AEC-Q200 requirements; Recommended parameters: $R_{25}=10K\Omega \pm 1\%$ $B_{25/85}=3435 \pm 1\%$
- Fast response with high accuracy up to $\pm 0.1^{\circ}C$
- High insulation withstand voltage, AC 3000V $\leq 0.5mA$
- Operating temperature range of $-50^{\circ}C$ to $+250^{\circ}C$

■ Temperature Sensor for Thermal Mgmt. System

Application: Liquid Cooling System, Industrial, Thermal Management System, Water-side & refrigerant-side temperature control



- Proprietary self-developed NTC thermistor, UL certified, compliance with AEC-Q200 requirements
- IPX7/IP67/IP6K9K waterproof rating, suitable for water-related environments
- Multiple connection options including AMP 1-1718643-1, SUMITOMO 6189-6905, Molex 31402-2110, customizable according to customer's requirements

■ Temperature Sensor for ESS Air Conditioning

Application: ESS Air Conditioning

- Proprietary self-developed NTC thermistor, UL certified and compliance with AEC-Q200; Recommended Parameters: B25/50=3950K±1%, R25=10KΩ±1%
- Fast response, thermal response time $t < 12s$
- Threaded mounting for direct integration into the liquid cooling pipeline
- High insulation withstand voltage, AC 3000V $\leq 0.5mA$; Operating temperature: -30°C~+150°C



■ Platinum RTD Sensor for Wind Turbine

Application: Wind Turbine Bearings, Oil Tanks

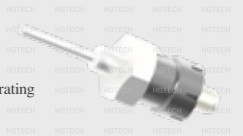
- IP65 protection rating, C4H/C5H corrosion resistance ratings, resistant to dust, salt spray, and moisture corrosion
- Multiple probe length options for customer's choice
- Adjustable compression fitting for flexible installation
- Three-wire high-precision platinum resistance
- Wide operating temperature range of -40°C to 200°C



■ Temperature Transmitter

Application: ESS, Smart Building, Industrial Temperature Control

- Voltage output/4-20mA current output
- IP65 protection rating, service life ≥ 10 years
- Non-metallic parts are flame retardant, UL94 V-0 rating
- Compliance with RoHS2.0/REACH, CE certified
- Detecting range: -40°C ~ +135°C, Accuracy $\leq \pm 0.2\%FS @ (-40^\circ C \sim +100^\circ C)$



■ Temperature&Pressure Sensor

- ESS, Auto, Home Appliances, Industrial
- Simultaneously monitor temperature and pressure to optimize system control strategy and reduce energy consumption



PTC Heater for Energy Storage Units

■ Liquid-Heating Type

Application: Heating requirements for large scale ESS, liquid cooling

- Corrosion-resistant, thermal response within seconds
- Customizable: power range of 2KW to 20KW; pipe diameter from 19 to 60 mm, flow rate from 10L to 100L; special requirements can be customized according to customer needs

Pipe PTC Heater

- Clamp quick-install design&compact circular structure
- Easy to integrate, compact design
- Low flow resistance, high flow rate, constant temperature heating, and good durability



PTC Liquid Heater (1KW/220VAC)

- Designed for small flow rates
- Compact design to reduce cost
- Special for outdoor ESS&Auto A/C system
- Fast heating, high power, constant temperature heating, good durability



PTC Liquid Heater (8KW/380VAC)

- High-power liquid heater
- Thermal response within seconds
- Salt spray&high humidity resistant
- Suitable for large-scale ESS



■ Air-Heating Type

Application: Ideal for low-power-density projects such as communication base stations and small-scale ground power stations

- Corrosion-resistant, easy to integrate
- Customizable: power range of 220VAC-380VAC, 1KW-10KW, special requirements can be customized according to customer needs

PTC Air Heater

- High-power air heater
- Thermal response within seconds
- Constant temperature heating
- High safety
- Good durability



Water Pressure Sensor

Application: ESS, Industrial, Home Appliances

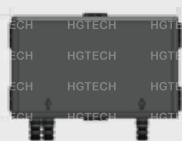
- Self-developed ceramic capacitor core
- IP69 waterproof rating
- High reliability, long service life, suitable for operation in harsh environments of



Thermal Runaway Sensor

Application: Thermal runaway warning for high-risk environments such as ESS Battery, industrial reactors and dust-prone operations

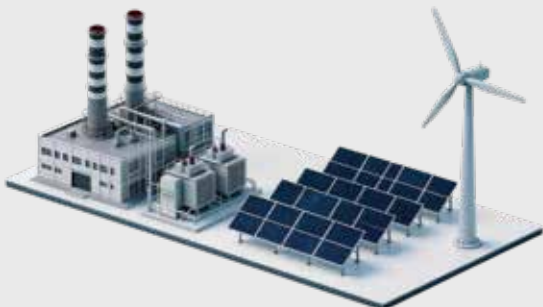
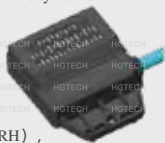
- Real-time detection of airborne particulate matter (such as dust, smoke, and nano-scale aerosols), including concentration, particle size distribution, and thermodynamic status.
- Identify potential thermal runaway risks in advance (e.g., battery thermal runaway, industrial reactor overheating, fire hazards), providing precise data support for industrial safety, energy management, and emergency response



Temperature&Humidity Sensor

Application: ESS, Home Appliances, Automotive

- High-precision digital temperature&humidity sensor with 485 communication output
- Operating temperature: $-40^{\circ}\text{C}\sim+85^{\circ}\text{C}$
- Humidity detecting range $0\sim 100\%RH$, Precision $\pm 4\%RH$ (25°C , $20\%\sim 90\%RH$), Response time $< 10s$
- Temperature detecting range of $-35^{\circ}\text{C}\sim +65^{\circ}\text{C}$, precision $\pm 0.5^{\circ}\text{C}$, response time $< 30s$





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Official Website



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