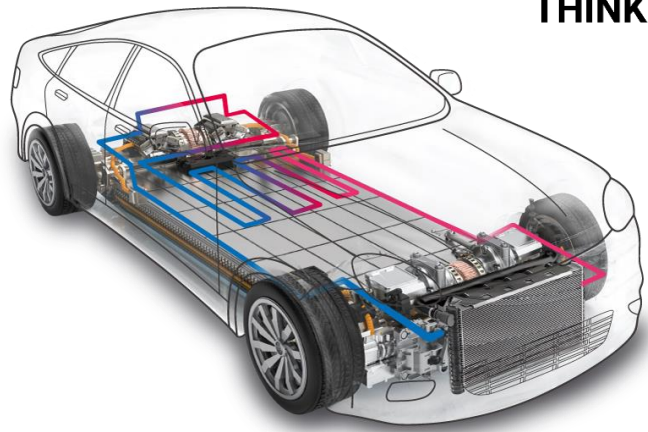


THINKING Temperature Sensor for Electric Vehicle



Application

- Battery Management System
- Liquid Cooling System
- Traction Motor
- Charging Inlet
- Battery Disconnect Unit
- On-Board Charger



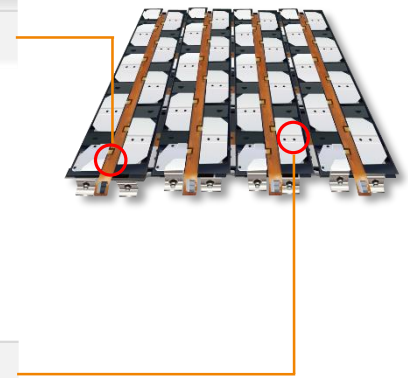
1. Battery Management System

1-1. For FPC Assembly

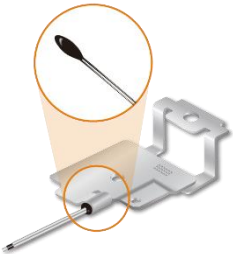


1-1-1. SMD Type NTC thermistor - TSM series

TSM series is suitable for FPC automatic production because of its SMD structure, and customers increase their manufacturing efficiencies via this adoption.



1-2. For Busbar Assembly

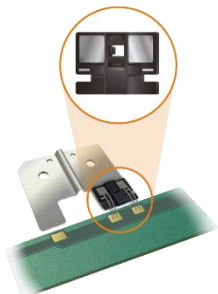
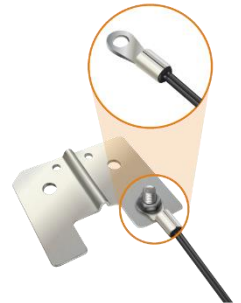


1-2-1. Epoxy Coating Type NTC Temperature Sensor - NTSE Series

The sensor structure is simple and with high commonality. Its cable length and structure can be customized for customer's mechanism. For its use in busbar, the picture on the left indicates NTSE product is installed in busbar for busbar temperature detection, and its structure is customizable.

1-2-2. Ring Terminal Type NTC Temperature Sensor - NTSA Series

NTSA series is with ring terminal for secure and simple screw-on installation. Voltage sensing wire for circuit design is also available for this product. For customer's needs, various terminals are available, and cable length of the product can be adjusted to mechanism.



1-2-3. Plastic Encapsulated Type NTC Thermistor - NTSB series

The temperature sensor is reliable and moisture resistant because of its structure and coating material. When the component assembles with busbar, aluminum thermal conductive sheet of busbar conducts busbar temperature to it, and the method lowers temperature detection error and shortens response time.

2. Liquid Cooling System

2-1. Inline Flow-Through Fluid Temperature Sensor - NTSB Series

The temperature sensor is meticulously designed for direct connection to inlet or outlet hoses to facilitate effortless integration into the EV liquid cooling system. Its design, incorporating an NTC thermistor element specifically engineered for harsh conditions in a robust hydrolysis-resistant plastic tube, ensures accurate data provision to the thermal management system in the most demanding environments. With its direct hose connection, high measurement accuracy, and exceptional durability, the sensor enables optimal vehicle space utilization and efficient coolant temperature regulation.



2-2. Quick Plug-in Type Temperature Sensor - NTSB / NTSG Series

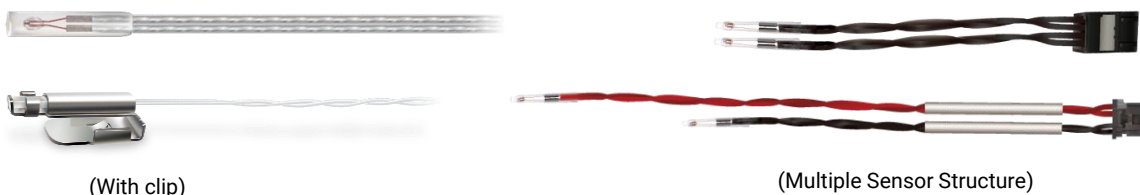
The compact temperature sensor for monitoring coolant temperature offers exceptional measurement accuracy and long-term stability. It is designed for easy assembly with a compatible quick connector, minimizing space requirements and simplifying installation. This reliable sensor provides an effective alternative for designers looking to reduce both component and installation space in liquid cooling system.



3. Traction Motor

3-1. Stator Winding NTC Temperature Sensor - NTSB Series

The sensor is designed with a glass-encapsulated NTC thermistor to offer excellent accuracy, stability, and reliability. The sensor is protected by dual-layered heat shrink to provide an airtight seal against moisture and corrosion and robust construction against mechanical shock. In addition, its small size allows it to be integrated with stator windings. To meet various application requirements, the sensor is available with a round or rectangular probe head shape. In particular, the rectangular probe head provides optimal thermal conductivity for flat surfaces and is ideal for monitoring the temperature of hairpin windings.



(With clip)

(Multiple Sensor Structure)

4. Charging Inlet

The temperature sensor for charging inlets, built in various case materials such as metal, plastic, or ceramic, monitors connector temperatures and provides precise feedback to the charging system. It offers excellent moisture and corrosion resistance and a high dielectric strength of up to 4 kV AC, ensuring the safety and reliability of the charging process. Customization of dual-sensor structures is also available to meet the need for multi-point temperature detection.

4-1. Metal Case Type - NTSF Series

The standard metal sensing top allows flexible installation.

4-2. Plastic Case Type - NTSG Series

The design ensures a seamless contact between the connector and sensor, allowing the sensor to fit the connector tightly for precise temperature detection.

4-3. Ceramic Case Type - NTSG Series

This sensor features excellent durability and high dielectric strength.

4-4. Multiple Sensor Structure - NTSH Series

There are two multiple sensor structure options available. One is metal sensing tops with high dielectric strength, and the other is with ring terminals for simple and robust screw-on installation.



5. Battery Disconnect Unit / Power Relay Assembly / DC-DC Converter / On-Board Charger

5-1. Ring Terminal Type Temperature Sensor-NTSA Series

The ring terminal temperature sensor can be securely fastened onto heat dissipation modules. Various options of terminal sizes (M2.5 to M10) are available for this series, and it features a new anti-rotation design for enhanced fastening stability. The cable length can be customized, and an additional voltage-sensing wire can be integrated to meet specific customer requirements.

