

NTC sensors

TDK offers clip-on NTC sensors for heat pumps in e-mobility

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TDK Corporation (TSE:6762) presents the new B58101A0109A* (HP100) series of heat pump sensors for measuring the refrigerant temperature indirectly via the pipes' surface temperature. The NTC-based sensors are specifically designed to meet automotive requirements. Standard for pipe diameters of 12.8 mm, this clip-on design can operate in harsh environments from -40 °C to +150 °C and is water immersion resistant for up to 500 hours. The response time is less than 7 s. The new AEC-Q200 qualified sensors offer a high dielectric strength of 1250 V AC for 10 s, an important criterion for use in EVs. A low temperature tolerance of ± 0.3 K at a nominal temperature of 85 °C ensures high control accuracy.

Thanks to the clip-on technology, the sensor is very easy to mount. In addition, this technology does not require any entries into the cooling or refrigerant circuits, minimizing leakage risks. Typical applications of the robust sensors are detecting the refrigerant temperature of heat pumps as part of the thermal management of high-voltage batteries for electric vehicles (BEV).

Main applications

- Temperature measurement of coolants and refrigerants on heat pump tubes in BEVs

Main features and benefits

- Easy mounting due to clip-on technology
- Minimization of leakage risks due to surface temperature measurement
- High control accuracy due to low temperature tolerance of ± 0.3 K at a nominal temperature of 85 °C
- High dielectric strength of 1250 V AC for 10 s
- Response time is less than 7 s
- Submersible in water for up to 500 hours

About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately "Attracting Tomorrow." It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2022, TDK posted total sales of USD 15.6 billion and employed about 117,000 people worldwide.

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