



PRODUCT BRIEF 2026

Driving xEV Performance with Precision Sensing

As electrified mobility evolves, efficient thermal management has become a critical factor in vehicle range, battery lifetime, and overall system safety. Accurate and reliable sensing is therefore essential to control temperature and pressure across increasingly complex xEV architectures.

TDK addresses these challenges with a comprehensive portfolio of temperature (T) and combined pressure-temperature (PT) sensors, specifically engineered for demanding xEV applications. Our solutions enable precise and

stable measurements across key systems, including battery packs, e-motors, power electronics, and thermal management modules, ensuring optimal performance and safety in high-voltage environments.



Product details
www.tdk-electronics.tdk.com

 **TDK**
In Everything, Better

Driving xEV Performance

As a leading supplier in automotive temperature sensing, TDK combines proven expertise with global reach. With more than 56 years of experience in developing and producing automotive temperature sensors, TDK supports customers across the entire value chain, from OEMs to Tier 1 and Tier 2 suppliers, through a strong international sales network with local contacts and application support. All products

are developed and manufactured in line with automotive quality standards, including IATF 16949, ensuring consistent reliability and long-term stability.

In addition to a broad standard portfolio, TDK offers customized sensor solutions tailored to specific application requirements, enabling seamless integration into next-generation xEV platforms.

Ringtongue temperature sensors				
Busbar BDU PDU HV junction box				
				
Ringterminal	M4	M6/M4	M6	
AWG	AWG 26	AWG 22-26	AWG 24	AWG 23
HV resistance	2 kV AC	2.2 kV AC	5 kV AC	5 kV DC (1 s)
Temperature range	-40 ... 150 °C	-40 ... 150 °C 200 °C for 6 h	-40 ... 155 °C	-40 ... 150 °C

Clip-in temperature sensor	Small case series
Busbar BDU PDU High-voltage connectors Stator	Busbar BDU PDU High-voltage connectors Stator
 Temperature range -40 to +180 °C, up to 200 °C 100 h Excellent thermal conductivity of sensor housing High voltage strength up to 4.5 kV DC/60 s Easy mounting and robust locking system	 High voltage strength up to 5 kV DC (1s) For temperature measurement up to 200 °C Short response time Compact design Customized mounting features

Driving xEV Performance

Immersion temperature sensor

E-motor oil cooling



- E-motor cooling fluid
- ATF-oil-resistant
- Very fast response time
- Specific RT curve optimized for the application
- Very light weight (< 11 g)

Pressure-temperature (PT) sensor

E-motor oil cooling



- Combined Pressure and temperature sensing of oil coolant fluid
- Various electrical interfaces (analog, SENT or LIN 2.2)
- Superior signal accuracy

Immersion PT sensor

Heat pump (refrigerant) loop



- Suitable for R1234YF and R290
- Low and high pressure side (up to 44 bar)
- Burst pressure up to 120 bar
- LIN 2.2 or analog interface
- Miniaturized design compared to market benchmark

Immersion temperature sensor

Heat pump (refrigerant)



- Suitable for R1234YF
- Very fast response time $t_{63} < 4$ s
- Ready for high pressure operation up to 160 bar

Clip-on temperature sensor

Heat pump (refrigerant)



- Temperature range -40° to +150 °C
- Response time $t_{63} < 7$ s (in water)
- No leakage at measuring point
- Fast & safe mounting
- Robust design

Immersion temperature sensor

Battery cooling



- Temperature range -40 to +125 °C
- Fast response time $t_{63} < 6.5$ s
- Easy to mount via clip
- Very light weight (< 6 g)
- Fully sealed system for immersion applications

Driving xEV Performance

Discover our full portfolio or speak to your local TDK contact



More product details

<https://www.tdk-electronics.tdk.com/en/bev>



More product details

<https://www.tdk-electronics.tdk.com/en/sensors-for-emotor>

Important information

Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products. We expressly point out that these statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. It is incumbent on the customer to check and decide whether a product is suitable for use in a particular application. This publication is only a brief product survey which may be changed from time to time. Our products are described in detail in our data sheets. The *Important notes* (www.tdk-electronics.tdk.com/ImportantNotes) and the product-specific *Cautions and warnings* must be observed. All relevant information is available through our sales offices.



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