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Global Automotive Temperature Sensor Market Size study & Forecast, by Application, Product, Usage, Technology, EV Application, EV Charging Tech, Vehicle and Regional Forecasts 2025-2035

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Abstracts

The Global Automotive Temperature Sensor Market is valued at approximately USD 11.13 billion in 2024 and is projected to expand at a compound annual growth rate (CAGR) of 5.58% over the forecast period 2025–2035. As the global automotive industry navigates through electrification, automation, and sustainability mandates, temperature sensors are gaining paramount importance as they play a pivotal role in ensuring operational reliability, energy efficiency, and regulatory compliance. These sensors detect and regulate temperature fluctuations across various vehicle systems—ranging from internal combustion engines and battery packs to HVAC and seating components—enhancing safety, longevity, and overall vehicle performance. In electric vehicles (EVs) particularly, precise thermal management is indispensable, thus accelerating the demand for high-performance and compact temperature sensors.

The surge in EV adoption, stricter emissions standards, and the push toward advanced driver-assistance systems (ADAS) have significantly boosted integration of MEMS-based and IC sensors, given their responsiveness and accuracy. Thermocouples remain integral in engine and exhaust applications, while new-generation vehicles are increasingly outfitted with multi-point temperature sensing networks for battery and motor monitoring. Moreover, innovations in wireless sensing and data communication are transforming the sensor landscape, enabling real-time analytics, predictive maintenance, and smart charging functionalities—particularly in the wireless EV charging segment. As manufacturers pivot to intelligent and energy-optimized vehicle architectures, the need for adaptive and energy-efficient sensors is becoming non-negotiable.

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From a regional perspective, Asia Pacific dominates the global automotive temperature sensor market, driven by strong automotive production bases in China, India, Japan, and South Korea, along with aggressive EV policy incentives and supply chain localization. Europe remains at the forefront of green mobility transformation, especially with its ambitious emission reduction targets and expansive EV infrastructure, which directly spurs temperature sensor installations. North America, particularly the U.S., is witnessing rapid uptake of smart sensors due to technological advancements in connected mobility and robust R&D efforts. Meanwhile, Latin America and the Middle East & Africa are progressively embracing sensor-enabled automotive solutions amid growing auto sales and urban electrification initiatives.

Major market player included in this report are:

Texas Instruments Inc.

Bosch Sensortec GmbH

Denso Corporation

NXP Semiconductors

Sensata Technologies

TE Connectivity Ltd.

STMicroelectronics

Delphi Technologies

Continental AG

Analog Devices Inc.

Renesas Electronics Corporation

Panasonic Corporation

Honeywell International Inc.

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Microchip Technology Inc.

Infineon Technologies AG

Global Automotive Temperature Sensor Market Report Scope:

Historical Data – 2023, 2024

Base Year for Estimation – 2024

Forecast period – 2025-2035

Report Coverage – Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Regional Scope – North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope – Free report customization (equivalent up to 8 analysts' working hours) with purchase. Addition or alteration to country, regional & segment scope*

The objective of the study is to define market sizes of different segments & countries in recent years and to forecast the values for the coming years. The report is designed to incorporate both qualitative and quantitative aspects of the industry within the countries involved in the study. The report also provides detailed information about crucial aspects, such as driving factors and challenges, which will define the future growth of the market. Additionally, it incorporates potential opportunities in micro-markets for stakeholders to invest, along with a detailed analysis of the competitive landscape and product offerings of key players. The detailed segments and sub-segments of the market are explained below:

By Application:

Engine

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Exhaust

Seats

By Product:

Thermocouple

MEMS

IC Sensor

By Usage:

(Further categorization based on vehicle system and application environment; defined during research customization.)

By Technology:

(Includes analog and digital sensing technologies, wireless integration, and communication protocols.)

By EV Application:

Battery

Motor

By EV Charging Tech:

Wired

Wireless

By Vehicle:

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(Segmented into Passenger Cars, Commercial Vehicles, and Electric Vehicles.)

By Region:

North America

- U.S.
- Canada

Europe

- UK
- Germany
- France
- Spain
- Italy
- Rest of Europe

Asia Pacific

- China
- India
- Japan
- Australia
- South Korea

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Rest of Asia Pacific

Latin America

Brazil

Mexico

Middle East & Africa

UAE

Saudi Arabia

South Africa

Rest of Middle East & Africa

Key Takeaways:

Market Estimates & Forecast for 10 years from 2025 to 2035.

Annualized revenues and regional level analysis for each market segment.

Detailed analysis of geographical landscape with Country level analysis of major regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approach.

Analysis of competitive structure of the market.

Demand side and supply side analysis of the market.

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