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Global Integrated Temperature and Pressure Sensor for Automotive Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Integrated Temperature and Pressure Sensor for Automotive market size was valued at US$ 540 million in 2025 and is forecast to a readjusted size of US$ 717 million by 2032 with a CAGR of 4.2% during review period.

An Integrated Temperature and Pressure Sensor for Automotive is a vehicle-grade integrated sensor used to measure both pressure and temperature in automotive systems. It typically integrates a pressure sensing element, a temperature sensing element, signal conditioning circuitry, a housing, and an electrical interface within the same sensor module. The sensor monitors gases, liquids, oils, or refrigerants in systems such as the engine, fuel system, intake and exhaust system, thermal management system, air conditioning or heat pump system, and new energy vehicle fluid circuits. It converts pressure and temperature changes into analog or digital signals that can be recognized by the electronic control unit, supporting vehicle control, fault diagnosis, safety protection, and energy efficiency management. In 2025, global production of Integrated Temperature and Pressure Sensors for Automotive reached 69.95 million units, with an average selling price of USD 7.5 per unit.

Integrated Temperature and Pressure Sensors for Automotive are compound integrated products within the automotive sensor industry. Their core value lies in integrating pressure measurement and temperature measurement into a single module, thereby reducing installation space, wiring interfaces, and the number of input channels required by vehicle control units. These sensors also improve real-time monitoring capabilities in engines, fuel systems, intake and exhaust systems, thermal management systems, air conditioning and heat pump systems, and new energy vehicle fluid circuits. Industry

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demand is mainly driven by automotive electrification, stricter emission regulations, more precise engine control, increasingly complex thermal management systems, and growing requirements for heat pump systems and battery safety monitoring in new energy vehicles.

In terms of product structure, Integrated Temperature and Pressure Sensors for Automotive can be classified by application system into engine system sensors, fuel system sensors, intake and exhaust system sensors, thermal management and air conditioning system sensors, and new energy vehicle battery and heat pump system sensors. By pressure sensing technology, they can be divided into piezoresistive, capacitive, piezoelectric, fiber optic, and other types, with MEMS silicon piezoresistive, ceramic piezoresistive, and related integrated packaging solutions remaining the mainstream technologies in mass-production automotive applications. By market fitment type, OEM fitment accounts for the majority of demand, while the aftermarket mainly comes from replacement parts, spare parts channels, and branded service networks. In terms of application structure, internal combustion engine vehicles continue to generate baseline demand from engine, fuel, intake and exhaust, and air conditioning systems, while new energy vehicles are driving growth in refrigerant circuits, heat pump systems, battery pack thermal safety, and coolant circuit applications.

From a regional perspective, European, Japanese, and U.S. suppliers still maintain strong advantages in high-reliability automotive sensors, pressure chips, ASICs, packaging design, and OEM qualification. China, Mexico, Eastern Europe, and Southeast Asia are taking on more localized manufacturing demand from vehicle and component production. The Chinese market is growing relatively quickly, supported by rising new energy vehicle output, increasing thermal management complexity, and the expansion of local Tier 1 suppliers. However, high-end pressure chips, automotive-grade ASICs, and certain high-precision packaging capabilities still involve foreign-invested and joint-venture supply chains. The competitive landscape is relatively concentrated. Leading companies typically have capabilities in pressure sensing element design, signal conditioning chip matching, automotive-grade packaging, automated calibration and testing, and long-term OEM qualification, while smaller suppliers are more active in the aftermarket, low-pressure lines, non-core operating conditions, or local substitution projects.

In terms of cost structure, the main costs of Integrated Temperature and Pressure Sensors for Automotive include pressure sensing elements, temperature sensing elements, ASICs or signal conditioning circuits, plastic or metal housings, connectors, seals, automated assembly, combined temperature and pressure calibration, reliability

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testing, and automotive quality management. Among these, chips and sensing elements, packaging structures, and calibration testing are the key factors affecting cost and yield. Manufacturing processes generally include automated assembly, welding or bonding, packaging, leak testing, combined temperature and pressure calibration, and final inspection. A typical single production line has an annual capacity of 1.5 million to 3 million units, while highly automated lines operated by leading suppliers can reach 3 million to 5 million units per year. Industry gross margins are generally 20% to 35%, with higher margins for high-precision, high-temperature and high-pressure, refrigerant-compatible, and new energy vehicle thermal management products, while standardized aftermarket replacement products usually have lower margins.

Overall, the Integrated Temperature and Pressure Sensor for Automotive industry is developing from single-parameter measurement toward multi-parameter integration, digital output, miniaturized packaging, and system-level adaptation. Future growth will mainly come from the penetration of heat pump systems in new energy vehicles, the application of new refrigerants such as CO? and R290, more refined engine and emission control, upgrades in vehicle electrical and electronic architecture, and local supply chain substitution. At the same time, industry entry barriers are rising. Competition is no longer limited to hardware price, but increasingly centers on automotive-grade reliability, long-term stability, combined temperature and pressure calibration capability, software compensation algorithms, OEM platform qualification cycles, and global delivery capability.

This report is a detailed and comprehensive analysis for global Integrated Temperature and Pressure Sensor for Automotive market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Integrated Temperature and Pressure Sensor for Automotive market size and forecasts, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Integrated Temperature and Pressure Sensor for Automotive market size and

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forecasts by region and country, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Integrated Temperature and Pressure Sensor for Automotive market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Integrated Temperature and Pressure Sensor for Automotive market shares of main players, shipments in revenue ($ Million), sales quantity (K Units), and ASP (US$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Integrated Temperature and Pressure Sensor for Automotive

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Integrated Temperature and Pressure Sensor for Automotive market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Bosch, Sensata Technologies, DENSO, Schaeffler, TE Connectivity, Valeo, Amphenol, Shanghai Baolong Automotive, Shenzhen Ampron Technology, Wuhan Fine MEMS, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Integrated Temperature and Pressure Sensor for Automotive market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application

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in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

- Absolute Pressure Type
- Gauge Pressure Type
- Differential Pressure Type

Market segment by Sensing Technology

- Piezoresistive Type
- Capacitive Type
- Piezoelectric Type
- Fiber Optic Type
- Others

Market segment by Market Fitment Type

- OEM
- Aftermarket

Market segment by Application

- Fuel Vehicles
- Electric Vehicles

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Major players covered

- Bosch
- Sensata Technologies
- DENSO
- Schaeffler
- TE Connectivity
- Valeo
- Amphenol
- Shanghai Baolong Automotive
- Shenzhen Ampron Technology
- Wuhan Fine MEMS
- Bridgeport Intelligent Technology (Hangzhou)
- Shanghai Sinotec
- TEMB Intelligent Technology

Market segment by region, regional analysis covers

- North America (United States, Canada, and Mexico)
- Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)
- Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)
- South America (Brazil, Argentina, Colombia, and Rest of South America)

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Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Integrated Temperature and Pressure Sensor for Automotive product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Integrated Temperature and Pressure Sensor for Automotive, with price, sales quantity, revenue, and global market share of Integrated Temperature and Pressure Sensor for Automotive from 2021 to 2026.

Chapter 3, the Integrated Temperature and Pressure Sensor for Automotive competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Integrated Temperature and Pressure Sensor for Automotive breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and Integrated Temperature and Pressure Sensor for Automotive market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Integrated Temperature and Pressure Sensor for Automotive.

Chapter 14 and 15, to describe Integrated Temperature and Pressure Sensor for Automotive sales channel, distributors, customers, research findings and conclusion.

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