

Automotive Sensors Market by Sales Channel (OEM, Aftermarket), Type (Temperature, Pressure, Oxygen, Position, Speed, Inertial, Image, Level, Chemical Sensors), Vehicle Type (Passenger Car, LCV, HCV), Application, Region - Global Forecast to 2028

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Abstracts

The automotive sensor market is valued at USD 30.8 billion in 2023 and is anticipated to be USD 62.2 billion by 2028, growing at a CAGR of 15.0% from 2023 to 2028.

Factors such as advancements in sensor technologies to meet customer requirements, and growing inclination of consumers toward alternative fuel vehicles to reduce GHG emissions are likely to drive market growth during the forecast period. Vehicle authentication is a critical aspect of automotive security that must be implemented to prevent the counterfeiting of ADAS peripherals and ensure secure data communication with the cloud.

Growing focus on implementing vehicle authentication to ensure driver safety and comfort

Vehicles have become more complex due to the increased installation of electronics and software components. Concerns about vehicle safety, security, and comfort will arise with the growth of technology's influence on mobility. Automobile security is essential as the automotive industry relies on independent vehicle decision-making and cloud connectivity. Vehicle authentication is a critical aspect of automotive security that must be implemented to prevent the counterfeiting of ADAS peripherals and ensure secure data communication with the cloud. Several governments, including the UK, Germany, the US, and China, and a consortium of automotive OEMs expressed their concerns about improving the safety of the infotainment system/interior electronics architecture. Consumer demand has also fueled developments in lighting solutions,

emergency systems, and vehicle display systems.

Moreover, electrical system controls are increasingly being adopted to ensure passenger safety, intimate drivers about the condition of the vehicle component, and warn them about high-risk scenarios. Automotive semiconductor vendors will likely benefit from a surge in demand for various car semiconductor devices, including microcontrollers (MCUs), sensors, and memory modules. The strong focus of OEMs on vehicle automation, electrification, digital connectivity, and security leads to adding more semiconductors to automotive electronics and subsystems, including automotive sensors. Thus, the consumer demand for safety, security, and comfort in automobiles will propel the growth of the automotive sensors market.

The installation of essential safety features, including ABS and airbags, is a mandate enforced by governments in developing countries in the Asia Pacific, such as China and India. At the same time, the established automotive market in Europe and North America is focused on the greater deployment of driver assistance systems in commercial vehicles. Automotive giants, such as Volkswagen Group and Ford, have proactively approached safety by making airbags a standard feature across their range. To stay ahead in a competitive market, manufacturers have been investing in advanced safety and luxury features, leading to a notable increase in the demand for automotive sensors.

Minimizing driver stress through adoption of advanced driver-assistance systems

The growing demand for automotive sensors is primarily attributed to the increasing adoption of autonomous driving technology with advanced driver-assistance systems (ADAS) and autonomous driving (AD) systems emerging as the growth drivers of autonomous driving technology. These systems rely extensively on various sensor types including image sensors, temperature sensors, position sensors, and speed sensors. These sensors play a crucial role in advancing both vehicle safety and automation.

Additionally, there are other sensor categories, such as powertrain sensors, chassis sensors, and body sensors, that also play significant roles in driving the automotive sensor market. Powertrain sensors are essential for ensuring the efficient operation of vital engine and transmission components, while chassis sensors monitor critical functions like braking and steering. In vehicles operating at SAE AV Level 3 and beyond, a combination of sensors is employed across ADAS/AD systems, braking systems, and power steering systems, with body sensors assessing vehicle

performance and condition across multiple parameters. Body sensors can capture and transmit data related to door and roof closure, seat occupancy, and environmental conditions, such as sunlight and rainfall. These sensors can trigger alerts and perform basic functions, which can reduce driver stress and increase their productivity. Therefore, the increasing use of autonomous vehicles equipped with a wide range of sensors is driving the growth of the automotive sensors market.

“Asia Pacific is the fastest-growing region in the automotive sensor market.”

The Asia Pacific automotive sensor market is expected to witness highest CAGR during the forecast period. This growth can be attributed to the region's stringent government regulations necessitating the integration of advanced technologies to enhance vehicle safety and reduce environmental pollution. Additionally, there is a growing preference for electric and hybrid vehicles, alongside a substantial adoption of Advanced Driver Assistance Systems (ADAS) and autonomous vehicles in the region. Furthermore, the increasing disposable income of consumers, increasing investments in automotive infrastructure development, and a rising demand for more efficient and safer vehicles are all contributing to the rapid expansion of the automotive sensor market in the Asia Pacific region.

The breakup of primaries conducted during the study is depicted below:

By Company Type: Tier 1 – 20 %, Tier 2 – 45%, and Tier 3 –35%

By Designation: C-Level Executives – 35%, Directors – 25%, and Others – 40%

By Region: North America– 45%, Europe – 20%, Asia Pacific – 30%, Rest of world– 5%

Research Coverage

The report segments the automotive sensor market and forecasts its size, by value and volume, based on region (North America, Europe, Asia Pacific, and RoW), Sensor Types (temperature sensors, pressure sensors, position sensors, oxygen sensors, NOx sensors, speed sensors, inertial sensors, image sensors, level sensors, chemical sensors, radar sensors, ultrasonic sensors, LiDAR sensors, current sensors, and other sensor types [rain sensors, relative humidity sensors, proximity sensors, particulate matter sensors]), Sales Channel (original equipment manufacturers (OEMs) and

aftermarkets), Vehicle Types (passenger cars, light commercial vehicles (LCVs), and heavy commercial vehicles (HCVs)) and Application (powertrain systems, chassis, exhaust systems, safety and control systems, vehicle body electronics, telematics systems, driver assistance and automation, and other applications [vehicle monitoring systems, vehicle tracking systems, and vehicle security systems]). The report also comprehensively reviews market drivers, restraints, opportunities, and challenges in the automotive sensor market. The report also covers qualitative aspects in addition to the quantitative aspects of these markets.

Reason to Buy Report

The report will help the market leaders/new entrants with information on the closest approximations of the revenue numbers for the overall automotive sensor market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (government incentives and grants to support R&D in automotive sensor technology, and minimizing driver stress through adoption of advanced driver-assistance systems), restraints (High cost of LiDAR automotive sensors, and shortage of aftermarket service professionals in emerging economies), opportunities (growing adoption of EVs and HVs to reduce CO2 emissions, and Increasing investments by automobile manufacturers in LiDAR technology), and challenges (safety and security threats in autonomous vehicles, and need for high-performance sensors)

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the automotive sensor market.

Market Development: Comprehensive information about lucrative markets – the report analyses the automotive sensor market across varied regions.

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the automotive

sensor market

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players Robert Bosch GmbH (Germany), ON Semiconductor (US), OMNIVISION (US), TE Connectivity (Germany), and Continental AG (Germany), among others in the automotive sensor market

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Details on Business Overview, Products/Solutions/Services Offered, Recent Developments, MnM view (Key strengths/Right to win, Strategic choices made, Weakness/competitive threats) might not be captured in case of unlisted companies.

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About

The report divides the automotive sensor market into two main categories, namely product wise and application wise. Increasing demand for automotive sensors in the various applications such as powertrain, safety and control, and alternative fuel is due to rise of new technologies worldwide, government interventions (regulations and support), and customer preference. The companies are realizing the potential of this market and are trying to answer the automotive OEMs' needs to by better solution at an affordable cost. Significant up gradation and development of the new sensors for the automotive market have been the main strategies followed by the key players such as Delphi Automotive (U.S.), DENSO (Japan), CTS Corporation, (U.S.), Robert Bosch (Germany), and ST Microelectronics (Switzerland).

In modern automobiles, numerous types of sensors fulfill many important tasks ranging from engine performance and passenger safety with comfort and vehicle dynamic behavior. Although rarely visible, they contribute significantly to the vehicle's performance, quality, image and its customer appeal. The need for sensors is evolving and is growing rapidly. Automotive safety represents a growing and most stable market due to influences from national governments, consumers and the automakers themselves. Different technologies such as "advanced driver assistance system" and "hybrid and electric vehicle" will show the growth opportunities in the sensor market.

The automotive sensor market is highly fragmented in terms of number of players. There are numerous startups in the field of automotive sensors especially in APAC region. With the top most position in the production of automotive, APAC is expected to prosper with its continued market leadership in the near future. The application market for automotive sensors covers Powertrain, Body Electronics, Vehicle Security System, Safety and Control,

Telematics and Alternative Fuel Vehicle (AFVs). The continual upgrading of crucial specifications is the key to avoid commodity pricing pressures in automotive sensors. This requires a large amount of engineering resources to support the steady flow of newly upgraded products.

The automotive sensor market is poised to grow due to several enabling factors; however, there continues to be some restraint in the growth. For automotive sensor market - worldwide vehicle production, technology developments, customer

preference, and the government mandates are acting as drivers; whereas pricing issues, high expectations from automotive OEM, and inadequate aftermarket services and products are acting as restraints. The increasing demand of Advance Driver Assistance Systems (ADAS), and hybrid and electric vehicles (EV), are the future opportunities for automotive sensors.

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