

Automotive Manifold Absolute Pressure Sensor Market Forecasts to 2034 – Global Analysis By Sensor Type (Absolute Pressure Sensors, Combined MAP Sensors, and Integrated Pressure-Temperature Sensors), Vehicle Type, Fuel Type, Application, Sales Channel, and By Geography

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Abstracts

According to Statistics MRC, the Global Automotive Manifold Absolute Pressure Sensor Market is accounted for \$0.9 billion in 2026 and is expected to reach \$1.4 billion by 2034 growing at a CAGR of 4.7% during the forecast period. Manifold Absolute Pressure (MAP) sensor is a critical engine management component that measures the absolute pressure inside the intake manifold, providing real-time data to the engine control unit for optimal fuel injection and ignition timing. These sensors directly influence engine performance, fuel efficiency, and emission levels. The market encompasses various sensor configurations including standalone absolute pressure units, combined sensors, and integrated pressure-temperature solutions deployed across passenger cars, commercial vehicles, and two-wheelers worldwide.

Market Dynamics:

Driver:

Increasing demand for fuel-efficient and low-emission vehicles

This factor is significantly driving the MAP sensor market as automotive manufacturers face tightening emission regulations globally. MAP sensors provide precise intake manifold pressure data enabling optimized air-fuel ratios, which directly reduces fuel

consumption and lowers exhaust emissions including CO₂ and NO_x. With regulations such as Euro 6, Bharat Stage VI, and China VI mandating stricter emission limits, automakers are compelled to integrate high-accuracy pressure sensors into their engine management systems. Additionally, rising fuel prices push consumers toward vehicles with better mileage, further accelerating the adoption of advanced MAP sensor technologies across all vehicle categories.

Restraint:

High susceptibility to contamination and failure

This factor significantly restrains market growth as MAP sensors are prone to performance degradation due to exposure to engine contaminants. Carbon deposits, oil vapor, fuel residues, and particulate matter from the intake system can accumulate on the sensor diaphragm, leading to inaccurate pressure readings. This contamination triggers diagnostic trouble codes, check engine lights, and compromised engine performance requiring costly replacement. Extreme operating temperatures and vibration environments further reduce sensor lifespan. While preventive maintenance can mitigate issues, the inherent vulnerability of pressure sensing elements remains a technical challenge, limiting adoption in cost-sensitive vehicle segments and aftermarket applications.

Opportunity:

Rapid electrification of two-wheelers and light commercial vehicles

This factor presents substantial growth opportunities for MAP sensor manufacturers as emerging markets witness unprecedented electric vehicle adoption. While fully electric powertrains do not require MAP sensors, hybrid vehicles and internal combustion engine segments in developing regions continue to expand, particularly in two-wheeler and light commercial categories. Manufacturers are developing robust, miniaturized MAP sensors optimized for high-volume, low-cost applications in these price-sensitive segments. The shift toward integrated pressure-temperature sensors offers enhanced value propositions, consolidating multiple sensing functions into single units. As vehicle production volumes rise across Asia and Africa, demand for aftermarket replacement sensors also grows substantially.

Threat:

Long-term shift toward fully electric powertrains

This factor poses a significant threat to the traditional MAP sensor market as global automotive electrification accelerates. Battery electric vehicles (BEVs) completely eliminate internal combustion engines, removing the need for manifold absolute pressure sensors entirely. Major automotive markets including Europe, China, and North America have announced timelines for phasing out new internal combustion engine vehicle sales between 2030 and 2040. While internal combustion engine vehicles will remain on roads for decades, the declining production of new engine-powered vehicles will gradually erode the OEM MAP sensor market. Sensor manufacturers must diversify into EV-relevant sensing technologies such as battery pressure monitoring to maintain long-term relevance.

Covid-19 Impact:

The COVID-19 pandemic significantly disrupted the automotive MAP sensor market through supply chain interruptions and sharp declines in vehicle production. Factory shutdowns across major manufacturing hubs in China, Europe, and North America during 2020 reduced OEM sensor demand by over 15%. However, the subsequent recovery was robust as pent-up consumer demand and supply chain restocking drove strong rebounds in 2021 and 2022. The pandemic also accelerated digital transformation in aftermarket channels, with increased online sales of replacement sensors. Labor shortages during the crisis heightened interest in automation but also delayed new sensor development programs, creating lasting effects on product launch timelines.

The Absolute Pressure Sensors segment is expected to be the largest during the forecast period

The Absolute Pressure Sensors segment is expected to account for the largest market share during the forecast period, driven by their fundamental role in every internal combustion engine management system. These sensors measure manifold pressure relative to absolute vacuum, providing essential data for calculating air density and determining optimal fuel delivery. Their relative simplicity, proven reliability, and cost-effectiveness make them the default choice across all vehicle segments from entry-level two-wheelers to premium passenger cars. Widespread standardization by major powertrain suppliers ensures continuous high-volume production. Even as more sophisticated combined sensors emerge, absolute pressure sensors remain the baseline requirement for gasoline, diesel, and alternative fuel engines worldwide.

The Two-Wheelers segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the Two-Wheelers segment is predicted to witness the highest growth rate, fueled by surging motorcycle and scooter production across Asia-Pacific and Latin America. Countries including India, Indonesia, Vietnam, and Brazil are experiencing rising middle-class populations and urbanization, driving two-wheeler ownership to record levels. Stringent emission norms are now being enforced on two-wheelers, requiring precise engine management including MAP sensors even on smaller displacement engines. The transition from carburetors to electronic fuel injection across commuter motorcycles creates new demand. As two-wheeler manufacturers scale production volumes and aftermarkets mature, this segment presents the most dynamic growth trajectory within the global MAP sensor market.

Region with largest share:

During the forecast period, the Asia-Pacific region is expected to hold the largest market share, driven by the world's highest vehicle production volumes concentrated in China, India, Japan, South Korea, and Thailand. China alone manufactures approximately 30% of global vehicles, while India produces over 20 million two-wheelers annually, creating massive OEM demand for MAP sensors. The presence of major sensor manufacturers including Denso, Sensata, and Bosch with extensive regional production facilities ensures supply chain efficiency. Rapid adoption of BS VI emission standards across India and China VI regulations accelerate sensor content per vehicle. The region's large and growing vehicle parc also fuels substantial aftermarket replacement sensor demand.

Region with highest CAGR:

Over the forecast period, the Asia-Pacific region is anticipated to exhibit the highest CAGR, supported by the continuous expansion of automotive manufacturing capacity and increasing vehicle electrification in emerging economies. The rapid growth of two-wheeler and light commercial vehicle segments across India, Indonesia, and Vietnam creates sustained demand for affordable yet reliable MAP sensors. Government initiatives promoting local manufacturing under programs such as Make in India and Made in China 2025 reduce import dependence and stimulate domestic sensor production. Furthermore, the region's high vehicle density and challenging environmental conditions accelerate sensor replacement cycles, driving aftermarket

growth. As automotive production increasingly shifts to Asia-Pacific, this region simultaneously leads in both market size and growth momentum.

Key players in the market

Some of the key players in Automotive Manifold Absolute Pressure Sensor Market include Bosch, Continental AG, Denso Corporation, Sensata Technologies, Infineon Technologies AG, NXP Semiconductors, STMicroelectronics, HELLA GmbH & Co. KGaA, Hitachi Astemo Ltd., Delphi Technologies, Allegro MicroSystems, TE Connectivity, Mitsubishi Electric Corporation, Murata Manufacturing Co. Ltd., Tenneco Inc., Aptiv PLC, Autoliv Inc., Valeo SA, NGK Spark Plug Co. Ltd., and Robertshaw Controls Company.

Key Developments:

In July 2025, STMicroelectronics expanded its automotive semiconductor and microelectromechanical systems (MEMS) capabilities by announcing and completing the acquisition of NXP Semiconductors' MEMS sensor business for USD 950 million in cash. The acquisition consolidates STMicroelectronics' market share across specialized precision automotive pressure monitoring segments.

In June 2025, Robert Bosch GmbH was awarded the "Best of Sensors" award for its SMP290 microelectromechanical systems (MEMS) pressure sensor, which delivers enhanced precision and sub-system integration for engine load monitoring and advanced powertrains.

In January 2025, Robert Bosch GmbH disclosed the availability of its next-generation TMAP sensor module, combining temperature and manifold absolute pressure measurements. Designed to support compliance with upcoming Euro 7 engine management systems, the module entered official OEM qualification testing with major European passenger car manufacturers.

Sensor Types Covered:

Absolute Pressure Sensors

Combined MAP Sensors

Integrated Pressure-Temperature Sensors

Vehicle Types Covered:

Passenger Cars

Light Commercial Vehicles

Heavy Commercial Vehicles

Two-Wheelers

Fuel Types Covered:

Gasoline

Diesel

Hybrid

CNG/LPG

Applications Covered:

Engine Control

Emission Control

Turbocharging Systems

Intake Manifold Monitoring

Sales Channels Covered:

OEM

Aftermarket

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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