

Position Sensor Market Size and Share Outlook - Forecast Trends and Growth Analysis Report (2025-2034)

Market Report | 2025-08-13 | 165 pages | EMR Inc.

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Report description:

The global position sensor market reached a value of nearly USD 4.92 Billion in 2024 . The market is assessed to grow at a CAGR of 7.10% during the forecast period of 2025-2034 to attain a value of around USD 9.77 Billion by 2034 . The rising vehicle production, the growing trend of miniaturisation, technological advancements and innovations, the increasing development of vehicle automation, and the rising integration of IoT-based position sensors are driving the market.

Global Position Sensor Market Growth

Position sensors detect the relative position of human workers or other workplace assets, lowering the risk of workplace injuries and fatalities. Growing concerns regarding workplace fatalities and injuries are propelling the market. In 2022, there were 5,486 workplace fatalities in the United States alone, as per the US Bureau of Labor Statistics.

The growing trend of vehicle electrification is boosting the position sensor market value. With evolving electric power steering (EPS), the demand for position sensors with enhanced resolution and accuracy is increasing. The increasing electrification of transportation systems and the rising popularity of e-scooters, e-bikes, and pedal electric cycles are aiding the market. Advancements in cadence, motor commutation, and wheel space sensing are expected to surge the requirement for position sensors.

In the forecast period, AI-based technologies are expected to improve the capabilities of position sensors for use in industrial robots. The growing adoption of Industry 4.0 in different sectors, ranging from automotive to manufacturing, is anticipated to bolster the position sensor demand growth in the coming years.

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Key Trends and Recent Developments

Growing trend of miniaturisation; rising emphasis on safety; integration of IoT in position sensors; and the development of autonomous vehicles are favouring the position sensor market expansion

June 2024

TDK Corporation expanded its Micronas 3D HAL-position sensor brand with the launch of the HAL/HAR 3936. The high precision and stray-field robust Hall-effect 3D-position sensor is ideal for gear selectors, brake pedal position sensors, and steering column switches. Some of its features include a power-saving low-power mode, hence facilitating direct connection to a vehicle's battery for improved efficiency.

May 2024

Melexis introduced the MLX90427 to expand its magnetic position sensor portfolio. The next-generation magnetic position sensing IC is tailored for embedded position sensor applications requiring high functional safety levels. The product has been developed to meet the current and future technical requirements of the automotive industry.

October 2023

TDK Corporation announced the launch of its high-resolution position sensor, HAL 3927 sensor, for the industrial and automotive sectors. The sensor features a ratiometric and linear analogue output with integrated wire-break detection and boasts highly accurate position measurements. It is ideal for use in linear movement measurements in transmissions, as an engine stroke sensor, in clutch pedals, and for cylinder and valve position measurements.

February 2023

Continental expanded its sensor portfolio for the thriving electric car market by introducing high-speed inductive e-motor Rotor Position Sensor (eRPS). The sensor, more compact and 40% lighter in weight than resolver sensors, can detect the exact position of the rotor in a synchronous electric machine, enabling smoother operations and increasing the efficiency of electric cars.

Growing Trend of Miniaturisation

The growing trend of miniaturisation amid the rising demand for precision and space efficiency is driving the position sensor demand forecast. In devices such as wearables, smartphones, and VR systems, miniaturised position sensors are crucial for user interaction and motion sensing.

Rising Emphasis on Safety

With the rising focus on safety in applications such as safety-critical equipment and environmental monitoring, the use of position sensors to comply with stringent safety standards and detect hazardous conditions is surging. Moreover, the increasing emphasis on safety in sectors such as oil and gas, nuclear power, and mining is expected to drive the development of ruggedised position sensors that offer enhanced reliability under extreme environmental conditions.

Integration of IoT in Position Sensors

The integration of the Internet of things (IoT) in position sensors aimed at enhancing their precision, functionality, and efficiency is

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aiding the market. IoT-based position sensors facilitate real-time data collection, decision making, and monitoring, enhancing operational efficiency and driving predictive maintenance.

Increasing Development of Autonomous Vehicles

The increasing focus by leading automakers on developing autonomous vehicles is driving the position sensor market development. As highly automated driving requires safe, precise, and highly available vehicle localisation, the demand for compact, highly integrated, and cost-effective position sensors that reduce complexity in autonomous driving systems is rising.

Global Position Sensor Market Trends

In Advanced Driver Assistance Systems (ADAS), position sensors are crucial for features such as adaptive cruise control, lane-keeping assist, and collision avoidance. The introduction of stringent safety protocols to improve the safety of vehicles is prompting automakers to integrate position sensors in vehicles. Moreover, industrial robots deploy position sensors to prevent collisions, detect the precise position of robotic arms, and ensure the safety of workers and machinery.

In sectors such as healthcare, aerospace, and automotive, miniaturised position sensors play a crucial role in ensuring optimal safety and reliability. The rising adoption of smart devices, IoT solutions, and autonomous systems is also creating lucrative position sensor market opportunities. In the coming years, the growing deployment of technologies such as Micro-Electro-Mechanical Systems to enable the development of miniaturised and high-performance motion sensors with enhanced reliability and precision is likely to fuel the market.

Global Position Sensor Industry Segmentation

The EMR's report titled "Global Position Sensor Market Report and Forecast 2025-2034" offers a detailed analysis of the market based on the following segments:

Market Breakup by Type

- Linear Type

??- Linear Encoders

??- Linear Variable Differential Transformers

??- Magnetostrictive Sensors

??- Linear Potentiometers

??- Laser Position Sensors

- Rotary Position Sensors

??- Rotary Encoders

??- Rotary Potentiometers

??- Rotary Variable Differential Transformers

??- Resolvers

- Others

Market Breakup by Technology

- Photoelectric

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- Rotary
- Linear
- Proximity
- Others

Market Breakup by Contact Type

- Non-Contact Type
- Contact Type

Market Breakup by Output

- Digital Output
- Analogue Output

Market Breakup by Application

- Machine Tools
- Robotics
- Motion Systems
- Material Handling
- Test Equipment
- Others

Market Breakup by End-Use

- Automotive
- Aerospace and Defence
- Electronics
- Healthcare
- Manufacturing and Packaging
- Others

Market Breakup by Region

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa

Global Position Sensor Market Share

As per the position sensor market analysis, linear position sensors measure the distance between a point of reference in a straight line and a physical object. Also used to measure a change in position and provide accurate feedback on displacement, they are critical in sectors such as robotics, industrial environments, and medical, among others.

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The growing trend of Industry 4.0 is expected to boost the adoption of linear position sensors employing Application Specific Integrated Circuits (ASICs) to offer enhanced speed, cost saving, and precision to industrial automation. Meanwhile, rotary position sensors are designed for applications such as consumer electronics, test and measurement equipment, medical equipment, and small engines, among others, requiring frequent adjustments.

Competitive Landscape

Key position sensors market players are investing in developing high precision position sensors with enhanced reliability and accuracy for use in applications in industrial automation and autonomous vehicles. They are also attempting to miniaturise position sensors to cater to the rising demand for lightweight and compact solutions for use in drones, wearables, and mobile devices.

AMS AG

AMS AG, headquartered in Austria and Germany, is a leader in intelligent sensors and emitters. It is also engaged in designing and manufacturing advanced sensor solutions. In 2023, the company achieved EUR 3.6 billion revenue and is listed on the SIX Swiss Exchange.

MTS Systems Corporation

MTS Systems Corporation, established in 1966, is a prominent supplier of test and simulation systems. Headquartered in Minnesota, United States, the company is renowned for its innovation, quality, and excellent customer service. Its products and solutions are used in diverse sectors, ranging from civil engineering to biomedical.

Vishay Intertechnology, Inc.

Vishay Intertechnology, Inc., established in 1962 and headquartered in Pennsylvania, United States, is one of the leading manufacturers of discrete semiconductors and passive electronic components. Serving sectors such as telecommunications, automotive, consumer electronics, military, aerospace, and medical, the company is listed on NYSE.

Bourns

Bourns, headquartered in California, United States, has established its position as a leading manufacturer and supplier of circuit protection solutions, automotive sensors, microelectronic modules, panel controls, and magnetic products, among others. Founded in 1947, the company serves various sectors, including industrial, automotive, non-critical life support medical, and consumer communications, among others.

Other key players in the position sensor market include Honeywell International Inc., SICK AG, TE Connectivity Corporation, and Infineon Technologies, among others.

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