

# **Current Sensor Market Forecasts to 2032 – Global Analysis By Sensing Method (Direct Current Sensing, and Indirect Current Sensing), Loop Type (Open Loop Current Sensors, and Closed Loop Current Sensors), Output Type (Analog Output, and Digital Output), Circuit Type, Measurement Range, Technology, Application, End User, and By Geography**

<https://marketpublishers.com/r/C33FB5B1EC97EN.html>

Date: June 2025

Pages: 150

Price: US\$ 4,150.00 (Single User License)

ID: C33FB5B1EC97EN

## **Abstracts**

According to Statistics MRC, the Global Current Sensor Market is accounted for \$3.4 billion in 2025 and is expected to reach \$7.1 billion by 2032 growing at a CAGR of 11% during the forecast period. An apparatus that senses and measures the electric current passing through a conductor and transforms it into a proportional output signal, usually voltage or current is called a current sensor. Power monitoring, battery management, motor control, and industrial automation are just a few of the uses for these sensors. They make it possible to track current in real time for control, efficiency, and system protection. Current sensors may be based on magnetic field sensing technologies, shunt resistors, or the Hall Effect.

Market Dynamics:

Driver:

Increasing demand for industrial automation and industry 4.0

Manufacturing facilities and industrial operations are increasingly integrating robotics, automated machinery, and smart systems. The need for precise current measurement becomes critical for power management, equipment safety, and predictive maintenance.

Furthermore, the proliferation of intelligent manufacturing and real-time monitoring technologies relies heavily on advanced current sensors to enhance operational efficiency, minimize downtime, and support the transition toward energy-efficient and data-driven industrial environments.

#### Restraint:

##### High cost of advanced sensor technologies

The integration of sophisticated features, such as high accuracy, miniaturization, and enhanced temperature stability, often leads to increased manufacturing expenses. Moreover, price-sensitive industries, such as consumer electronics and automotive, face challenges in adopting these premium sensors due to tight profit margins and intense market competition. Additionally, fluctuations in the cost of raw materials and semiconductor components further exacerbate pricing pressures, limiting widespread adoption and impeding market growth.

#### Opportunity:

##### Development of highly accurate and compact sensors

Industries demand more reliable, space-saving, and energy-efficient solutions, manufacturers are focusing on innovations that enhance sensor performance while reducing size and power consumption. Additionally, the integration of multiple functionalities, such as power protection and programmability, into single sensor units is opening new avenues in applications ranging from electric vehicles and renewable energy systems to medical devices and IoT-enabled consumer electronics. These advancements position current sensors as essential components in next-generation technologies.

#### Threat:

##### Complexity of integration and calibration

The complexity involved in integrating and calibrating current sensors into diverse systems poses a significant threat to market growth. As applications become more sophisticated, ensuring seamless compatibility with various hardware and software platforms requires specialized expertise and time-intensive processes. Moreover, the need for precise calibration to maintain accuracy under different operating conditions

can increase deployment costs and slow down implementation. This complexity is particularly challenging for small and medium-sized enterprises lacking technical resources, potentially hindering broader market penetration.

#### Covid-19 Impact:

The Covid-19 pandemic initially disrupted the current sensor market by causing widespread supply chain delays, factory shutdowns, and reduced production capacity across key industries. Demand for sensors declined in automotive and consumer electronics sectors due to halted operations, while shortages of raw materials further constrained manufacturing. However, as economies reopened, there was a notable recovery driven by increased demand for energy-efficient solutions, remote monitoring, and automation in sectors such as healthcare, electric vehicles, and renewable energy, ultimately accelerating post-pandemic market growth.

The direct current sensing segment is expected to be the largest during the forecast period

The direct current sensing segment is expected to account for the largest market share during the forecast period. This dominance is attributed to the method's simplicity, dependability, and high accuracy, making it ideal for applications requiring precise current measurement, such as battery-powered devices, renewable energy systems, and electric vehicles. Furthermore, the growing adoption of energy-efficient technologies and the increasing need for reliable power management in industrial automation and automotive sectors are fueling the demand for direct current sensing solutions, solidifying their leading position in the market.

The open loop current sensors segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the open loop current sensors segment is predicted to witness the highest growth rate. This rapid expansion is driven by their cost-effectiveness, compact size, and low power consumption, which make them particularly suitable for battery-powered and high-current applications. Additionally, advancements in Hall Effect technology and increasing deployment in electric vehicles, industrial automation, and renewable energy sectors are contributing to their robust adoption. The versatility and scalability of open loop sensors further enhance their appeal, positioning them as a high-growth segment.

### Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share. This leadership is driven by rapid industrialization, robust automotive manufacturing, and significant investments in consumer electronics and renewable energy across countries such as China, India, Japan, and South Korea. Government initiatives supporting industrial automation and semiconductor manufacturing coupled with the region's strong manufacturing base and expanding EV infrastructure, further bolster demand.

### Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. The region's dynamic growth is fueled by increasing adoption of electric vehicles, expansion of renewable energy projects, and the proliferation of smart technologies in both industrial and consumer applications. Additionally, favorable government policies, rising urbanization, and a tech-savvy population are accelerating the integration of advanced current sensing solutions. These factors collectively position Asia Pacific the fastest-growing regional market for current sensors worldwide.

### Key players in the market

Some of the key players in Current Sensor Market include Texas Instruments Inc., Allegro MicroSystems, LLC, Infineon Technologies AG, Honeywell International Inc., Analog Devices, Inc., ROHM Semiconductor, Melexis NV, TDK Corporation, STMicroelectronics, TAMURA Corporation, LEM International SA, Omron Corporation, Asahi Kasei Microdevices Corporation, Sensitec GmbH, Pulse Electronics Corporation, ACEINNA, Eaton Corporation PLC and Diodes Incorporated.

### Key Developments:

In March 2025, Honeywell International Inc. launched high-accuracy, low-drift flux gate current sensors with CAN bus output, targeting battery management in EVs and energy storage.

In January 2025, Allegro introduced these current sensor ICs, delivering higher isolation in a 40% smaller footprint, suitable for automotive, industrial, and consumer applications.

In July 2024, Infineon and Swoboda announced a collaboration for high-performance current sensor modules for electromobility, with the first product (CSM510HP2) based on Infineon's TLE4973 IC, offering

## Contents

### **1 EXECUTIVE SUMMARY**

### **2 PREFACE**

- 2.1 Abstract
- 2.2 Stake Holders
- 2.3 Research Scope
- 2.4 Research Methodology
  - 2.4.1 Data Mining
  - 2.4.2 Data Analysis
  - 2.4.3 Data Validation
  - 2.4.4 Research Approach
- 2.5 Research Sources
  - 2.5.1 Primary Research Sources
  - 2.5.2 Secondary Research Sources
  - 2.5.3 Assumptions

### **3 MARKET TREND ANALYSIS**

- 3.1 Introduction
- 3.2 Drivers
- 3.3 Restraints
- 3.4 Opportunities
- 3.5 Threats
- 3.6 Technology Analysis
- 3.7 Application Analysis
- 3.8 End User Analysis
- 3.9 Emerging Markets
- 3.10 Impact of Covid-19

### **4 PORTERS FIVE FORCE ANALYSIS**

- 4.1 Bargaining power of suppliers
- 4.2 Bargaining power of buyers
- 4.3 Threat of substitutes
- 4.4 Threat of new entrants
- 4.5 Competitive rivalry

## **5 GLOBAL CURRENT SENSOR MARKET, BY SENSING METHOD**

- 5.1 Introduction
- 5.2 Direct Current Sensing
- 5.3 Indirect Current Sensing

## **6 GLOBAL CURRENT SENSOR MARKET, BY LOOP TYPE**

- 6.1 Introduction
- 6.2 Open Loop Current Sensors
- 6.3 Closed Loop Current Sensors

## **7 GLOBAL CURRENT SENSOR MARKET, BY OUTPUT TYPE**

- 7.1 Introduction
- 7.2 Analog Output
- 7.3 Digital Output

## **8 GLOBAL CURRENT SENSOR MARKET, BY CIRCUIT TYPE**

- 8.1 Introduction
- 8.2 Isolated Current Sensors
- 8.3 Non-Isolated Current Sensors

## **9 GLOBAL CURRENT SENSOR MARKET, BY MEASUREMENT RANGE**

- 9.1 Introduction
- 9.2 Less than 10A
- 9.3 10-100A
- 9.4 Above 100A

## **10 GLOBAL CURRENT SENSOR MARKET, BY TECHNOLOGY**

- 10.1 Introduction
- 10.2 Hall Effect Current Sensors
- 10.3 Magnetoresistive Current Sensors
- 10.4 Fluxgate Current Sensors
- 10.5 Rogowski Coil

- 10.6 Shunt Resistors
- 10.7 Fiber Optic Current Sensors
- 10.8 Other Technologies

## **11 GLOBAL CURRENT SENSOR MARKET, BY APPLICATION**

- 11.1 Introduction
- 11.2 Battery Management Systems
- 11.3 Converters & Inverters
- 11.4 Motor Drives
- 11.5 Overload Protection
- 11.6 UPS & SMPS
- 11.7 Grid Infrastructure and Power Distribution Systems
- 11.8 Fast DC Chargers (EV)
- 11.9 Other Applications

## **12 GLOBAL CURRENT SENSOR MARKET, BY END USER**

- 12.1 Introduction
- 12.2 Automotive
- 12.3 Industrial Automation
- 12.4 Consumer Electronics
- 12.5 Energy & Power
- 12.6 Telecommunications & Networking
- 12.7 Healthcare
- 12.8 Aerospace & Defense
- 12.9 Railways
- 12.10 Building & Home Automation
- 12.11 Other End Users

## **13 GLOBAL CURRENT SENSOR MARKET, BY GEOGRAPHY**

- 13.1 Introduction
- 13.2 North America
  - 13.2.1 US
  - 13.2.2 Canada
  - 13.2.3 Mexico
- 13.3 Europe
  - 13.3.1 Germany

- 13.3.2 UK
- 13.3.3 Italy
- 13.3.4 France
- 13.3.5 Spain
- 13.3.6 Rest of Europe
- 13.4 Asia Pacific
  - 13.4.1 Japan
  - 13.4.2 China
  - 13.4.3 India
  - 13.4.4 Australia
  - 13.4.5 New Zealand
  - 13.4.6 South Korea
  - 13.4.7 Rest of Asia Pacific
- 13.5 South America
  - 13.5.1 Argentina
  - 13.5.2 Brazil
  - 13.5.3 Chile
  - 13.5.4 Rest of South America
- 13.6 Middle East & Africa
  - 13.6.1 Saudi Arabia
  - 13.6.2 UAE
  - 13.6.3 Qatar
  - 13.6.4 South Africa
  - 13.6.5 Rest of Middle East & Africa

## **14 KEY DEVELOPMENTS**

- 14.1 Agreements, Partnerships, Collaborations and Joint Ventures
- 14.2 Acquisitions & Mergers
- 14.3 New Product Launch
- 14.4 Expansions
- 14.5 Other Key Strategies

## **15 COMPANY PROFILING**

- 15.1 Texas Instruments Inc.
- 15.2 Allegro MicroSystems, LLC
- 15.3 Infineon Technologies AG
- 15.4 Honeywell International Inc.

- 15.5 Analog Devices, Inc.
- 15.6 ROHM Semiconductor
- 15.7 Melexis NV
- 15.8 TDK Corporation
- 15.9 STMicroelectronics
- 15.10 TAMURA Corporation
- 15.11 LEM International SA
- 15.12 Omron Corporation
- 15.13 Asahi Kasei Microdevices Corporation
- 15.14 Sensitec GmbH
- 15.15 Pulse Electronics Corporation
- 15.16 ACEINNA
- 15.17 Eaton Corporation PLC
- 15.18 Diodes Incorporated

## List Of Tables

### LIST OF TABLES

- Table 1 Global Current Sensor Market Outlook, By Region (2024-2032) (\$MN)
- Table 2 Global Current Sensor Market Outlook, By Sensing Method (2024-2032) (\$MN)
- Table 3 Global Current Sensor Market Outlook, By Direct Current Sensing (2024-2032) (\$MN)
- Table 4 Global Current Sensor Market Outlook, By Indirect Current Sensing (2024-2032) (\$MN)
- Table 5 Global Current Sensor Market Outlook, By Loop Type (2024-2032) (\$MN)
- Table 6 Global Current Sensor Market Outlook, By Open Loop Current Sensors (2024-2032) (\$MN)
- Table 7 Global Current Sensor Market Outlook, By Closed Loop Current Sensors (2024-2032) (\$MN)
- Table 8 Global Current Sensor Market Outlook, By Output Type (2024-2032) (\$MN)
- Table 9 Global Current Sensor Market Outlook, By Analog Output (2024-2032) (\$MN)
- Table 10 Global Current Sensor Market Outlook, By Digital Output (2024-2032) (\$MN)
- Table 11 Global Current Sensor Market Outlook, By Circuit Type (2024-2032) (\$MN)
- Table 12 Global Current Sensor Market Outlook, By Isolated Current Sensors (2024-2032) (\$MN)
- Table 13 Global Current Sensor Market Outlook, By Non-Isolated Current Sensors (2024-2032) (\$MN)
- Table 14 Global Current Sensor Market Outlook, By Measurement Range (2024-2032) (\$MN)
- Table 15 Global Current Sensor Market Outlook, By Less than 10A (2024-2032) (\$MN)
- Table 16 Global Current Sensor Market Outlook, By 10-100A (2024-2032) (\$MN)
- Table 17 Global Current Sensor Market Outlook, By Above 100A (2024-2032) (\$MN)
- Table 18 Global Current Sensor Market Outlook, By Technology (2024-2032) (\$MN)
- Table 19 Global Current Sensor Market Outlook, By Hall Effect Current Sensors (2024-2032) (\$MN)
- Table 20 Global Current Sensor Market Outlook, By Magnetoresistive Current Sensors (2024-2032) (\$MN)
- Table 21 Global Current Sensor Market Outlook, By Fluxgate Current Sensors (2024-2032) (\$MN)
- Table 22 Global Current Sensor Market Outlook, By Rogowski Coil (2024-2032) (\$MN)
- Table 23 Global Current Sensor Market Outlook, By Shunt Resistors (2024-2032) (\$MN)
- Table 24 Global Current Sensor Market Outlook, By Fiber Optic Current Sensors

(2024-2032) (\$MN)

Table 25 Global Current Sensor Market Outlook, By Other Technologies (2024-2032) (\$MN)

Table 26 Global Current Sensor Market Outlook, By Application (2024-2032) (\$MN)

Table 27 Global Current Sensor Market Outlook, By Battery Management Systems (2024-2032) (\$MN)

Table 28 Global Current Sensor Market Outlook, By Converters & Inverters (2024-2032) (\$MN)

Table 29 Global Current Sensor Market Outlook, By Motor Drives (2024-2032) (\$MN)

Table 30 Global Current Sensor Market Outlook, By Overload Protection (2024-2032) (\$MN)

Table 31 Global Current Sensor Market Outlook, By UPS & SMPS (2024-2032) (\$MN)

Table 32 Global Current Sensor Market Outlook, By Grid Infrastructure and Power Distribution Systems (2024-2032) (\$MN)

Table 33 Global Current Sensor Market Outlook, By Fast DC Chargers (EV) (2024-2032) (\$MN)

Table 34 Global Current Sensor Market Outlook, By Other Applications (2024-2032) (\$MN)

Table 35 Global Current Sensor Market Outlook, By End User (2024-2032) (\$MN)

Table 36 Global Current Sensor Market Outlook, By Automotive (2024-2032) (\$MN)

Table 37 Global Current Sensor Market Outlook, By Industrial Automation (2024-2032) (\$MN)

Table 38 Global Current Sensor Market Outlook, By Consumer Electronics (2024-2032) (\$MN)

Table 39 Global Current Sensor Market Outlook, By Energy & Power (2024-2032) (\$MN)

Table 40 Global Current Sensor Market Outlook, By Telecommunications & Networking (2024-2032) (\$MN)

Table 41 Global Current Sensor Market Outlook, By Healthcare (2024-2032) (\$MN)

Table 42 Global Current Sensor Market Outlook, By Aerospace & Defense (2024-2032) (\$MN)

Table 43 Global Current Sensor Market Outlook, By Railways (2024-2032) (\$MN)

Table 44 Global Current Sensor Market Outlook, By Building & Home Automation (2024-2032) (\$MN)

Table 45 Global Current Sensor Market Outlook, By Other End Users (2024-2032) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

## I would like to order

Product name: Current Sensor Market Forecasts to 2032 – Global Analysis By Sensing Method (Direct Current Sensing, and Indirect Current Sensing), Loop Type (Open Loop Current Sensors, and Closed Loop Current Sensors), Output Type (Analog Output, and Digital Output), Circuit Type, Measurement Range, Technology, Application, End User, and By Geography

Product link: <https://marketpublishers.com/r/C33FB5B1EC97EN.html>

Price: US\$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/C33FB5B1EC97EN.html>