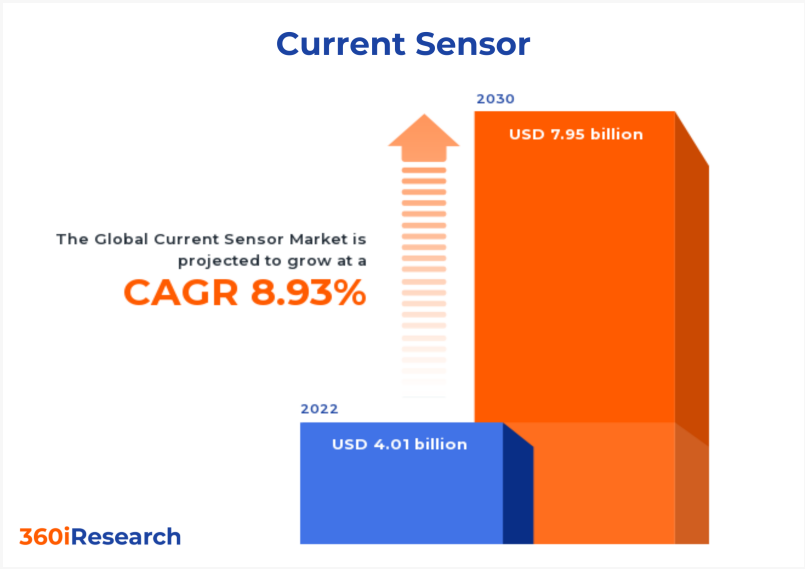
Current Sensor Market worth $7.95 billion by 2030, growing at a CAGR of 8.93% - Exclusive Report by 360iResearch

The Global Current Sensor Market to grow from USD 4.01 billion in 2022 to USD 7.95 billion by 2030, at a CAGR of 8.93%.



Current Sensor Market- Exclusive Report by 360iResearch

PUNE, MAHARASHTRA, INDIA , November 10, 2023 / EINPresswire.com/ -- The "Current Sensor Market by Sensor Type (AC Current Sensors, DC Current Sensors), Loop Type (Closed Loop, Open Loop), Technology, Output Type, End-Use - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.

The Global Current Sensor Market to grow from USD 4.01 billion in 2022 to USD 7.95 billion by 2030, at a CAGR of 8.93%.

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A current sensor measures the electric current flowing through a conductor. Current sensors are essential for monitoring and controlling power systems and are used to measure the current flowing through transmission lines, distribution networks, and electrical equipment. Current sensors are used for circuit control and protection while monitoring and enhancing the performances of electronic systems. They are primarily deployed in several electronic devices and components, such as batteries and chargers. Current sensors are useful in power metering, measurement of current supply, diagnosis of the control system, and controlling loads from motors. Current sensors integrated with backup power systems, such as uninterrupted power supply (UPS) systems and inverters, enable battery protection at the charge stage and offer increased electronic system efficiency, increasing demand for current sensors in data centers. Rising demand for Hall effect technology in current sensors and its increased use in

manufacturing industries enhance the need for current sensors. However, technical concerns and high costs associated with current sensors significantly impede the adoption of current sensors. In addition, deploying IoT and IIoT with current sensors and utilizing advanced technology in current sensors is anticipated to create massive opportunities for market development.

Loop Type: Growing deployment of closed-loop current sensor for speedy & reliable parametres in the industry-based application

A closed-loop current sensor utilizes feedback to compare its output with input, allowing the system to continually adjust its output to achieve the desired result. Closed-loop current sensors are often used in industrial environments where accuracy and precision are important. A closed-loop current sensor is more robust to core saturation as the magnetic flux density inside the core is very small. However, an open-loop current sensor is a sensor that does not use feedback or any other form of control to achieve a desired result. An open loop system uses a single measurement or output signal that does not consider external influences such as environmental parameters or user inputs. Open loop systems are commonly used in consumer electronics such as televisions, DVD players, and cell phones. A closed-loop current sensor is commonly selected in applications that demand high accuracy, as it effectively eliminates sensitivity and nonlinearity error. Additionally, the fast response time required for protecting semiconductor switches (such as IGBTs and MOSFETs) can be achieved with the use of a closed-loop current sensor, ensuring accuracy and reliability in current measurements and making it an ideal choice for applications where precision and speed are crucial.

Output Type: Innovations in digital and wireless current sensors are the emerging need of current todays non-wired, automated sensing devices

Analog current sensors are designed to measure an analog current signal from a power source or load and provide high accuracy of electronic systems and a wide dynamic current range with good linearity in their output. Digital current sensors are designed to measure digital current signals from a power source or load, and they have been gaining popularity due to their fast response time and low cost. Wireless current sensors provide many benefits over traditional wired sensors, which can be installed quickly without wiring or connectors. They also offer greater flexibility in terms of installation locations and being able to monitor electronic systems remotely over long distances.

Sensor Type: Constant utilization of current sensors to ensure the safe and efficient operation of electrical systems

Alternate-current current sensors are designed primarily to measure alternating current in electrical systems, where the direction of the flow of electric charge changes periodically. AC current sensors can measure complex waveforms with varying magnitudes and frequencies accurately. Direct-current current sensors are commonly employed in battery management systems, automotive electronics, telecommunications equipment, and data centers for measuring direct currents in electrical systems, where the flow of electric charge remains constant in one direction. DC current sensors can measure low-level currents with high precision

and stability, providing galvanic isolation between high-voltage circuits and sensitive measuring devices.

End-Use: Emerging deployment of the technologies integrated with the advanced current sensors for building automation and industrial verticals
Current sensors are widely used in the automotive industry for controlling and measuring electrical currents in onboard electrical systems and engine control units. Current sensors have become essential components in consumer electronics such as smartphones, tablets, wearables, and smart home devices due to their ability to gather data about users' activities and environmental conditions, including health tracking. In telecommunication, current sensors are employed for monitoring power usage and helping with communication signal analysis. Current sensors are also utilized in aerospace & defense to measure current flow in high-voltage systems or to monitor battery levels during flight. In building automation, increasing focus on energy efficiency while reducing operational costs, along with growing demand for automation solutions owing to their ability to improve occupant comfort levels, are increasing the adoption of current sensors in the installation of automation systems.

Technology: Advancement in isolated current sensor technology for current measurement in various application
Isolated current sensors are typically used to measure current in various applications and are designed to provide galvanic isolation from the main power source and other electronic circuits. These are categorized into three isolated sensors that are often considered as fully isolated, non-contact current sensing, including the current transformer (CT), the Rogowski coil, and the Hall-effect device. These sensors can convert a current signal into an isolated voltage signal. Some of these current-sensing circuits and signal conditioning are at high potential and directly connected to a conductor that carries hundreds of Amps. Non-isolated current sensors measure current in non-isolated applications with an output voltage proportional to the AC or DC. Non-isolated current sensors lack the galvanic isolation of their isolated counterparts but are often smaller and less expensive.

Regional Insights:
In the Americas, the deployment of industrial robots, rapid adoption of 5G technology, and an upsurge in the trend of hybrid automobiles in the automotive industry increase the adoption of current sensors. In countries such as the United States, Canada, and Mexico, the growing adoption of smart home and smart city developments has raised the use of many electronic systems, including lighting control, HVAC control, home healthcare devices, and home appliances, significantly improving the adoption of current sensors. India and China have increased the requirement for current sensors owing to favorable regulatory compliances and the ongoing need for renewable energy infrastructure, power electronics, and automobiles. In Europe, the growing usage of current sensors in industrial automation, technological advancements in current sensors, and the rising expansion of consumer electronic products enhanced the utilization of current sensors in various industries.

FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the Current Sensor Market. It provides a comprehensive evaluation of vendors by examining key metrics within Business Strategy and Product Satisfaction, allowing users to make informed decisions based on their specific needs. This advanced analysis then organizes these vendors into four distinct quadrants, which represent varying levels of success: Forefront (F), Pathfinder (P), Niche (N), or Vital(V).

Market Share Analysis:

The Market Share Analysis offers an insightful look at the current state of vendors in the Current Sensor Market. By comparing vendor contributions to overall revenue, customer base, and other key metrics, we can give companies a greater understanding of their performance and what they are up against when competing for market share. The analysis also sheds light on just how competitive any given sector is about accumulation, fragmentation dominance, and amalgamation traits over the base year period studied.

Key Company Profiles:

The report delves into recent significant developments in the Current Sensor Market, highlighting leading vendors and their innovative profiles. These include ABB Ltd., Aceinna Inc., Allegro Microsystems, Inc., AMBO Technology, Asahi Kasei Corporation, Broadcom Inc., Cheemi Technology Co., Ltd., Coto Technology, Inc., CR Magnetics, Inc., CTS Corporation, DER EE Electrical Instrument CO., Ltd., Electrohms Private Limited, Emerson Electric Co., Hitachi, Ltd., Honeywell International Inc., ICE Components, Inc., Infineon Technologies AG, Kohshin Electric Corporation, LEM Holding SA, Littelfuse, Inc, Luksens Technologie GmbH, Melexis NV, Mitsubishi Electric Corporation, Monnit Corporation, Murata Manufacturing Co., Ltd., NXP Semiconductors N.V., Olimex Ltd., OMRON Corporation, Panasonic Holdings Corporation, Robert Bosch GmbH, Rockwell Automation Inc., Schneider Electric SE, Sensitec GmbH, Siemens AG, Silicon Laboratories Inc., Skyworks Solutions, Inc., STMicroelectronics International N.V., Suncall Corporation, Suzhou Novosense Microelectronics Co., Ltd., Tamura Corporation, TDK Corporation, TE Connectivity Ltd., Texas Instruments Incorporated, Vacuumschmelze GmbH & Co. KG, Yageo Corporation, and Yokogawa Electric Corporation.

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Market Segmentation & Coverage:

This research report categorizes the Current Sensor Market in order to forecast the revenues and analyze trends in each of following sub-markets:

Based on Sensor Type, market is studied across AC Current Sensors and DC Current Sensors.

The AC Current Sensors commanded largest market share of 56.77% in 2022, followed by DC Current Sensors.

Based on Loop Type, market is studied across Closed Loop and Open Loop. The Open Loop commanded largest market share of 67.23% in 2022, followed by Closed Loop.

Based on Technology, market is studied across Isolated Current Sensor and Non-isolated Current Sensor. The Isolated Current Sensor is further studied across Magnetic Current Sensor, Opto-isolated op amp, and Shunt-isolated op amp. The Magnetic Current Sensor is further studied across AMR, Fluxgate, GMR, Hall-effect, and TMR. The Non-isolated Current Sensor is further studied across Analog-to-Digital Converter and Current Sensing Amplifier. The Isolated Current Sensor commanded largest market share of 76.88% in 2022, followed by Non-isolated Current Sensor.

Based on Output Type, market is studied across Analog, Digital, and Wireless. The Analog commanded largest market share of 53.65% in 2022, followed by Digital.

Based on End-Use, market is studied across Aerospace & Defense, Automotive, Building Automation, Consumer Electronics, Industrial, and Telecommunication. The Automotive commanded largest market share of 23.56% in 2022, followed by Industrial.

Based on Region, market is studied across Americas, Asia-Pacific, and Europe, Middle East & Africa. The Americas is further studied across Argentina, Brazil, Canada, Mexico, and United States. The United States is further studied across Alaska, California, Illinois, Indiana, Louisiana, New York, Ohio, Pennsylvania, Texas, Vermont, West Virginia, and Wyoming. The Asia-Pacific is further studied across Australia, China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. The Europe, Middle East & Africa is further studied across Denmark, Egypt, Finland, France, Germany, Israel, Italy, Netherlands, Nigeria, Norway, Poland, Qatar, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, and United Kingdom. The Europe, Middle East & Africa commanded largest market share of 39.24% in 2022, followed by Asia-Pacific.

Key Topics Covered:

10. Current Sensor Market, by End-Use
11. Americas Current Sensor Market
12. Asia-Pacific Current Sensor Market
13. Europe, Middle East & Africa Current Sensor Market
14. Competitive Landscape
15. Competitive Portfolio
16. Appendix

The report provides insights on the following pointers:
1. Market Penetration: Provides comprehensive information on the market offered by the key players
2. Market Development: Provides in-depth information about lucrative emerging markets and analyzes penetration across mature segments of the markets
3. Market Diversification: Provides detailed information about new product launches, untapped geographies, recent developments, and investments
4. Competitive Assessment & Intelligence: Provides an exhaustive assessment of market shares, strategies, products, certification, regulatory approvals, patent landscape, and manufacturing capabilities of the leading players
5. Product Development & Innovation: Provides intelligent insights on future technologies, R&D activities, and breakthrough product developments

The report answers questions such as:
1. What is the market size and forecast of the Current Sensor Market?
2. Which are the products/segments/applications/areas to invest in over the forecast period in the Current Sensor Market?
3. What is the competitive strategic window for opportunities in the Current Sensor Market?
4. What are the technology trends and regulatory frameworks in the Current Sensor Market?
5. What is the market share of the leading vendors in the Current Sensor Market?
6. What modes and strategic moves are considered suitable for entering the Current Sensor Market?

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