

Automotive On-board Power Inverters Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2024 - 2032

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Abstracts

The Global Automotive On-board Power Inverters Market, valued at USD 578.8 million in 2023, is projected to grow at a CAGR of 5.4% from 2024 to 2032. This growth is largely fueled by the rapid adoption of electric vehicles (EVs), which drives the demand for efficient power conversion systems. In EVs, power inverters are crucial, converting DC power from the battery to AC power needed for the electric motor, ensuring optimal performance. With modern vehicles integrating increasingly sophisticated electronics, the need for stable power supplies has surged. Features such as infotainment systems, climate control, USB charging, and power outlets require consistent power conversion, particularly in premium and luxury vehicles where users expect enhanced comfort and convenience.

Additionally, advanced driver assistance systems (ADAS) and connectivity features contribute to the demand for efficient inverters to support these electronics seamlessly. The market is segmented into passenger and commercial vehicles, with passenger vehicles dominating over 70% of the market share in 2023. This segment is expected to surpass USD 600 million by 2032, driven by the rising consumer reliance on in-car electronics for charging and auxiliary functions. On-board power inverters are essential for converting battery-stored DC power into AC power, which supports multiple auxiliary systems within passenger vehicles. The growing use of portable devices and mobile electronics in these vehicles underscores the demand for reliable inverters that enhance passenger comfort.

In terms of inverter type, the market is divided into single-phase and three-phase inverters. The three-phase inverter segment is anticipated to exceed USD 650 million by 2032 due to advancements in manufacturing and automation that have reduced

production costs. Innovations in robotics and automated testing contribute to product quality and scalability, while modular designs and standardized components enable economies of scale, making three-phase inverters more accessible and efficient. U.S. automotive on-board power inverter market captured 36% of the revenue share in 2023. Demand is particularly high for inverters exceeding 2000W, often used in larger vehicles like SUVs and pickup trucks.

This trend is driven by the rise of the "vehicle-as-a-workspace" concept, where vehicles are used as mobile offices, a shift intensified by the pandemic. Additionally, the popularity of outdoor activities and camping has amplified the need for high-power inverters to operate various appliances and devices, further strengthening market growth.

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