Automotive Battery Management System Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 90 pages | Mordor Intelligence

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Report description:

The automotive battery management system market was valued at USD 5.17 billion in 2021, and it is expected to register a CAGR of over 12.7% during the forecast period (2022-2027). The market seems to be promising due to the increased adoption of electric vehicles globally. With growing electrification in vehicles, the need for safe and optimum use of the energy stored in a vehicle battery pack has increased significantly among automakers.

Demand remained muted during the FY 2020 due to COVID-19, which affected the supply chain. Government-regulated lockdowns shut down the production houses, causing a decline in annual sales during Q2 FY2020. The COVID-19 pandemic decreased consumer purchasing power and contributed to a significant drop in oil and gasoline prices. For traditional vehicles with internal combustion engines (ICEs), the drop in gasoline prices may decrease the total cost of ownership. Although EVs will still have lower total costs of ownership than traditional ICE vehicles in most segments, the advantage will not be as great, and this shift could influence sales. Moreover, the market has been recovering after Q2 2021 in terms of revenue and annual sales. The supply chain is working efficiently. Thus, the market is likely to grow significantly during the forecast period.

Thus, the demand for battery management systems from the automotive industry has been growing significantly, and it is expected to continue to grow during the forecast report. In addition, regional government policies regarding EV adoption have primarily driven the business dynamics. Companies are focusing on entering international deals and are heavily investing in R&D projects.

The anticipated increase in demand for electric vehicles may primarily drive the market during the forecast period, as most electric vehicles worldwide utilize lithium-ion batteries. The battery management system is essential for the safe and optimal performance of lithium-ion batteries.

Automakers are initiating several plans to launch a greater number of electric vehicles. They are also entering partnerships and making investments to have a competitive edge in the markets. For instance,

 In April 2021, PACCAR announced a five-year supply agreement for battery power systems with Romeo Power Inc. PACCAR may purchase Romeo Power's battery packs and battery management software for heavy-duty battery-electric Peterbilt 579EV vehicles and Peterbilt 520EV refuse trucks in North America.

 Mahindra & Mahindra (M&M) announced an investment of INR 30 billion in electric vehicle (EV) space over the next three years. Mahindra is exploring partnerships in the EV segment, including battery management systems. It is also planning to launch a new EV platform.

Automotive Battery Management Systems Market Trends

Increasing Demand for Intelligent Battery Management System

Features like start/stop, electric power steering, and electronic braking systems have increased the battery's power load. Therefore, prioritizing all these electrical loads on a scale from comfort to safety level has been a significant issue in a vehicle's electrical system. Intelligent battery management systems (IBMSs) have been gaining attention among automakers and are being widely adopted across all regions. IBMS consists of advanced electronics, such as battery sensors that measure the state of charge (SOC), state of health (SOH), and temperature across a cell, connected in series and parallel arrays in a vehicle battery pack.

All three measurements by IBMS have been taken simultaneously to ensure accurate measurements, even during rapidly changing vehicle conditions. The usage of IBMS aids in shutting down these electric vehicle systems in a logical order and warning the drivers about the impending battery problem to keep them safe from battery explosions. The prominent suppliers of intelligent battery sensors include Continental AG, Hella, and Bosch.

Growing Demand for Electric Vehicles in Asia-Pacific and Europe

Apart from conventional IC engine vehicles, the demand for electric vehicles is anticipated to boost the growth of the battery management system market. With stringent emission regulations across every region, the electrical vehicle demand is likely to increase during the forecast period. Global electric vehicle sales increased dramatically to more than 109% in 2021 compared to 2020.

The battery is the primary source of power for electric vehicles, which is likely to drive the demand for an efficient and advanced battery management system. The Asia-Pacific region covered a significant share of the battery management system market in 2021. For instance,

In June 2021, Hella announced its joint venture (JV) with Evergrande Group, HELLA Evergrande Electronics (Shenzhen) Co., to develop and produce high-voltage battery management systems. Hella is primarily contributing to the field of battery electronics and jointly developing high-class battery management systems.
In June 2021, Sharda Motor Industries Limited (SMIL) and Kinetic Green Energy and Power Solutions Limited, a Kinetic Group company, entered a joint venture (JV) agreement to develop battery packs with battery management systems for electric vehicles and stationary applications in India.

The market in Europe registered a faster growth rate due to its rapidly increasing electric vehicle sales in 2021-2022. The market in Europe is anticipated to grow further during the forecast period, with the EU government strictly monitoring the emission standards and planning to impose a ban on manufacturing IC engine vehicles by 2025 in a few European countries, like Norway and the Netherlands.

Automotive Battery Management Systems Market Competitor Analysis

The market is highly consolidated with major players, like DENSO Corporation, Robert Bosch GmbH, Hitachi Ltd, Panasonic Corporation, and Calsonic Kansei Corporation.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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