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BMS battery management innovation





Overview

What is battery management system (BMS)?

The transition from passive to active and adaptive Battery Management Systems (BMS) is transforming how electric vehicle (EV) batteries are managed. With the integration of advanced software, AI, and IoT technologies, battery management has become a cornerstone of innovation, unlocking unprecedented value across the EV ecosystem.

Why is a BMS important in a battery system?

Hence, timely and accurate fault detection and response by the BMS are essential to prevent such dangerous situations or battery failures. An onboard battery system typically comprises lithium-ion batteries, BMS, sensors, connectors, data acquisition sensors, thermal management systems, cloud connectivity, and so on.

What is a BMS for lithium based battery technology?

The lithium-based battery technology needs a BMS with thermal and electrical monitoring and shutoff technology that can respond quickly in the case of faults. The Automotive Safety Integrity Level D (ASIL-D) standard within ISO 26262 provides the highest classification of functional safety and is required for many automotive systems and components.

How do battery management systems evolve?

Their evolution can be broken down into two main stages: Passive BMS systems were the earliest form of battery management. These systems mainly monitored the battery and flagged issues, such as overheating or low charge, when they happen. For example, a passive BMS might detect that one battery cell is holding too much charge and becoming unstable.



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