

SolarTech Power Solutions

The main function of BMS battery management system



Overview

What is a battery management system?

A battery management system (BMS) monitors and manages the advanced features of a battery, ensuring that the battery operates within its safety margins. The BMS serves as the brain of a battery pack. A BMS is not only critical to the safe operation of a battery, it's also critical to a battery's optimal performance and longevity.

What is a battery management system (BMS)?

A BMS monitors each cell within a battery pack (all current lithium batteries for RVs contain a number of smaller "cells" that are wired together to provide the desired power output for the battery), calculating the safe amount of current going in (battery charging) and coming out (discharging) ensuring that no damage is caused to the battery.

Do lithium ion batteries need a BMS system?

Lithium-ion batteries, especially custom lithium ion battery packs, need a BMS (Battery Management System) to ensure the battery is reliable and safe. The battery management system is the brain of the lithium battery and reports the status and health of the battery. Let's get a better understanding from this article. What is a BMS System?

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Why is a battery management system important?

This is permanent damage and not only results in reduced capacity, but cells are more vulnerable to failure if subjected to vibration or other stressful conditions. A BMS can control the temperature of the battery pack through heating and cooling.

How does a BMS protect a battery pack?

Monitoring battery pack current and cell or module voltages is the road to electrical protection. The electrical SOA of any battery cell is bound by current and voltage. Figure 1 illustrates a typical lithium-ion cell SOA, and a well-designed BMS will protect the pack by preventing operation outside the manufacturer's cell ratings.

Why do batteries need a BMS?

The BMS helps batteries last longer too. It balances cells so weaker ones don't limit the pack's performance or get damaged faster. By stopping deep discharge and overcharge, it protects against common causes of permanent capacity loss. Lithium-ion batteries need precise control. Most lithium cells work between 10.5V and 14.8V.

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