

Customization of energy storage lithium battery equalizer

Does the equalization strategy reduce the inconsistency of a battery group?

The equalization strategy designed in this article promotes the equilibrium speed and equalization efficiency, and effectively decreases the inconsistency of the equalized battery group. Finally, the experiments are conducted by Matlab/Simulink platform.

What are the different types of lithium-ion battery equalization circuits?

There are many types of lithium-ion battery equalization circuits, the most common of which is the passive equalization circuit. The active equalization circuit is better than the passive equalization circuit in terms of performance, but it is very complex and expensive.

How a battery equalization circuit works?

Literature proposed an active equalization circuit with inductors and capacitors in series, which can achieve equalization energy transfer from battery to battery pack and battery module to battery pack. But the number of switch tubes in the circuit increases more and more with the number of batteries and the energy loss increases.

What is battery capacity based equalization?

The purpose of battery capacity-based equalization is to control the maximum usable capacity of the battery group to converge, and the battery capacity can intuitively reflect the inconsistency of the battery group.

What is a battery equalization index?

Since battery equalization aims to achieve simultaneous battery filling and emptying, the most desirable index is the remaining battery capacity, followed by the battery SOC and, finally, the battery voltage.

What is the purpose of series battery equalization?

The purpose of series battery equalization is to effectively decrease the inconsistency of series battery in the actual operating conditions, and to avoid excessive energy loss due to non-essential flow of energy in the balancing process and to ensure the equilibrium speed.

In comparison with alternative battery technologies, lithium-ion batteries offer high energy and power density, high terminal voltage, fast charging capability, low self-discharging ...

In this paper, we propose a high-performance equalization control strategy based on the equalization data of the general equalization strategy, which turns on the equalization ...

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To better quantify the equalization effect, the battery difference and energy utilization rate are defined for evaluation. In order to address the inconsistency problem of ...

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Abstract. Aiming at the problems of slow equalization speed and low equalization efficiency in a large battery system, a layered multi-objective parallel equalizer is proposed in this paper. In ...

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In order to overcome the "curse of dimensionality" problem, a novel algorithm namely GA LSE is proposed, in which the solution space segmentation and reorganization ...

A new buck-boost type battery equalizer; J. Shin et al. Selective flyback balancing circuit with improved balancing speed for series connected Lithium-ion batteries; ... There are ...

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In terms of the equalization circuit, we propose an equalization circuit consisting of a switch-selective circuit and a Cuk circuit, which is simple and easy to expand; in terms of the ...

The cell voltage imbalance of battery strings may shorten the life of energy storage battery or damage the whole energy storage system. Thus, cell equalizer is

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Figure 1. General diagram of a cell equalizer. There are several variables used to decide the homogeneity of the battery pack. The operating voltage of the cell is widely used because it is ...

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When the battery is attached, the battery equalizer can compensate both parties to make sure the energy is distributed equally. To keep each battery at the same voltage level, ...

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