

Battery packs connected in series for energy storage





Overview

Can battery energy storage systems be equalized?

The proposed equalization method can significantly improve the consistency of series-connected battery packs, and thus improve their energy utilization and cycle life, which is suitable for the equalization of battery energy storage systems in power systems.

Why should a series connected battery pack be equalized?

For a series-connected battery pack, when there is a consistency difference among the cells, it causes a decrease in the energy utilization and cycle life of the battery pack. Thus, the equalization of a series-connected battery pack is necessary.

How does a series connection affect a battery pack?

However, the series connection of one switch for each cell substantially affects the stability of the output voltage of the battery pack, reduces the energy utilization of the battery pack, and requires a larger number of control signals.

How many cells are in a series-connected battery pack?

The series-connected battery pack contains $3n$ cells, with each 3 cells forming one battery module. The switching arrays and inductors can be divided into 2 parts, intra-module and inter-module, with each module containing 4 MOSFETs, 2 inductors, and n modules containing $2n$ MOSFETs, one inductor and $2n$ diodes.



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