Charge equalizer for series battery pack

In lithium-ion battery system for hybrid electric vehicle, charge equalizer is essential to enhance the battery life cycle and safety. However, for a large number of battery cells, a conventional equalizer has the difficulty of individual cell balancing and the implementation size problem as well as the cost. Moreover, it shows high voltage stress of electrical elements in ...

This paper presents a cell optimal equalizing control method for Lithium-Ion battery pack formed by many cells connected in series in order to extract the maximum capacity, maintain the safe operation requirements of pack, and prolong the cells cycle life. Using the active cell to cell equalizing method, the energy levels of two adjacent cells will be equalized based ...

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Based on the fact that a hybrid electric vehicle (HEV) connects a high number of batteries in series to obtain more than approximately 300 V, this paper proposes a modularized charge equalizer for ...

(7) Any multi-cell battery pack: Essentially any application that uses a multi-cell battery pack, especially one that involves series-connected cells or battery packs, can benefit from a cell equalizer. This includes applications ...

A novel active equalizer for Li-ion battery pack in electric vehicles is designed. Based on cell-to-pack-to-cell topology, the equalizer consists of a switch array and a single-ended forward bidirectional DC-DC converter, which is simple, efficient and reliable. ... Han W, Zhang L. Battery cell reconfiguration to expedite charge equalization in ...

Fig. 11 shows the experimental results of the battery pack in charging state, discharging state, ... Design of Parallel Resonant Switched-Capacitor Equalizer for series-connected battery strings. IEEE Trans. Power Electron., 36 (8) (2021), pp. 9160-9169, 10.1109/TPEL.2021.3052780. View in Scopus Google Scholar

The battery pack was composed of six serially-connected LIB cells (LG Chem., Ltd.) which had a nominal capacity of 4400 mA?h. The battery pack had a nominal ...

For both charging and discharging series-connected battery pack, charging equalization is important in order not to influence the power battery"s cycle life. This paper lists several balancing ...

The equalizer is used to maintain the charge and discharge balance between the two batteries connected in series which make up the battery pack. It can provide a reliable 12V regulated power supply for dual-voltage

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...

A novel cooperative equalization system for multi-modules in the battery pack is proposed in this paper. The system combines active and passive equalization, and also includes a fast discharge function for balancing modules by a power resistor. ... The experimental results show that the proposed equalizer demonstrates good performance in ...

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