



Overview

This paper introduces a new analysis method to optimize energy utilization efficiency by finding the best number of batteries in a pack, based on capacity distribution, order statistics, central limit theorem, and converter efficiency. How a battery pack is used in energy storage condition?

The battery pack used in energy storage condition contains 6 cells connected in series, and the cells are obtained by using the multi-factor sorting method (the closest to the center point) and obtained by a single capacity factor respectively.

Can retired batteries be used as second-use battery energy storage systems?

In this paper, the retired batteries are assumed to be used to form second-use battery energy storage systems to serve power operation, taking advantage of the features of low cost, rapid response and high reliability.

How does fuzzy clustering work for battery grouping?

Steps of fuzzy clustering for battery grouping On the basis of the proposed method, combined with parameters such as capacity, ohmic internal resistance, and aging degree of different aging mechanisms, the second-use batteries are screened and classified.

Can a fuzzy clustering algorithm sort retired batteries?

The multi-factor sorting method considering capacity, internal resistance and aging mechanism is presented. The effectiveness of a fuzzy clustering algorithm to sort retired batteries is proved considering two typical application scenes. The sorting and grouping performance of multi-factor and single-factor methods are compared.

How to sort retired batteries?

At present, there is no recognized effective sorting method for retired batteries, and most of them still take capacity and internal resistance as

sorting criteria, which is utilized for fresh batteries sorting after they are produced.

How many groups can a battery sample be divided into?

The battery samples can be divided into up to four groups according to the proposed method without repeated selection. The center point location and batteries being selected in each group are shown in Table 3.

Energy storage battery grouping solution



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