

What is battery voltage fault diagnosis method?

A battery voltage fault diagnosis method is proposed by using the mutual information in this work, which can identify faulty cells timely. Specifically, the voltage of battery pack in an electric vehicle is collected, and the mutual information of voltages between each paired-cells is calculated.

How does a faulty battery pack affect mutual information?

Specifically, the voltage of battery pack in an electric vehicle is collected, and the mutual information of voltages between each paired-cells is calculated. The presence of faulty cells disturbs the original distribution of mutual information.

How is a battery pack fault diagnosed?

Wu et al. proposed a battery pack fault diagnosis method based on the combination of Hausdorff distance and modified Z-score. The faulty cell is detected by comparing the Hausdorff distance between the voltage curve of each battery and the median voltage curve in the moving window.

How to diagnose battery voltage faults using mutual information?

A method for diagnosing battery voltage faults using the mutual information is proposed in this work. Specifically, the faulty cells are diagnosed by calculating the mutual information between voltages of each paired-cells. The occurrence of abnormal cells can lead to a decrease in mutual information related to the cells.

What is a three-layer fault detection method for lithium-ion batteries?

This paper proposes a scheme of three-layer fault detection method for lithium-ion batteries based on statistical analysis. The first layer fault detection is based on the thresholds of over-charge and over-discharge of a battery pack. In the second layer, confidence interval estimation is applied to identify risky cells.

How do you test a battery pack?

This testing can be a bottleneck in the manufacturing process, so test solutions that reduce time or increase test density are highly desirable. One of the most useful measurements for a battery cell or pack is the open circuit voltage (OCV), but the considerations that must be made at the module or pack level differ from the cell level.

Detecting the voltage fault accurately is critical for enhancing the safety of battery pack. Therefore, this paper presents a voltage fault detection method for lithium-ion battery ...

To reduce the excessive power consumption and eliminate the battery voltage imbalance caused in conventional method, a novel broken line detection scheme for Li-ion ...

Connecting lithium batteries in series to form a battery pack can achieve the required capacity and voltage. However, as the batteries are used for extended periods, some ...

The battery pack in each vehicle is composed of multiple battery bricks in series, and each brick contains a certain number of 18650 cells in parallel. Each brick is equipped with ...

Cell voltage inconsistency of a battery pack is the main problem of the Electric Vehicle (EV) battery system, which will affect the performance of the battery and the safe ...

The safety issue of lithium-ion batteries is a great challenge for the applications of EVs. The internal short circuit (ISC) of lithium-ion batteries is regarded as one of the main ...

A total of 608 cells are used in the battery system. ... The voltage of battery pack under the terminal contact fault is shown in Fig. 5 (a). ... Detection of voltage fault in the battery ...

This article proposes an online multifault diagnosis scheme based on voltage envelopes. First, using the positive and negative envelopes of voltages, unique fault signatures ...

Lithium-Ion Battery Packs via Voltage Anomaly Detection isolation impedance value, pack te mperature, cell voltage, and battery charge . status. ... total voltage ...

The curve of voltage range for the selected period. The data of vehicle No.9 was collected from 17:58:35 on June 13, 2020 to 06:38:29 on November 17, 2020 with a sampling frequency of 0.1 Hz.

10s-16s Battery Pack Reference Design With Accurate Cell Measurement and High-Side MOSFET Control
Description This reference design is a low standby and ship-mode current ...

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