

What is intelligent fault diagnosis method for lithium-ion battery pack?

An Intelligent Fault Diagnosis Method for Lithium-ion Battery Pack Based on empirical mode decomposition and Convolutional Neural Network is proposed.

Is there an intelligent diagnosis method for battery pack connection faults?

To this end, the study proposes an intelligent diagnosis method for battery pack connection faults based on multiple correlation analysis and adaptive fusion decision-making.

Can a support vector machine detect a lithium-ion battery fault?

This article proposes a novel intelligent fault diagnosis method for Lithium-ion batteries based on the support vector machine, which can identify the fault state and degree timely and efficiently.

Can deep learning be used to identify faults in lithium-ion battery systems?

6. Conclusion In this study, an intelligent fault diagnosis method for the lithium-ion battery system based on data-driven by utilizing deep learning is proposed to identify fault information timely and accurately. However, it is challenging to identify faults in a timely and accurate way due to the interference of noise signals.

Do we need a model for fault diagnosis of lithium-ion batteries?

This method does not need to develop a model, but it is difficult to acquire knowledge and establish a rule, has no learning ability, and has limited generalization ability, so it is rarely used in fault diagnosis of lithium-ion batteries [16,17].

Should lithium-ion batteries be diagnosed by voltage?

Instead, diagnosing battery faults by voltage is a better idea. To improve the safety and reliability of lithium-ion batteries, many experts and scholars put forward many fault diagnosis methods for lithium-ion batteries, which can be roughly divided into three categories: knowledge-based, model-based, and data-driven.

inherent differences between the individual cells within the lithium-ion battery pack, as well as its highly nonlinear and multi-coupling nature, make it difficult to improve the accuracy of the intelligent prediction of the state of the lithium-ion battery system, leading to ...

6 ???&#0183; Lithium-ion batteries (LIB) have become increasingly prevalent as one of the crucial energy storage systems in modern society and are regarded as a key technology for achieving sustainable development goals [1, 2]. LIBs possess advantages such as high energy density, high specific energy, low pollution, and low energy consumption [3], making them the preferred ...

An intelligent diagnosis method for battery pack connection faults based on multiple correlation analysis and adaptive fusion decision-making ... OCV-SOC-temperature relationship construction and state of charge estimation for a series-parallel lithium-ion battery pack. ... (2023) K. Fan et al. Time-efficient identification of lithium-ion ...

The battery management system (BMS) is an essential device to monitor and protect the battery health status, and the PHM as a critical part mainly includes state of health (SOH) estimation and remaining useful life (RUL) prediction [11, 12]. SOH is mostly defined as the ratio of current available capacity to initial capacity, and RUL is usually considered to be the remaining cycle ...

As shown in Figure 11(a), the figure identifies 1 is the drive power module, mainly used for charging each battery in the battery pack; 2 for the electronic load module, model N3305A0 DC electronic load on lithium batteries for constant current discharge operation, input current range of 0-60 A, voltage range of 0-150 V, measurement accuracy of 0.02%; 3 for the ...

An intelligent fault diagnosis method for lithium-ion battery pack based on empirical mode decomposition and convolutional neural network. Author links open overlay panel Lei Yao a b, Jie Zheng a b, ... Intelligent risk identification for drilling lost circulation incidents using data-driven machine learning. 2024, Reliability Engineering and ...

The battery system is one of the core technologies of the new energy electric vehicle, so the frequent occurrence of safety accidents seriously limits the large-scale promotion and application. An innovative extreme learning machine optimized by genetic algorithm (GA-ELM)-based method is proposed to estimate the current system status, which improves the accuracy and timeliness ...

The cell faults of lithium-ion batteries will lead to the atypical deterioration of battery performance and even thermal runaway. In this paper, a novel fault diagnosis method ...

However, early warning of battery thermal runaway is still a challenging task. This paper proposes a novel data-driven method for lithium-ion battery pack fault diagnosis and thermal runaway warning based on state representation methodology. The normalized battery voltages are used to achieve accurate identification of battery early faults.

Lithium-ion batteries have been widely used in the field of energy storage, due to the high energy density, wide temperature range and long service life. However, in application, the parameters such as the capacity and voltage of each cell in the battery pack are inconsistent due to unreasonable use, poor operating environment and other factors. In this paper, the qualitative ...

An intelligent diagnosis method for battery pack connection faults based on multiple correlation analysis and adaptive fusion decision-making. ... Time-efficient identification of lithium-ion battery temperature-dependent

OCV-SOC curve using multi-output Gaussian process. Energy, 268 (2023), 10.1016/j.energy.2023.126724.

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