

Detection of energy storage charging pile failure

Can battery energy storage technology be applied to EV charging piles?

In this paper, the battery energy storage technology is applied to the traditional EV (electric vehicle) charging piles to build a new EV charging pile with integrated charging, discharging, and storage; Multisim software is used to build an EV charging model in order to simulate the charge control guidance module.

How accurate is fault detection in DC charging pile?

It is necessary to accurately judge the fault state of the charging module of DC charging pile in order to ensure the safe and reliable operation of DC charging pile. However, the fault signal processing of the fault detection method is poor, resulting in low fault detection accuracy.

How does the energy storage charging pile interact with the battery management system?

On the one hand, the energy storage charging pile interacts with the battery management system through the CAN bus to manage the whole process of charging.

What is energy storage charging pile management system?

Based on the Internet of Things technology, the energy storage charging pile management system is designed as a three-layer structure, and its system architecture is shown in Figure 9. The perception layer is energy storage charging pile equipment.

What are the possible faults of DC charging pile?

During the operation of DC charging pile, faults are easy to occur, mainly including communication faults, charging gun faults, charging module faults, etc. Among the possible faults of the DC charging post, the charging module failure rate is extremely high.

What data is collected by a charging pile?

The data collected by the charging pile mainly include the ambient temperature and humidity, GPS information of the location of the charging pile, charging voltage and current, user information, vehicle battery information, and driving conditions. The network layer is the Internet, the mobile Internet, and the Internet of Things.

The MHIHHO algorithm optimizes the charging pile's discharge power and discharge time, as well as the energy storage's charging and discharging rates and times, to ... Currently, some ...

With advancements in charging pile technology, relevant IEC standards have established specific requirements for residual current devices (RCDs) to ensure adequate protection during EV ...

The charging pile energy storage system can be divided into four parts: the distribution network device, the ...

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(membrane problems, decomposition etc.), the failure is easy to detect as the ...

Table 1 Charging-pile energy-storage system equipment parameters

Component name	Device parameters
Photovoltaic module (kW)	707.84
DC charging pile power (kW)	640
AC charging ...	

The traditional charging pile management system usually only focuses on the basic charging function, which has problems such as single system function, poor user experience, and ...

In this paper, the characteristics of AC and DC charging pile faults are analyzed, and a real-time monitoring method of charging pile faults based on an improved RNN neural network is ...

Abnormal Detection System Design of. Charging Pile Based on Machine Learning. ... adding 1MW and 1.5MW of energy storage to the charging pile can increase the ...

Li-ion batteries (LIBs) are becoming ubiquitous in the energy storage units for plug-in or full electric vehicles (EVs). Based on the statistics obtained by Electric Drive ...

detection of the charging pile equipment. The active energy value displayed by the camera on the charging pile is obtained through the convolution neural network (CNN) algorithm, and the ...

A novel entropy-based fault diagnosis and inconsistency evaluation approach for lithium-ion battery energy storage systems ... The fault modes, fault data, fault diagnosis methods in ...

Since the smart charging piles are generally deployed in complex environments and prone to failure, it is significant to perform efficient fault diagnosis and timely maintenance for them. One ...

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