

Online detection parameters of energy storage charging pile

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.

What are the benefits of online monitoring of charging pile equipment?

The tracking of performance, grid integration, maintenance planning, user experience, security, proper invoicing, energy use management, fault detection, and regulatory compliance are all improved by data-driven online monitoring of charging pile equipment.

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 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.

What is the function of the control device of energy storage charging pile?

The main function of the control device of the energy storage charging pile is to facilitate the user to charge the electric vehicle and to charge the energy storage battery as far as possible when the electricity price is at the valley period. In this section, the energy storage charging pile device is designed as a whole.

Can energy-storage charging piles meet the design and use requirements?

The simulation results of this paper show that: (1) Enough output power can be provided to meet the design and use requirements of the energy-storage charging pile; (2) the control guidance circuit can meet the requirements of the charging pile; (3) during the switching process of charging pile connection state, the voltage state changes smoothly.

TL;DR: In this paper, a mobile energy storage charging pile and a control method consisting of the steps that when the mobile ESS charging pile charges a vehicle through an energy storage ...

However, in the process of rapid charging of new energy electric vehicles at charging stations, the internal lithium battery may leak, catch fire, or even explode due to thermal runaway and other reasons. Therefore, it

becomes especially important to monitor the safety of electric vehicles in the charging process.

Energy Science & Engineering is a sustainable energy journal publishing high-impact fundamental and applied research that will help secure an affordable and low carbon energy supply. Abstract This paper proposes a preventive maintenance decision model for electric vehicle charging stations based on mutation operators and lifecycle optimization to address ...

Research on online monitoring platform of charging pile based ... The hardware part of the monitoring node in the charging pile monitoring platform mainly completes the user data and data collection, which is used to connect the communication between the charging equipment and the platform terminal, read out the electric energy, identify the user, switch on and off the charging ...

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 pile power (kW)	144
Lithium battery energy storage (kW·h)	6000
Energy conversion system PCS capacity (kW)	800

The system is connected to the user side through the inverter ...

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Combined with the microgrid basic load, the energy storage state of charge, wind power, and photovoltaic output, considering the impact of EVs' large-scale aggregated charging on the climbing demand, load fluctuation, and renewable energy consumption of the microgrid, a multi-microgrid fast/slow charging pile configuration model is established to ...

The online detection efficiency can be improved by using multiple sensors, the method analysis can be intuitive, and the charging service capability of the electric vehicle charging pile can be...

Abnormal Detection System Design of Charging Pile Based on Machine Learning Yanjie Li, Xiaoyu Ji, Dongxiao Jiang et al. ... so as to obtain the possible optimal parameters, as well as the impact of the energy storage system ... by electric vehicles is provided by the energy storage system, and the charging pile can obtain the profit objective ...

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With the continuous development of society and the economy and the popularization of the environmental protection concept, more and more people have begun to turn ...

models can judge the fault of the charging pile or optimize the charging quality to a certain extent, but the

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operating state parameters of the charging pile are not much involved, and only include the fault detection of key components. The scope of fault detection investigated is ...

As shown in Fig. 1, a photovoltaic-energy storage-integrated charging station (PV-ES-I CS) is a novel component of renewable energy charging infrastructure that combines distributed PV, battery energy storage systems, and EV charging systems. The working principle of this new type of infrastructure is to utilize distributed PV generation devices to collect solar ...

At present, the existing charging pile detection and evaluation index system only considers the technical indicators, economic indicators, environmental indicat

The energy storage charging pile achieved energy storage benefits through charging during off-peak periods and discharging during peak periods, with benefits ranging from 699.94 to 2284.23 yuan (see Table 6), which verifies ...

Keywords Big data · Charging pile ·Online monitoring · Operation safety monitoring B Huanghui Zhang huanghui_zhang56@outlook ... According to the performance parameter detection requirements, the corresponding power can be set through ... has higher storage capacity and can realize the program-ming of monitoring the charging piles. High ...

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