What are the specifications of the charging pile distribution box



Overview

How To Configure A Box Substation For Electric Vehicle Charging The power distribution process of the charging station includes two parts: power transforme.

Key Takeaways

A charging pile power distribution box typically includes a transformer, circuit breakers, current and voltage transformers, protective devices, and modular cabinet design to safely distribute power to EV charging piles.

Core Components

Transformer: The box substation usually contains a 10kV to 380V transformer, with common ratings of 630kVA, 800kVA, 1250kVA, or 1600kVA, selected based on the total load of the charging piles, efficiency, and simultaneous utilization coefficient (average efficiency 0. 9, line loss 0. 9, utilization 0.

85). Transformers can be oil-immersed or dry type depending on cost and energy requirements. Circuit Protection: Includes circuit breakers, load switches, and current/voltage transformers to ensure safe operation and prevent overloads or short circuits.

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Advanced cabinets integrate electrical fire-proof current-limiting protectors to reduce arc fire risks and improve short-circuit response. Cabinet Structure: Standard cabinets are often based on XL-21 designs, with IP30 protection for indoor use and optional IP65 for outdoor rainproof applications. Cabinets feature modular partitions, wiring grooves, and reserved spaces for components to facilitate installation and maintenance.

Voltage and Power Management: The distribution box manages overvoltage (≥470V) and undervoltage (≤270V) protection, and may support remote control and monitoring via SCADA or mobile apps. Flexibility and Scalability: Designed to accommodate charging piles from 7kW to 120kW, suitable for residential, commercial, and public fast-charging stations. Outdoor boxes are customized for rainproofing, dustproofing, heat dissipation, and observation, with multiple sizes to match different pile configurations.

Installation and Maintenance Considerations

Placement: Indoor or outdoor depending on environmental conditions; outdoor cabinets require additional waterproofing and corrosion-resistant materials. Maintenance: Regular inspection of protective devices, ventilation, and temperature monitoring modules is recommended, especially for high-power fast-charging piles. Safety Compliance: Must meet standards such as GB 51348-2019 for terminal circuits and GB 14287.

6 for fire protection.

Summary

A standard charging pile power distribution box integrates a properly rated transformer, protective devices, modular cabinet design, and intelligent monitoring to ensure safe, efficient, and scalable power distribution for EV charging stations. Configurations vary based on pile power, installation environment, and regulatory requirements, but the core principles of safety, flexibility, and reliability remain consistent.

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Article Content

How To Configure A Box Substation For Electric Vehicle Charging

The power distribution process of the charging station includes two parts: power transformers from 10KV to 380V, and from the 380V transformer end to the charging pile. The most important power

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The rapid growth of electric vehicles (EVs) has driven the demand for efficient and compact power infrastructure, making 800kVA containerized substations a

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Adapting to the harsh working conditions of outdoor EV charging piles, balancing waterproof, overload protection and anti-aging, ensuring charging safety and equipment service life.

Charging Pile Dedicated Box-type substation

It connects the 10kV three-phase alternating current from the power grid to the primary side of the phase-shifting transformer. On the secondary side, it outputs four windings of 282Vac, 24-pulse

Special Power Distribution Cabinet for Charging Piles | XL-21 Low ...

Fully compliant with mandatory protection standards for terminal circuits in charging applications, the XL-21 ensures maximum safety and reliability. Tailored for optimal performance, it''s the ideal choice for

Charging pile grid-connected box-TSEET

A photovoltaic grid-connected box typically includes components such as a photovoltaic inverter, power protection switch, current transformer, electricity meter, temperature sensor, and communication

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GAOTek IP40 Outdoor Electrical Control Panel Charging Pile

This IP40 outdoor electrical control panel charging pile distribution cabinet has 400 A to 3200 A current, 380 V voltage, and 50 Hz rated frequency.

Charging pile Compacte Substation | HENGFENGYOU

Main technical parameters: capacity range 630 ~ 2000kVA, rated voltage grade 11-33kv, microcomputer high-frequency DC panel is added on the basis of

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Research on the Charging Pile Construction and Load Acceptance

Finally, the charging load acceptance capacity of the distribution network is evaluated to ensure the safety of the distribution network operation. The example verification shows that the charging pile

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A Technical Overview of Charging Pile Box: Specifications and

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Types of Electric Charging Pile Boxes An electric charging pile box (also known as an EV charging station or EVSE – Electric Vehicle Supply Equipment) is a critical component in the electric vehicle

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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