Photovoltaic primary and secondary prefabricated cabins

Functions and Features

- High-voltage switchgear, low-voltage switchgear, control equipmentThe fire protection facilities are integrated and highly functional.
- It is well-protected, operates safely and reliably, and is easy to maintain.
- It occupies less land, requires less investment, has a short production cycle and is easy to move.
- The solutions are flexible and diverse.
- Unique structure: Firm shell, good heat insulation performance, high protection level, diverse types, and strong versatility.

Product Overview

The prefabricated cabin is an outdoor smart substation launched based on the core concept of "standard distribution type". The adoption of the prefabricated cabin structure has become an important measure for the secondary equipment carrier in the construction of smart substations. With the acceleration of the construction pace of the smart grid, the construction speed of substations lags behind relatively. To accelerate the construction period of smart substations, State Grid Corporation of China has proposed a standard distribution substation construction model. Through the plan of " standardized design, factory processing, and prefabricated construction", the rapidpromotion and practical application of smart substations (prefabricated cabins) are achieved.

The prefabricated cabin is an important manifestation of the new technologies, new materials and new equipment applied in smart substations. It is composed of prefabricated cabin bodies, secondary equipment screen cabinets (or frames), cabin auxiliary facilities, etc. The production, assembly, wiring, debugging and other work are completed in the factory, and then transported as a whole to the project site, which islo cated on the installation foundation. The prefabricated cabin and the secondary equipm ent inside it are integrated by the manufacturer as a complete set of secondary equipm ent, achieving factory processing. This reduces on-site secondary wiring, decreases th e workload of design, construction, commissioning, and other processes, simplifies mai ntenance and repair work, shortens the construction period, and effectively supports th e rapid construction of the power grid.

The prefabricated cabin has the technical characteristics of standardization, modularization and prefabrication. The manufacturer can determine according to the actual needs of the equipment cabinetMake specific sizes to adapt to the normal operation of the equipment. Standardization refers to the fact that the dimensions of prefabricated cabins are based on the dimensions of standard containers and havebeen appropriately improved to be as perfect and standardized as possible for the adoption of equipment, and to more effectively facilitate the normal operation of the equipment, so as to achieve the corresponding standardization. Modularization refers to the fact that prefabricated cabins are classified into different modules such as public equipment prefabricated cabins, interval equipment prefabricated cabins, AC and DC power supply prefabricated cabins, and battery prefabricated cabins based on the different functions of the internal equipment. Different module prefabricated cabins canb e further divided into several sub-modules according to different voltage levels.Prefabric ation refers to the fact that the cabin structure of the prefabricated cabin, the installation of internal equipment, the connections between internal equipment, and the cables and optical cables between internal equipment are all processed through factory prefabricat ion. And all the installation, wiring and commissioning of the equipment are completed i n the factory. The prefabricated cabin and its internal equipment are transported to the substation site as a whole, and the positioning and power-on are completed to improve the on-site construction efficiency and achieve the goal of reducing the construction peri od of the intelligent substation!

Product Overview

The 220kV and below modular intelligent prefabricated cabin substations are the new generation of intelligent substations that State Grid focuses on promoting. They have the advantages of safety and reliability, small land occupation, short construction period, small and exquisite appearance, long service life, no radiation, low noise and flexible layout. The main transformer adopts high-quality products that are safe and reliable, low -noise, leak-proof and do not require core lifting. The entire station has no exposed conductors or exposed electrical equipment. Coupled with good enclosure protection, it eliminates the risk of accidental electric shock. The entire station adopts a compact layout, reducing the occupied area and height by over 30% compared to conventional civil construction substations, thus lowering the urban space occupancy rate. All the equipment in the substation adopts amodular design concept with building blocks, and each module is factory-produced andprefabricated. The on-site civil construction workload is reduced by over 70% compared to conventional civil construction substations. The workload of equipment installation has been reduced by more than 80 %. There is no need to close the road when the equipment enters the site, and there is no dust or noise pollution during the construction process. The shell can be fully painted, integrating the theme culture of the city, enhancing the harmony of urban planning, and blending in with the surrounding environment. The transformer is placed in a prefabricated cabin. Through firewall technology, sound screen technology and electromagnetic shielding technology, the noise of the substation is reduced to below 40 decibels, meeting the requirements of urban environmental impact assessment and eliminating noise pollution to the surrounding residential areas. Due to the realization of modularization of substations, they can be flexibly arranged according to the terrain of the station site, fully solving the problems of difficult land acquisition, construction and implementation of substations in urban centers. It is a new model for substation construction.Fast - factory production cycle of 3 months and on-site construction cycle of 1 month.Small - It occupies a small area, reducing the construction land by 30% to 70% compared to conventional substations.

The shell adopts the internationally advanced six-step anti-corrosion process, remaining rust-free for 30 years and having a service life of 60 years. The main electrical equipment is free of chargeMaintain the equipment to ensure safety and reliability. Exquisite processing techniques and exquisite appearance design.With standardized design, factory processing and prefabricated construction, the overall investment of the entire station can be saved by 5% to 10%. Compact substation

The layout adopts advanced complete system integration technology, saving 30% to 70% of land resources.

The activity - building block modular structure, which can adopt flexible building block construction mode according to the different geographical locations of the station site, or according to this

The long-term and long-term planning will be carried out in phases. It is convenient to relocate and can be rebuilt in a different location as a whole in the shortest time.

Scope of application

The product can not only be applied in the central areas of cities to solve the problem of difficult implementation of conventional substations, but also be widely used in traditional energy industries such as coal and oil, as well as new energy industries such as photovoltaic and wind power. At the same time, with its "building block modular" design, production and transportation assembly mode, it is particularly suitable for places such as suburban areas and remote mountainous areas where road transportation is inconvenient.

Scope of application

All the equipment inside the cabinet should be of moisture-proof type, and theprefabricated cabin should have dehumidification function.

Altitude :<1000m
Annual average temperature :23℃
Multi-year average evaporation: /
Extreme maximum temperature :39.9℃
Multi-year average rainfall: 1,300
Annual maximum snow thickness: /
Extreme minimum temperature :-8.6℃
Annual average relative humidity (%):≤75
Annual maximum frozen soil depth :≤0.5 meters
Filth level :IV
Maximum wind speed :25.3m/s
Annual average number of thunderstorm days (d):37.6
Basic intensity of the earthquake :VI
Average number of windy days per year (d): /
Installation location: Outdoors
Annual sunshine duration: /