AITRACKER
—泽阳智能—

Tracking Control System Monitoring Software Introduction

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1.Product Introduction

Single Axis Tracking System of Guangdong Zeyang Intelligent Technology Co.,Ltd，drive the entire row of modules by using a rotary reducer，According to the local longitude, latitude, and time, by the controller program automatically calculates the sun's trajectory at any time and the azimuth and altitude angle of the location，Timely and accurately calculate the best tracking angle of the modules in different terrain and weather. When the tracking controller is running，according to the tracking range through intelligent AI algorithm and big data real-time closed-loop control ，the HMI system send instructions through LoRa or ZigBee wireless transmission technology ，adjust the corresponding tracking angle according to the sun's position at different times every day, controls the operation of the electric actuator，and track the east-west movement of the sun every day ，so that the photovoltaic module is always aligned with the position of the current sun； When there is a bad weather conditions， the host computer communication system tell the control system that there is strong wind weather，and sends out instructions， the control system pushes the motor and bracket to make corresponding actions to avoid bad weather； during the abnormal tracking phase when the sun's altitude angle is low，in order to prevent the bracket from being obscured by shadows，the system activates anti-shadow tracking mode. The whole control process is fully automatic operation without manual intervention（the system operates in“auto”mode）. There is a system the characteristics of modular design, high reliability, it is good at stability, and low failure rate, which can increase power generation and reduce investment costs.

2.SCADA

2. 1 Introduction

The SCADA of Zeyang intelligent photovoltaic tracking control system adopts the encrypted communication protocol (OPC/UA) of the international industry standard to ensure the integrity and security of the data. The software architecture adopts B/S modularization and scalable design to ensure the intensive and economical deployment of the system. At the same time, the self-developed industrial real-time data management system provides a unified, stable and safe data source for the tracking support power station system, and realizes the unified and flexible management of digitalization and intelligence.

SCADA can collect data in real-time, and realize real-time optimization operation of the system through reasonable organization and storage of data, monitoring and optimization of models. Adopt stable, safe and reliable industrial server hardware platform to ensure the long-term stable operation of the system and monitor the health status of the system.

Figure 7-1

2.2 Deployment access scheme

The deployment of the SCADA system requires TCU to connect to NCU wirelessly through Zigbee, and NCU to connect to the data protocol converter, directly convert the field Modbus data protocol into MQTT protocol, and locally access the local fiber ring network. The deployment can be completed by connecting the industrial server provided by Zeyang Intelligence to the local fiber ring network.

SCADA System connection scheme

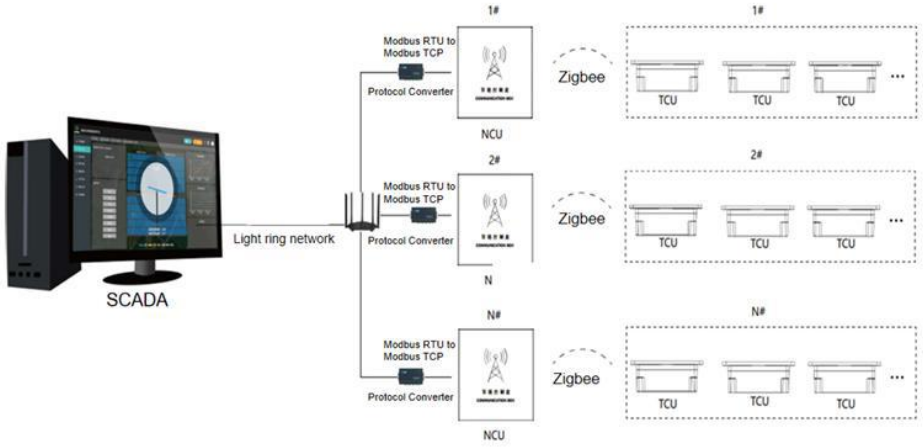

Figure 7-2

2.3 Direction for use

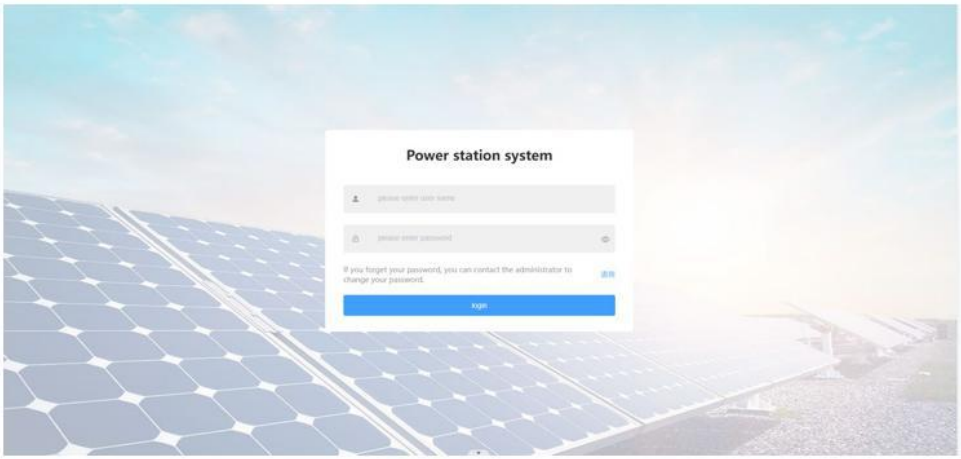

Figure 7-3

(1) User login Enter the corresponding URL to display the interface above.

Enter the user name and password to enter the main interface of the platform. To change the platform language, click the Language button.

Figure 7-4

(2) main interface

Figure 7-5

Area 1 is the company Logo, which can be customized for different customers;
Area 2 is the system setting part, including current time, wind speed, language setting, personal center and account exit;
Area 3 is the project list, which shows the name, number of trackers, number of failures and number of stops of the managed items under the account.
Area 4 is the display of tracker status, counting the number of trackers under different states (normal, fault, offline, alarm, stop);
Zone 5 is the normal rate ranking of trackers of different square matrices, which can be arranged in ascending or descending order;
Area 6 is a map display, showing the distribution of managed projects on the map.

(3) Overview of the power station

Figure 7-5

Click the item in the project list to enter the plant overview page of the project. Area 1 displays the number of abnormal operations of the power station controller, including faults, stops, alarms, and offline. Zone 2 is the real-time operation data statistics of the power station, including the real-time maximum wind speed and the operation mode of the tracker. Click the deployment area of the power station to switch to the matrix form, so that users can intuitively detect the operation of each subarray.

(4) Power station array

Figure 7-6

After entering the power station subarray, the operation state of the subarray can be observed, including abnormal operation data; Real-time meteorological data can be provided on the right side of the interface, and remote control of the sub-array can be performed on the upper left corner of the interface, including heavy rain cleaning, heavy snow protection, strong wind protection and automatic mode.

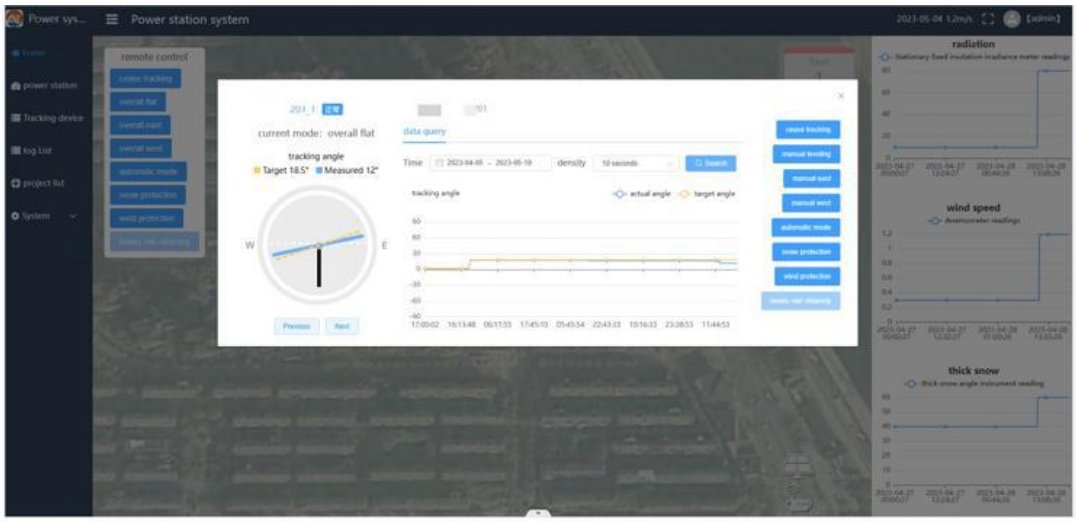

Figure 7-7

Click the controller in the subarray to view the running status of the controller and carry out remote control of the controller, including heavy rain cleaning, heavy snow protection, strong wind protection, automatic mode, etc. Real-time tracking Angle statistics is displayed in the middle of the interface.

(5) Tracking equipment

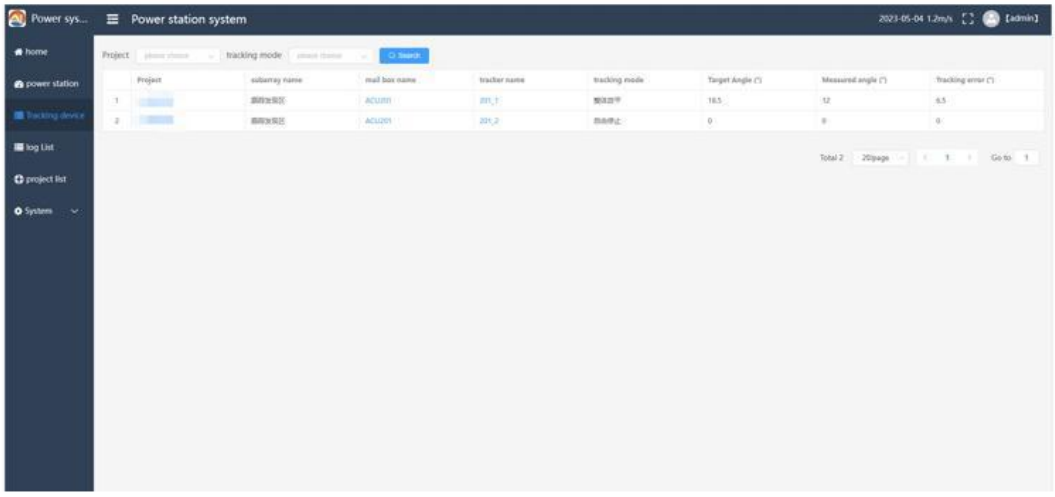

Figure 7-8

This page displays device information, which can be retrieved, queried and exported according to project name, subarray name, NCU name, heel TCU name, tracking mode, tracking error and other information. The device list displays the basic information, tracking status, tracking mode, target Angle, actual Angle, and tracking error information of the queried device. Clicking the name of NCU or TCU will bring up the operation control interface of the device. You can remotely control the device on this page.

(6) Historical data

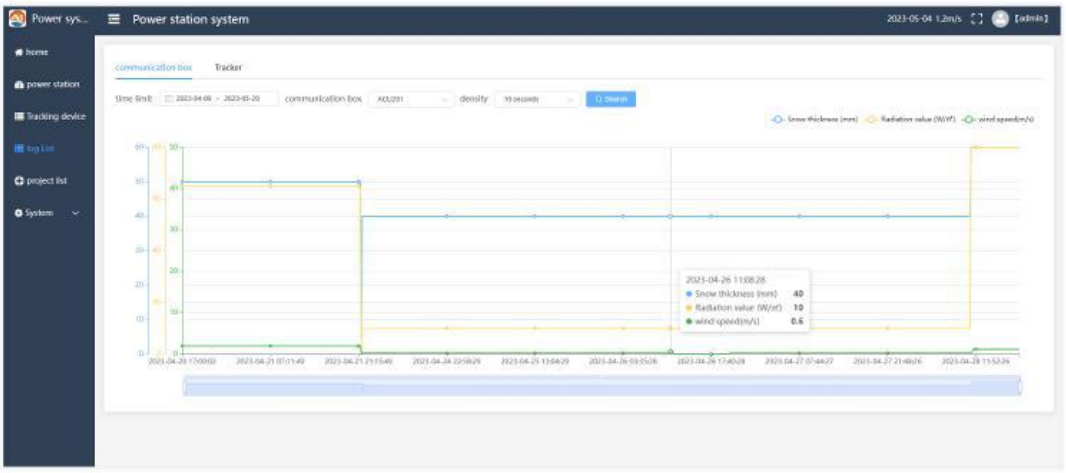

Figure 7-9

This page displays device information. You can search, query, and export device information based on the project name, subarray name, NCU name, followed by TCU name, tracing mode, and tracking error. The device list Display the basic information, tracking status, tracking mode, target Angle, actual Angle, and tracking error of the queried device. Click the name of NCU or TCU to display the operation control interface of the device. You can control the device remotely from this page.

3.Declaration

Due to the constant updating and iteration of the product, the actual product may differ from the content of the instructions. Everything is subject to the actual product.