Acrel-Prepaid System

Energy measuring and charging of user sides

Author: Aaron
E-mail: aaron@acrel.cn
Web: www.acrel-electric.ke

Energy measuring and charging

Energy measuring and charging is mainly aimed at measuring electricity consumption of consumers and charging based on energy consumption and the corresponding unit price.

Enterprises, industrial parks and others purchase electricity from the Grid, then allocate,measure and charge energy consumption to internal rented shops、factories and employees,etc, according to relevant policies and norms.

Our scope of application is mainly for internal energy consumption measurement analysis and charging service of enterprises、industrial parks、commercial management properties,etc.,such as commercial real estate groups, rental apartments, supermarket chains, etc.

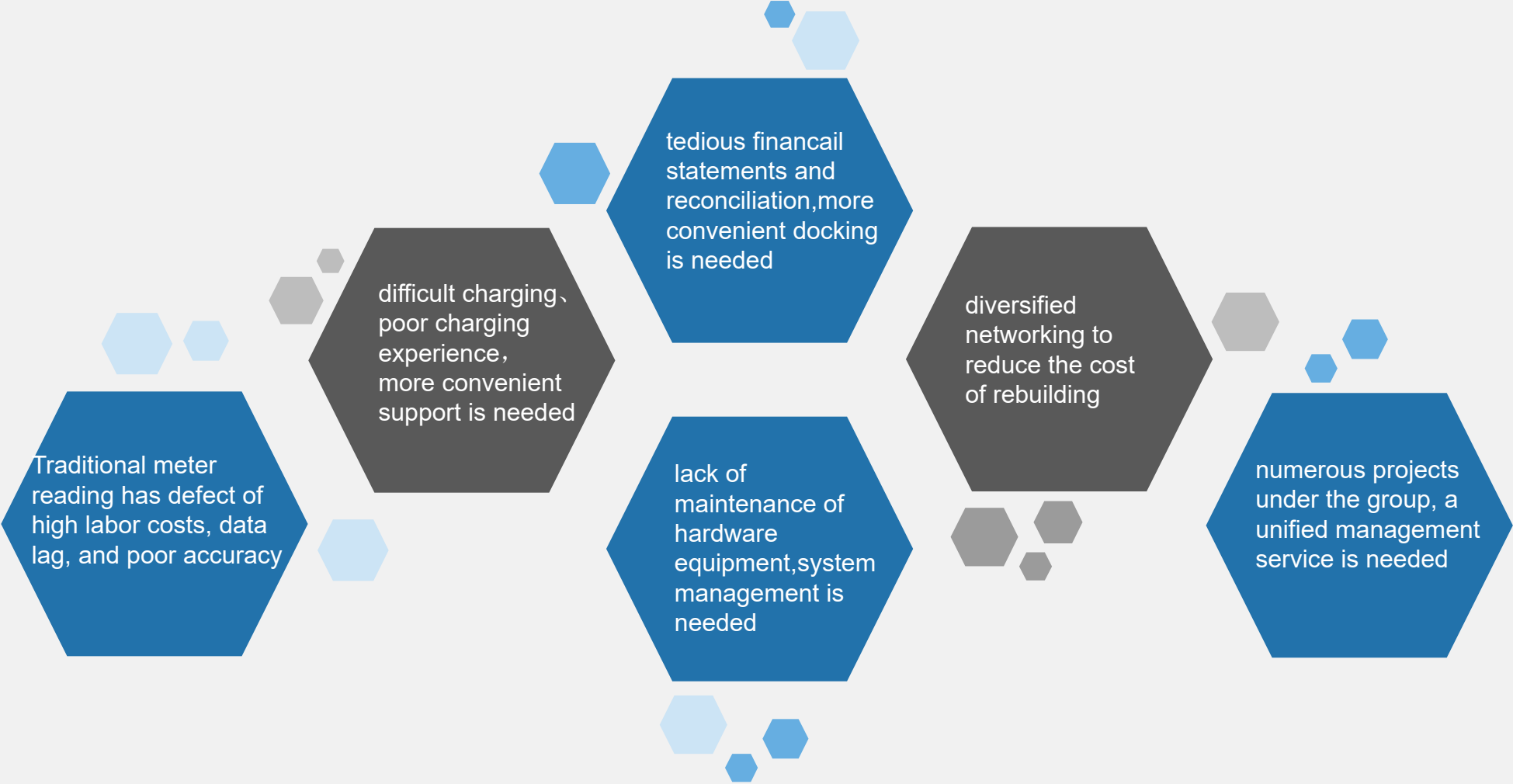# Application —Commercial real estate groups

Commercial complex

Office building

Industrial parks

Farmers Market & Trading Market

Scenarios requirements—Commercial real estate groups

tedious financail statements and reconciliation,more convenient docking is needed

difficult charging、poor charging experience，more convenient support is needed

diversified networking to reduce the cost of rebuilding

Traditional meter reading has defect of high labor costs, data lag, and poor accuracy

lack of maintenance of hardware equipment,system management is needed

numerous projects under the group, a unified management service is needed

Scenarios requirements—rental apartments

Rental apartments

charging for water and electricity

Convenient for landlords to charge tennants for water and electricity

02

01

03

Renting

Debugging-free, deployment-free, managed services

Diversified networking

Wired、WIFI

Our solutions

Prepaid Cloud Platform

4G/WIFI/Wired

AWT100

RS485

Wifi

Wifi

Wifi

Wifi

ADL100-EY
ADL300-EY

ADF400L

ADL100-EY/WF

ADL300-EY/WF

Wired

Wireless

Main features of the program

- diversified networking,diversified device access,diversified deployment

- group management, project classification, hierarchical topology;

- role management, authority assignment;

- energy measurement,analysis and charge;

- financial reconciliation,property management;

- portable payment, various options;

- equipment supervision,abnormity warning;

- function extension: electricity distribution monitoring,electrical safety,charging piles and so on.

Prepaid system

Acrel Prepaid system is a system solution based on user side energy consumption measurement,analysis and charge as well as property inspection service.The whole solution includes independently developed and produced terminal meters, edge computing gateways and system software.

The system function mainly includes program management,device inspection,user monitoring,financial management,property management,system settings and so on.It can conveniently realize the needs of the multi-project management of group users, the operation status supervision of terminal meters and edge gateways, the supervision of commercial tenants and public electricity consumption, energy charging and property management settings, etc.It can also provide advanced function such as carrying out corresponding functional division and authority distribution for finance and engineering,or viewing operation logs,which is convenient for the property managment personnel to carry out the management work.

Main Functions

CONTENTS

01 **Item management**

Item classification、adding devices、user management

02 **Device supervision**

device inspection、abnormity feedback、text message settings

03 **User monitoring**

shop monitoring、circuit monitoring、monitoring details

04 **Financial/Property management**

order overview、financial statement、property settings

05 **System settings**

role assignment、authority management、operating log

01

Item management

Item classification、adding devices、user management

Item classification

For cross-regional group programs or large-scale park partition management item, each partition can be managed as a sub-item.

Edge gateways, terminal devices, and user information in each sub-item are managed separately without influencing each other.

Gateway management/Meter management/User management (engineering manager)

The management in the item is classified through Ptoject-->gateway-->meter-->user.

Each project is connected to multiple gateways, each gateway is connected to multiple meters, and each meter corresponds to a user.(multiple meters can also correspond to a user.)Property management personnel can easily manage users.

02

Device supervision

equipment self-inspection、abnormity feedback、text message settings

Alarm information（engineering manager）

Alarm information shows all the abnormal status of devices.For example, if the equipment is disconnected, or the balance is insufficient, or the state of pressure loss and reverse flow caused by wrong wiring is monitored, it can be quickly screened and checked, and it can be configured to actively send SMS alarms.

Text message settings（engineering manager/financial staff）

Text message can be set according to abnormal information or alarming status.For example,it can be set to send SMS alarming to rentants for insufficient balance or to engineers for abnormal wiring or abnormal energy consumption.

03

User monitoring

shop monitoring、circuit monitoring、monitoring details
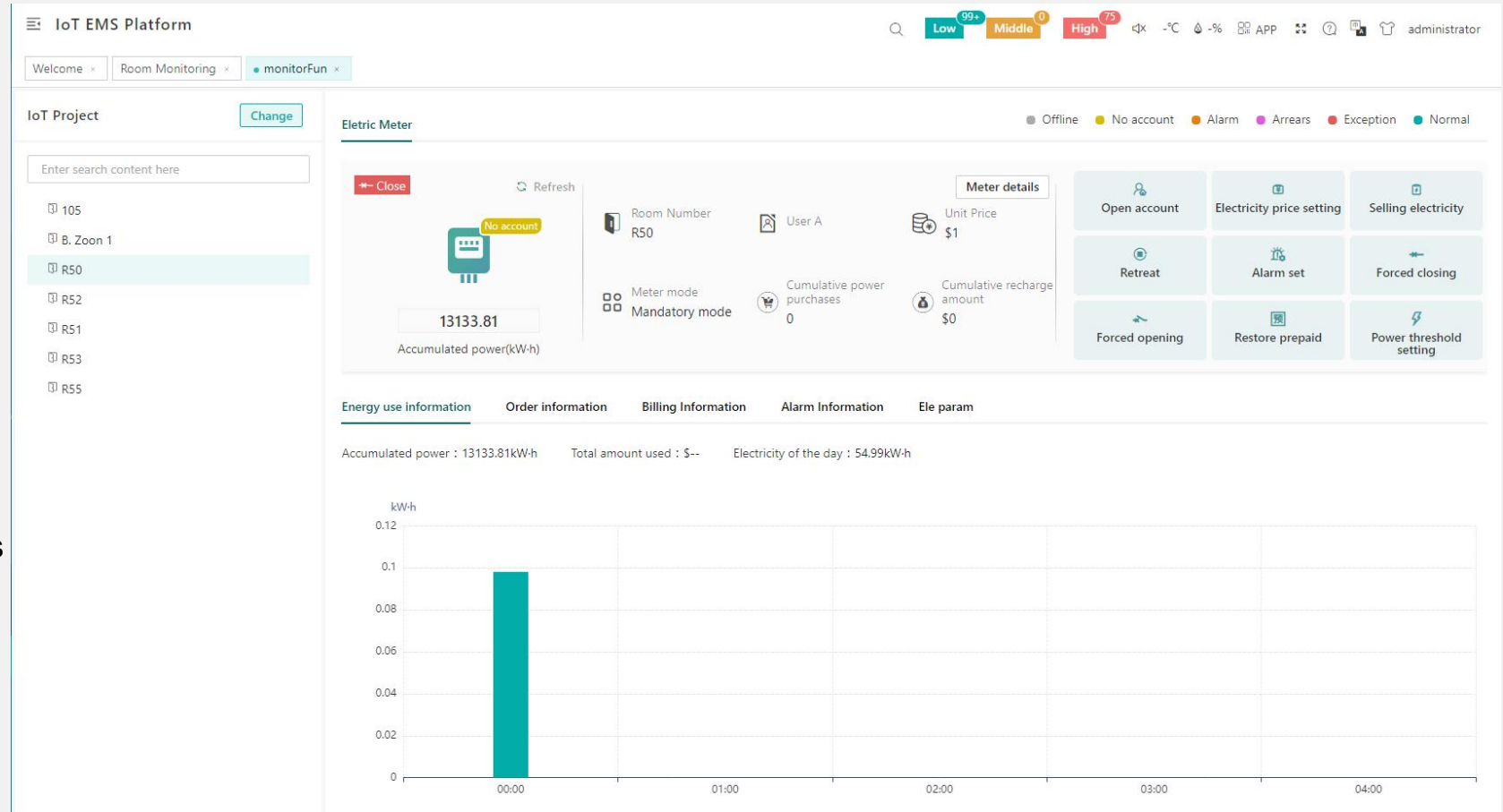
User monitoring （financial staff）

User monitoring can quickly view the status of commercial tenants and public circuits.Abnormal rooms or circuits are marked with abnormal colors, which can be quickly located.

The interface of room monitoring and circuit monitoring can quickly filtrate the corresponding users and circuits by program area and floor distribution,and it can return to the interface of monitoring details by clicking tripping.
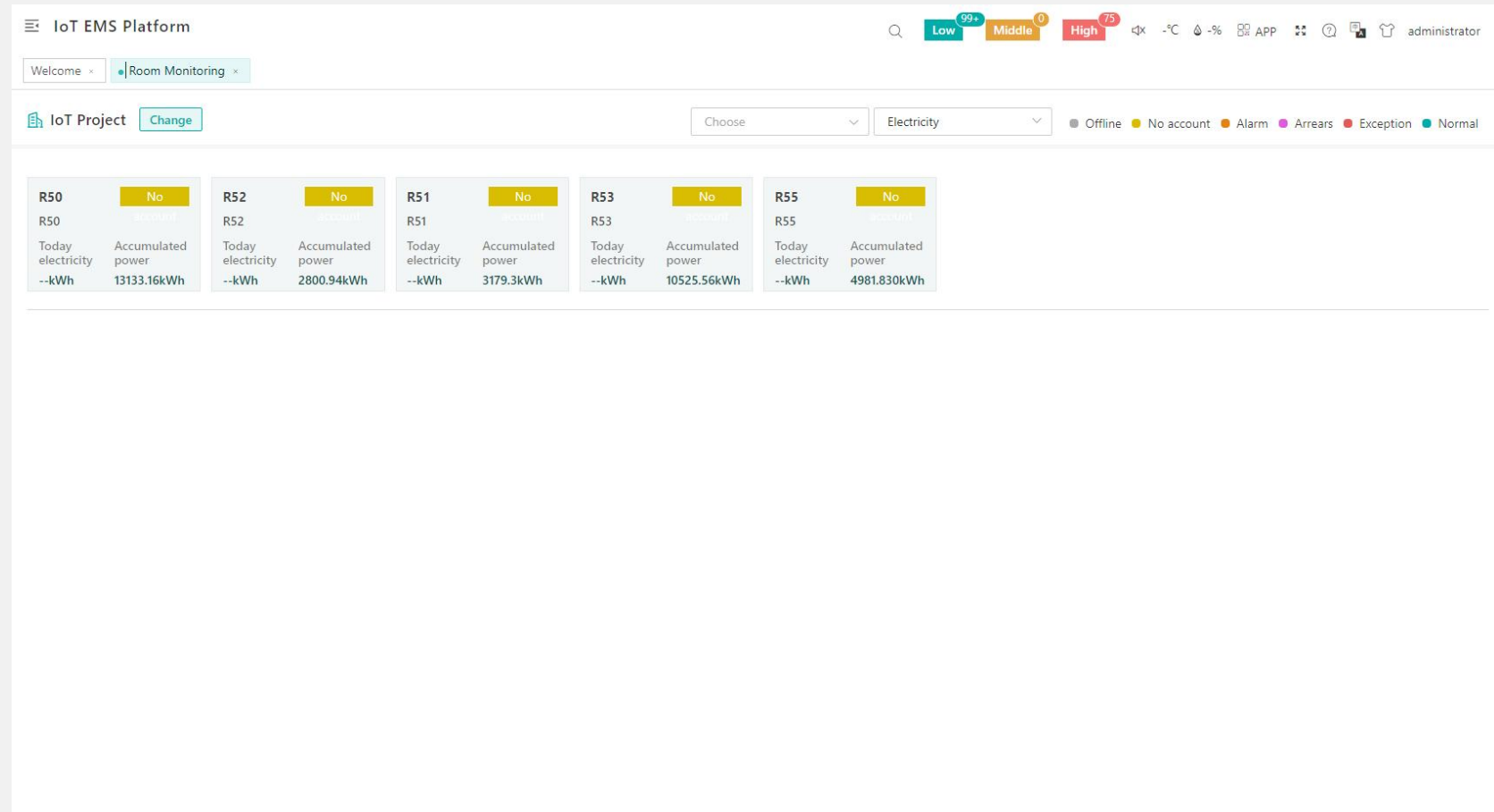
Monitoring details（financial details）

Monitoring details are the interface of shop management details.It can perform functions such as opening an account for the initial room, recharging check-in stores, detailing energy usage, recharging records, and viewing abnormal alarms.It can also perform operations such as issuing electricity price and alarm, opening and closing control.

Monitoring details （financial staff）

Easy account opening: Opening an account is the process of binding the program store information with specific equipment, and making the first recharge.

In the program management stage, the corresponding relationship can be sorted out according to the information provided by the property, and it can be automatically substituted when opening an account.

04

Financial/Property management

order overview、financail statements、property settings

Financial management（financial staff）

In order to facilitate the daily settlement and reconciliation of financial personnel,the system provides the order overview of all the order details. It can calculate income statistics by day,month and year and then query the comprehensive report of energy consumption and electricity charges of shops by time period.It can also specifically respond to the electricity fee refund function of the new electricity price policy and so on.
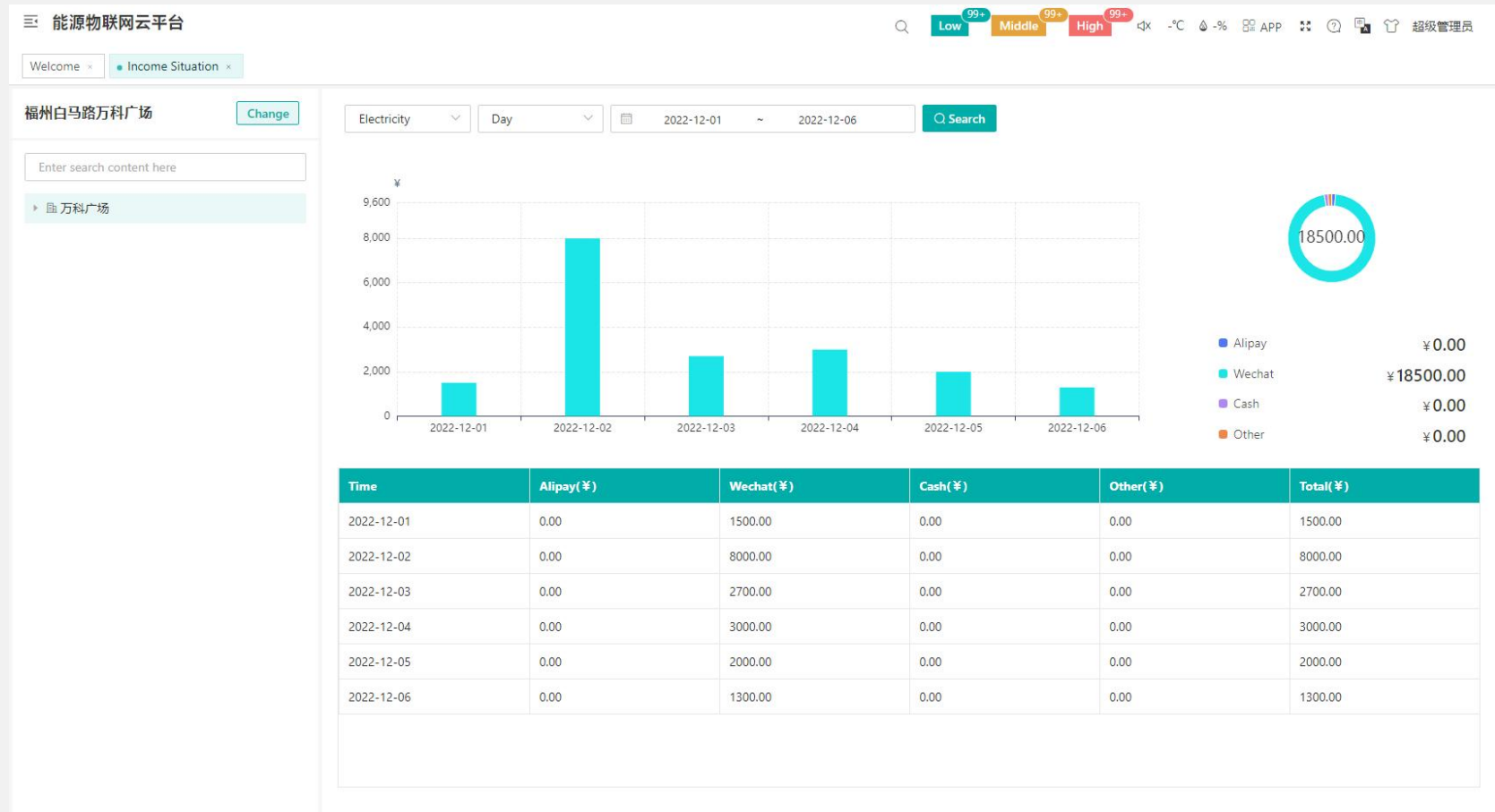
Property management（property management personnel）

Property management is mainly set up for the electricity price scheme, alarming scheme, property fee, shared expenses and other functions of the stores,which will be operated by personnel with higher authority.

05

System settings

role assignment、authority management、operating log

Property management（property management personnel）

Role assignment/authority management：

Assign different authority to personnel of different functions in groups,which is convenient for the internal management and system application.

Finance：Account opening, user recharging, financial reconciliating and other functions.

Engineer：Device inspection、alarm to be checked、device maintenance and other functions.

Business：Water and electricity price distributing、role authority assigning and other key functions.

06

Energy consumption statistics

additional function

Energy consumption statistics

Our platform can provide abundant energy consumption statistics report, which can realize the statistics of energy consumption classification, sub-item, partition.

Such as energy consumption overview、year-on-year analysis, energy consumption trend analysis, multi-rate report, energy consumption ranking statistics, loss analysis, energy flow diagram, etc.
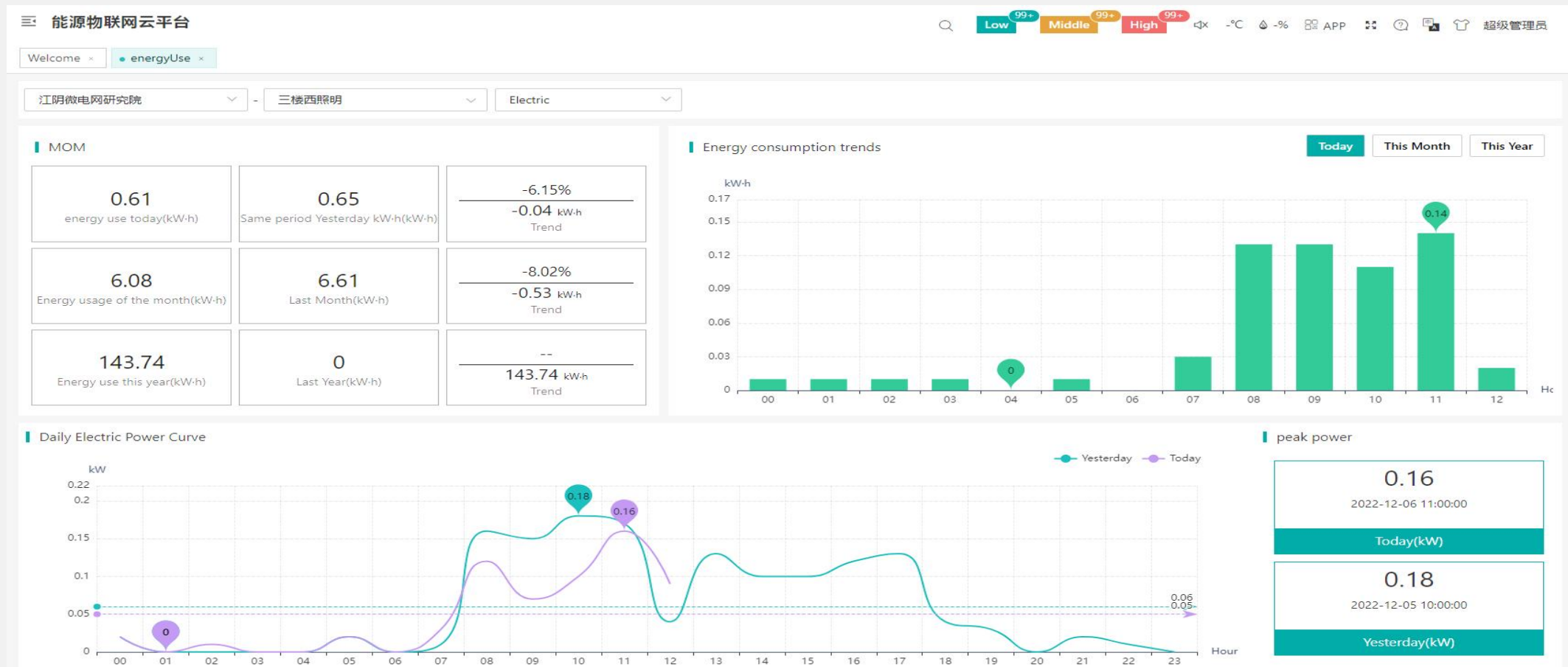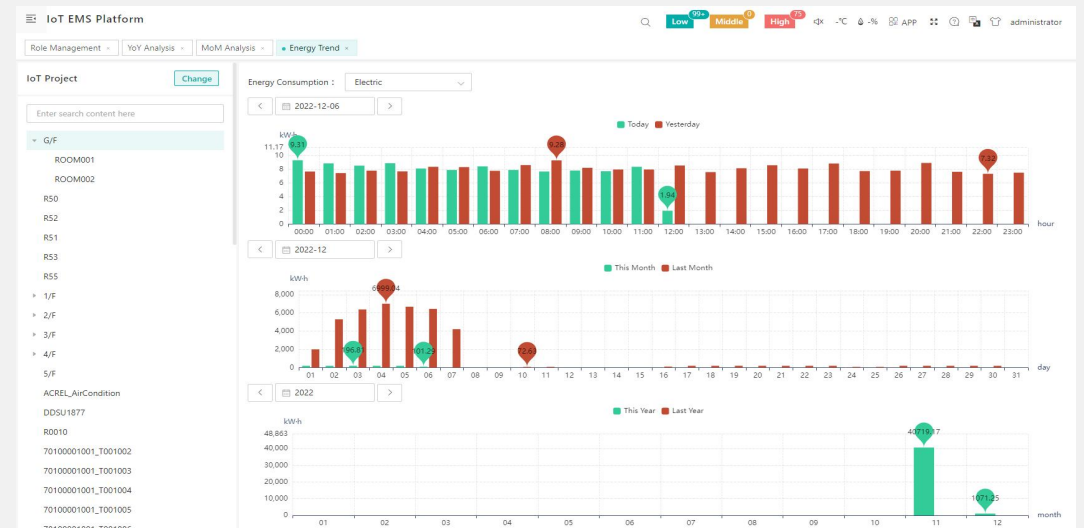

Energy consumption profile

Energy consumption statistics
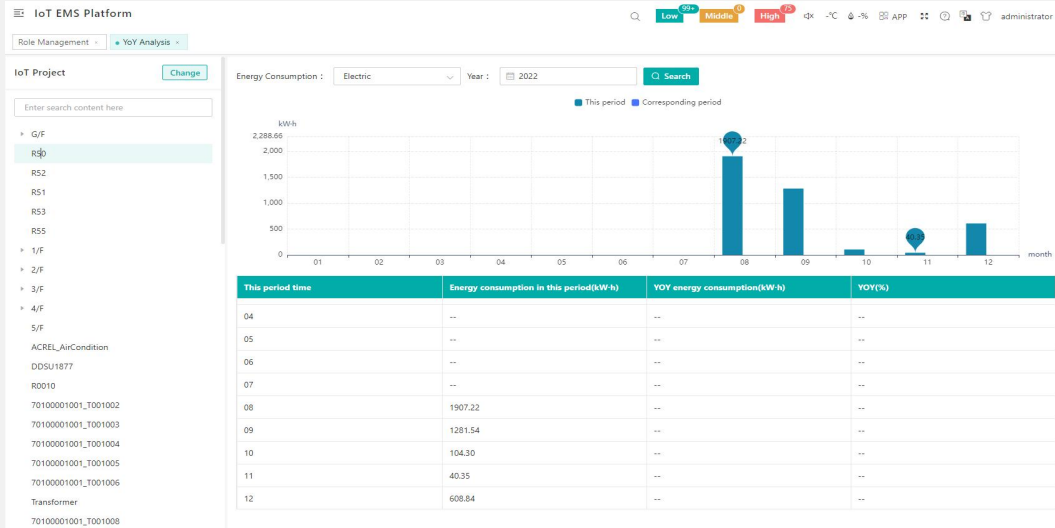
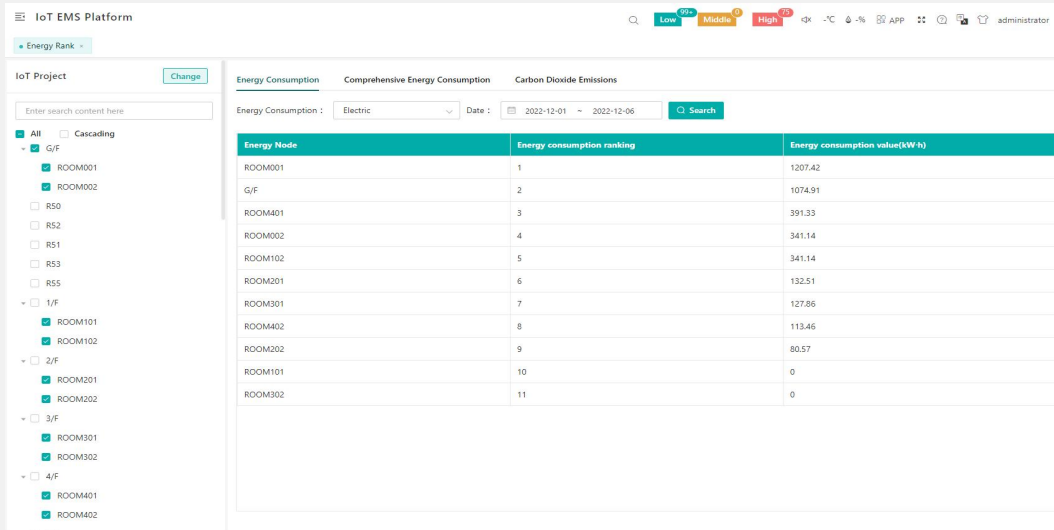year-on-year and month-on-month analysis

energy consumption trend

energy consumption report

multi-rate energy consumption statistics

Energy consumption statistics

energy consumption ranking
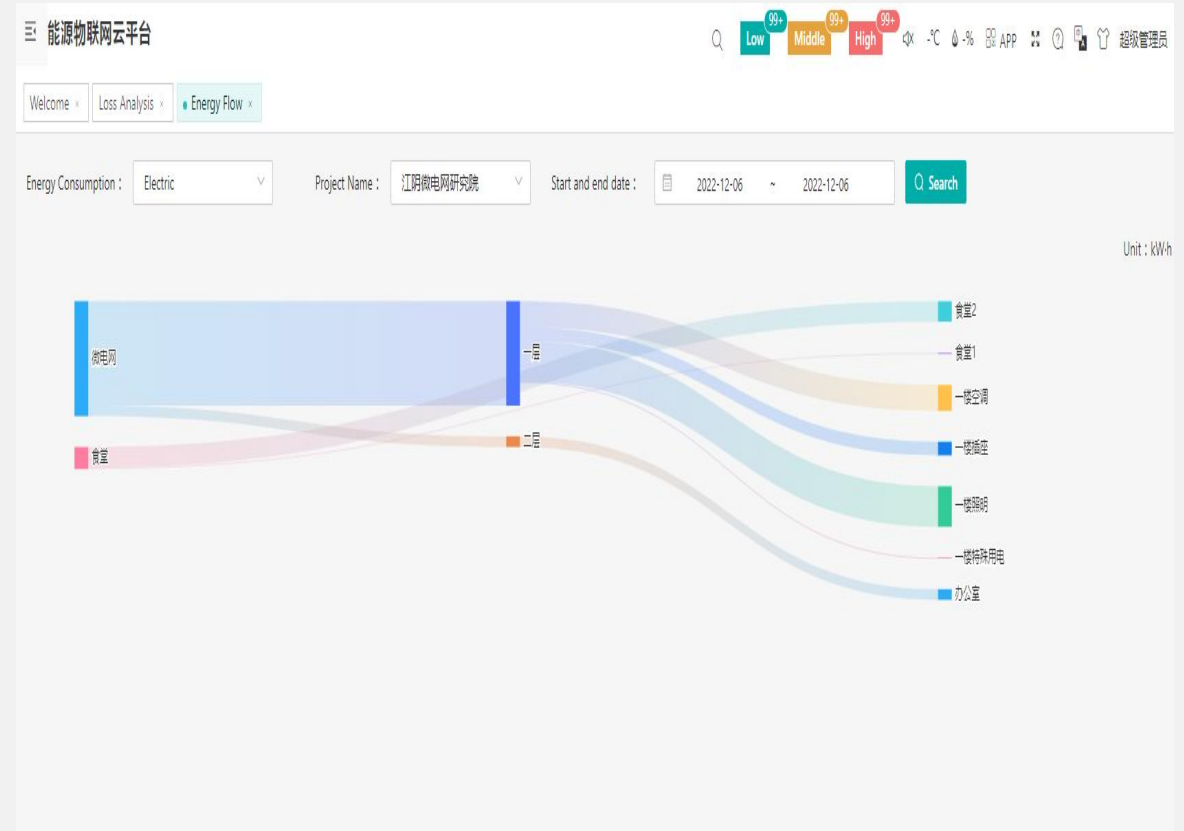
energy flow diagram
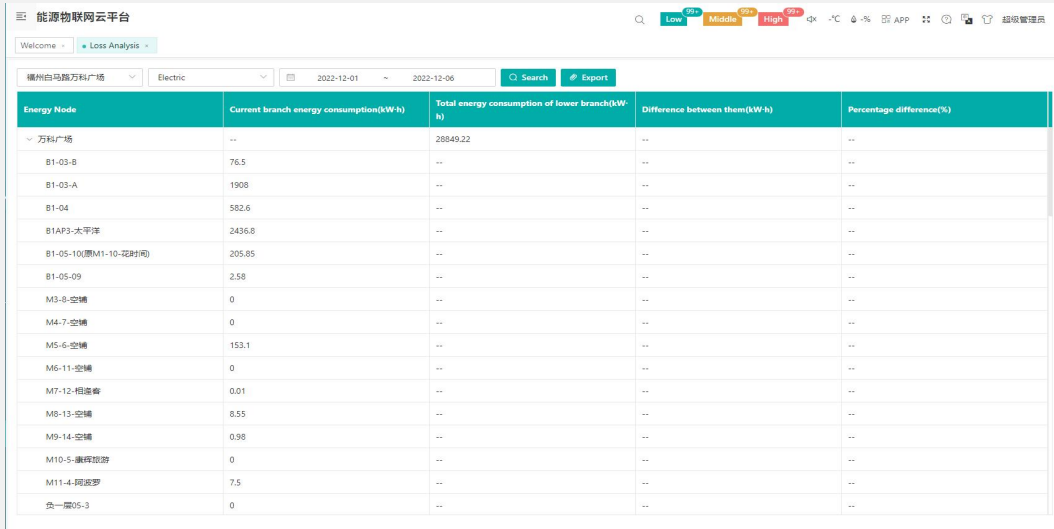
loss analysis

Energy consumption statistics
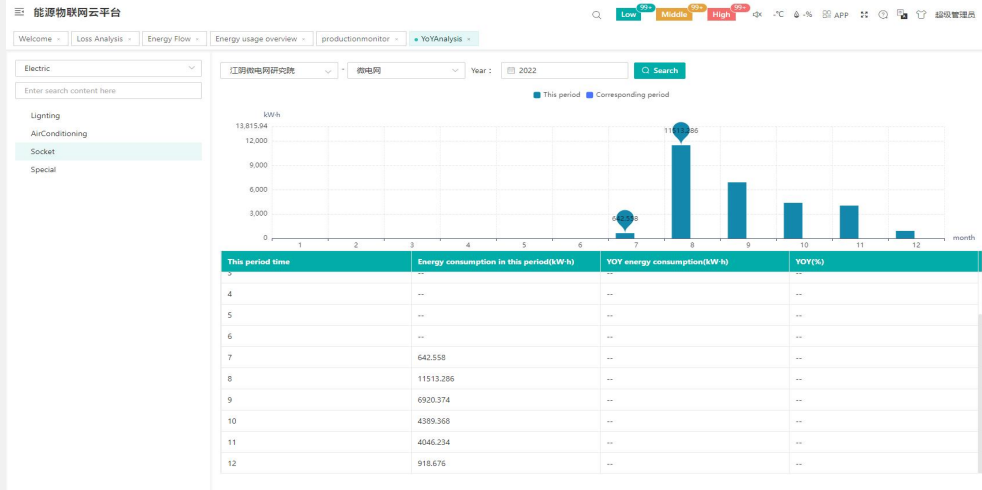
year-on-year analysis of sub-items
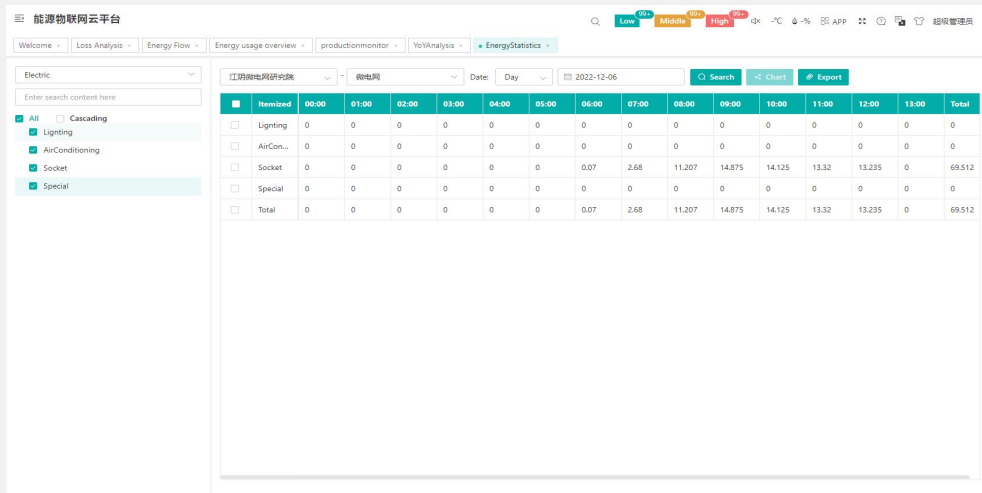
statistics of sub-items
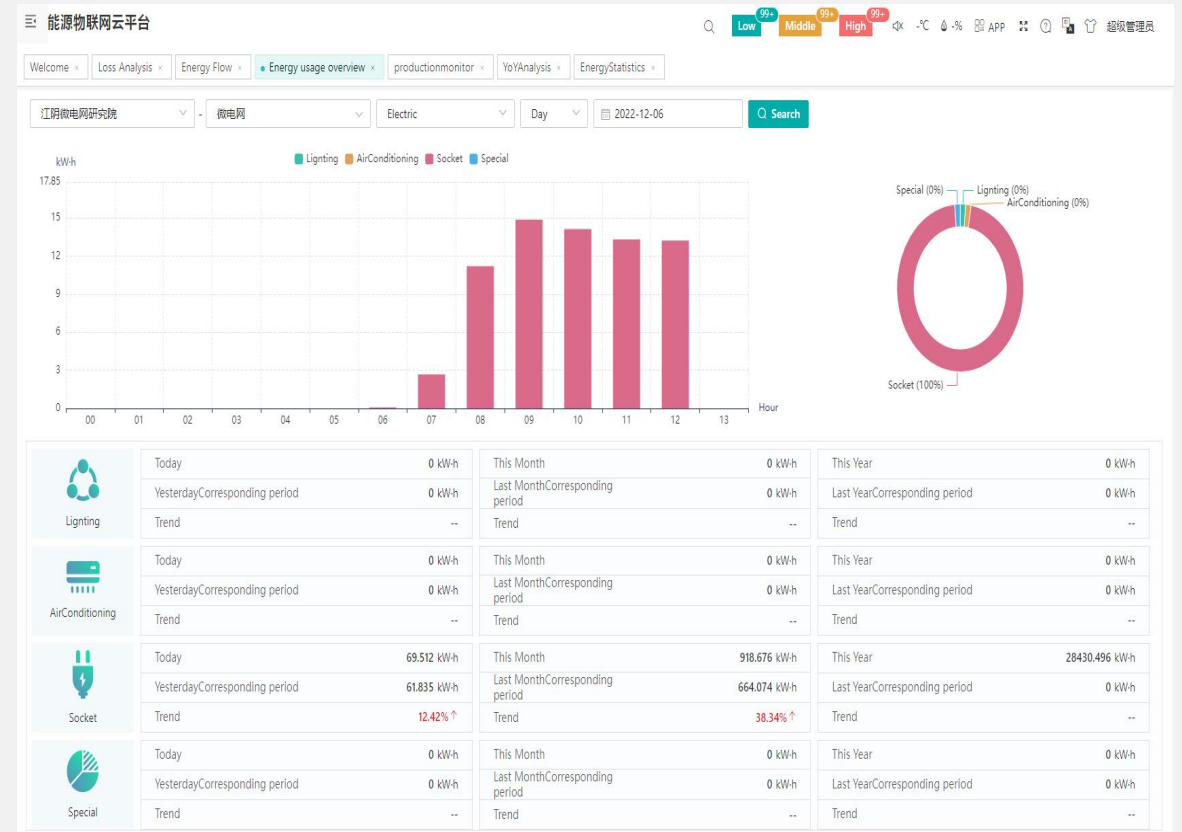
overview of sub-items

07 Device selection

Device selection

device model	communication type	device type	support for accessible meter
AWT100-4GHW	4G/WIFI/wired	gateway	ADL100-EY,ADL300-EY,ADF400L
ADL100-EY	wired	energy meter	gateway is needed
ADL100-EY/WF	WIFI	energy meter	connect to platform directly
ADL300-EY	wired	energy meter	gateway is needed
ADL300-EY/WF	WIFI	energy meter	connect to platform directly
ADF400L	wired	energy meter of multiple circuits	gateway is needed

08 Debugging-free solution

Debugging-free solution
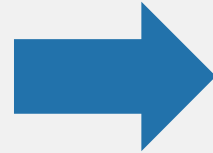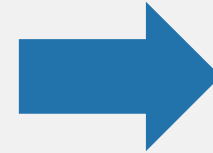
Step 1

Power the device and then users scan the code to bind device informtion

Step 2

Loading...

Device automatically uploads its type、serial number and electric parameter; middleground then stores and deals with the data.

Step 3

Meter data reading、energy consumption data、control strategy delivery、elecrtricity recharging and selling,etc.

09

Hardware introduction

prepaid energy meter、gateway

device accessible to the platform

ADL100 series single phase prepaid energy meter

➤ All-electric parameter measurement，accurancy class 1 of active electric energy；

➤ Built-in large-capacity (100A) magnetic latching relay to realize on-off；

➤ Time-of-use charging, timing control, over-power protection

➤ RS-485、WIFI networking method；

ADL300 series three phase prepaid energy meter

➤ All-electric parameter measurement，accurancy class 0.5S of active electric energy；

➤ directly connect to built-in large-capacity (100A) magnetic latching relay to realize on-off

➤ Time-of-use charging, timing control, over-power protection

➤ RS-485、WIFI networking method；

device accessible to the platform

ADF400L series multi-users energy meter

➢ All-electric parameter measurement，accurancy class 0.5S of active electric energy；

➢ directly connect to built-in large-capacity (100A) magnetic latching relay to realize on-off；

➢ mixed usage of various transformer specification、three phase directly connected、single phase directly connected;

➢ maximum connected to 12 circuits three phase or 36 circuits single phase；

➢ RS-485；
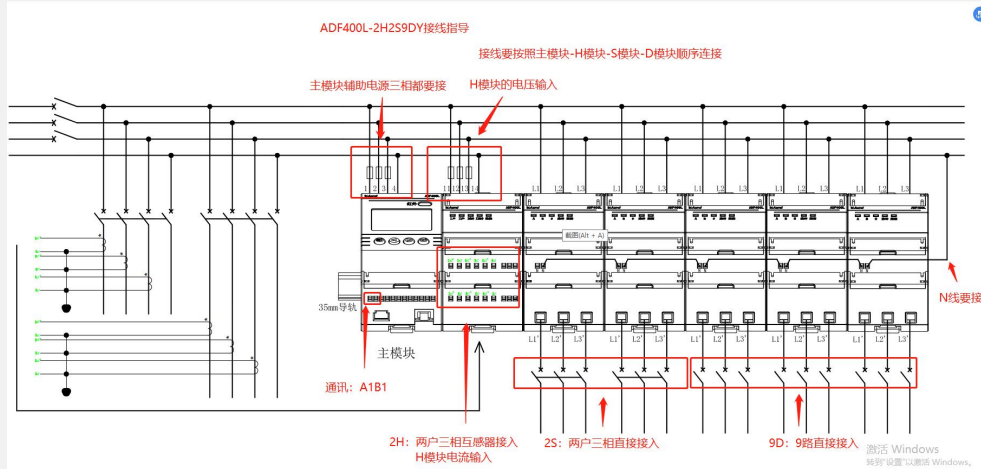
AWT100 intelligent debugging-free gateway

AWT100 data conversion module collects the status information of the local device through RS485/Modbus-RTU, and then transmits the information to the terminal device, server, cloud platform, etc. and then realizes wireless inter-connection through wireless or wired transmission. The user does not need to re-establish the communication network structure,so it is more convenient for the users to use, and the cost is reduced at the same time.

communication type：4G、WIFI、CE

advantages：

support debugging-free solutions

compact size, easy installation

low cost, affordable price

support second-level upload

THANKS