Wisdom Energy Management System

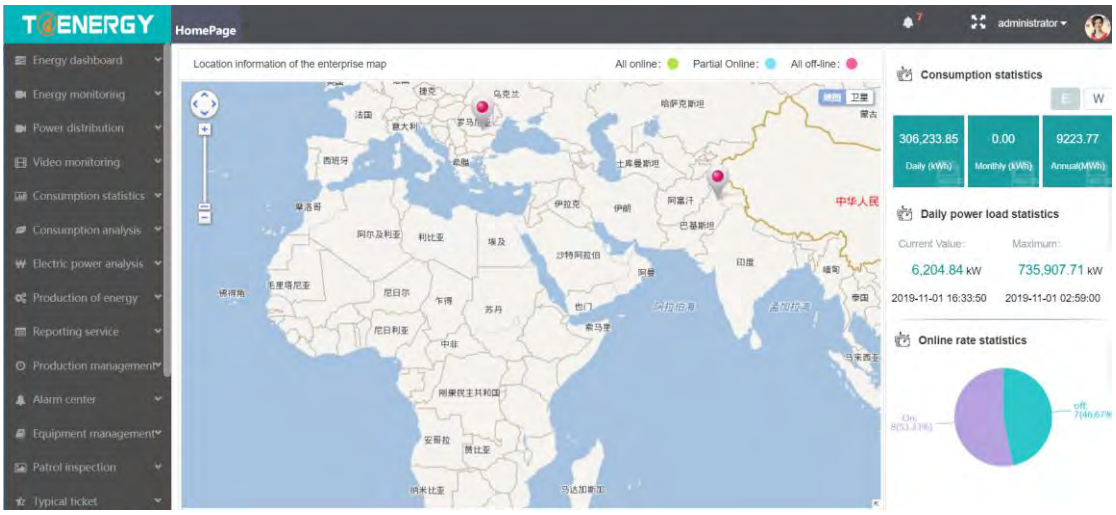
User Manual V1.1

Henan Compere Smart Technology Co., Ltd.

Content

Homepage

After entering the account password to log in, the home page is automatically loaded and displayed as follows：



In the above taskbar, from left to right are the current module name, alarm flag, and current login account information. Click the alarm flag to view the specific alarm information.

①Map: The map on the left side of the interface will display the location information of the company. At the same time, the online status of the current enterprise concentrator will be displayed on the map.

②Energy consumption statistics: Select the type of energy to be viewed, and then you can view the total energy consumption of the company in the current account, day, month and year.

③Load Statistics: The real-time and maximum values of the currently selected energy type are displayed.

④Online rate statistics: display the current concentrator online status of the enterprise, click on the pie chart to jump to view the details.

1Energy board

1Energy board

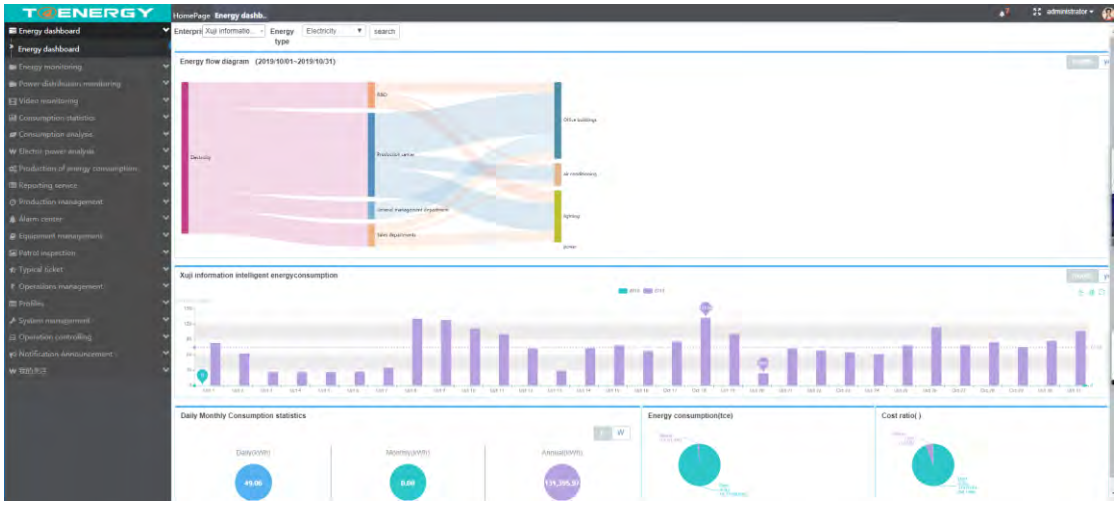
In this module, you can view the corresponding data by selecting the enterprise and energy type.

In the module of energy flow diagram and company energy consumption, you can switch the year and month to view the corresponding data.

In the energy flow diagram: you can click on different properties and view the corresponding data in the histogram below.

Daily/month/year energy consumption statistics: show the total energy consumption of the current day, the current month

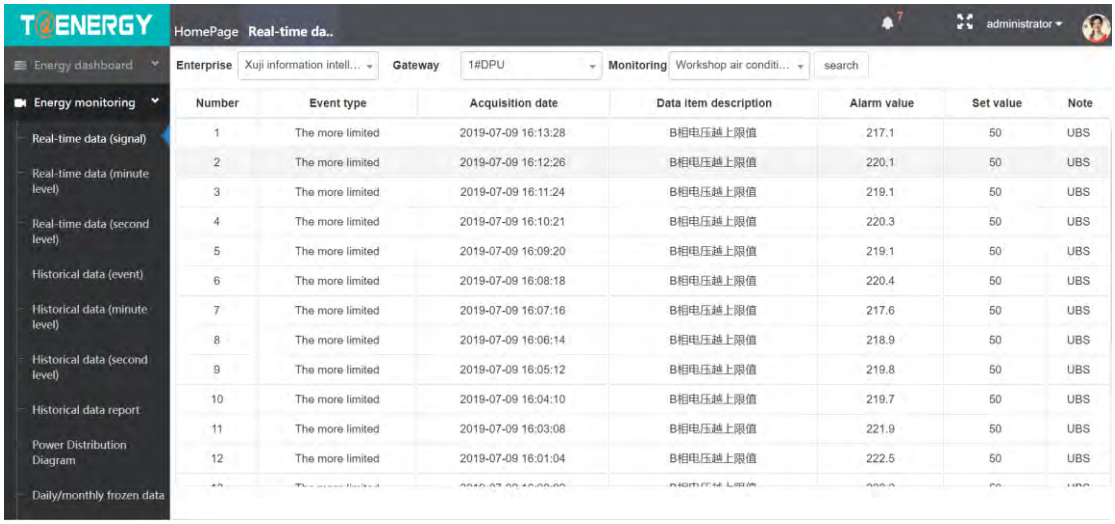
Proportion of energy consumption of the standard (tons of standard coal): The ratio of the energy consumption currently used to the weight of coal consumed.
Cost ratio (yuan): View the proportion of expenses for different energy types.



2Energy monitoring

2.1Real-time data（signal）

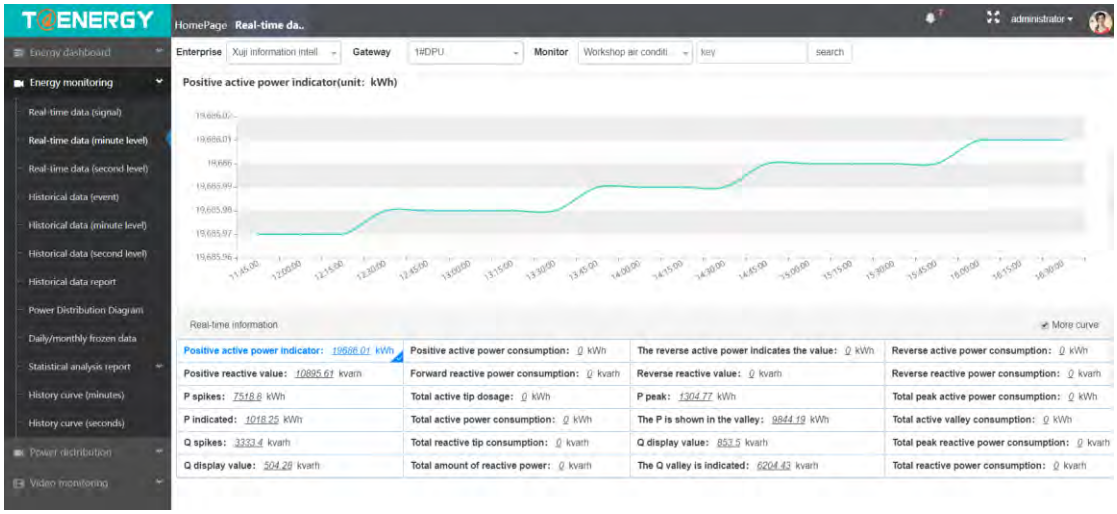
Query real-time data of devices in the enterprise, including: event type, acquisition date, data item description, alarm value, set value, and remarks.



Number	Event type	Acquisition date	Data item description	Alarm value	Set value	Note
1	The more limited	2019-07-09 16:13:28	B相电压越上限值	217.1	50	UBS
2	The more limited	2019-07-09 16:12:26	B相电压越上限值	220.1	50	UBS
3	The more limited	2019-07-09 16:11:24	B相电压越上限值	219.1	50	UBS
4	The more limited	2019-07-09 16:10:21	B相电压越上限值	220.3	50	UBS
5	The more limited	2019-07-09 16:09:20	B相电压越上限值	219.1	50	UBS
6	The more limited	2019-07-09 16:08:18	B相电压越上限值	220.4	50	UBS
7	The more limited	2019-07-09 16:07:16	B相电压越上限值	217.6	50	UBS
8	The more limited	2019-07-09 16:06:14	B相电压越上限值	218.9	50	UBS
9	The more limited	2019-07-09 16:05:12	B相电压越上限值	219.8	50	UBS
10	The more limited	2019-07-09 16:04:10	B相电压越上限值	219.7	50	UBS
11	The more limited	2019-07-09 16:03:08	B相电压越上限值	221.9	50	UBS
12	The more limited	2019-07-09 16:01:04	B相电压越上限值	222.5	50	UBS

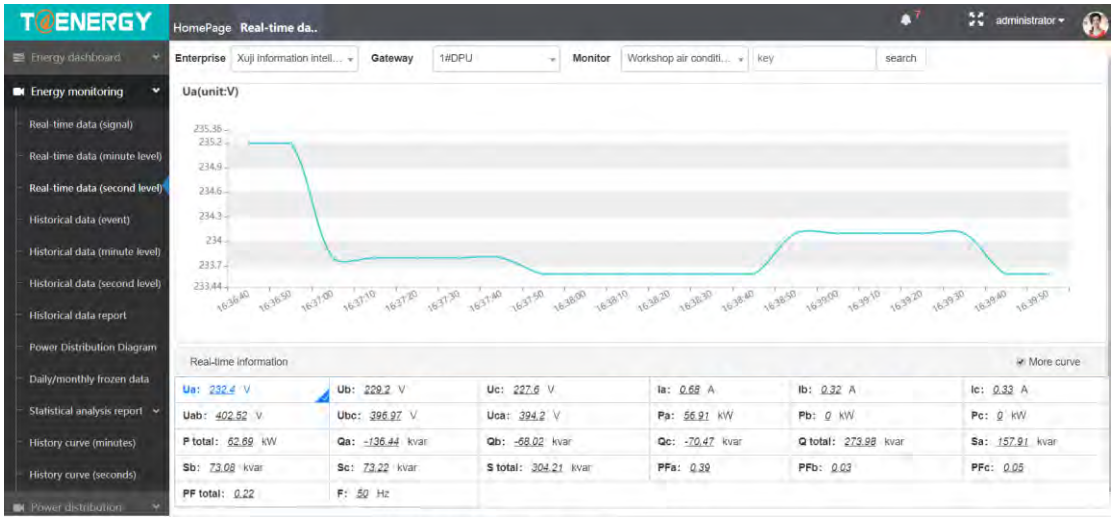
2.2 Real-time data（minute level）

Query the data of the equipment items in the enterprise, and select the data items of the equipment to be viewed according to the following real-time information (Note: the data items of the equipment may be different).



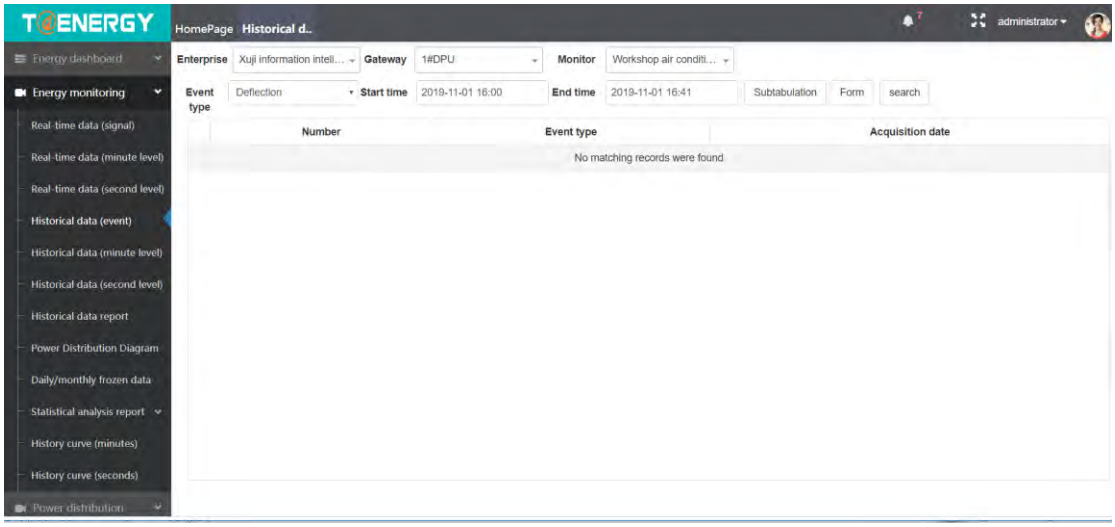
2.3 Real-time data (second level)

Query the data of the device data items in the enterprise, and select the data items of the device to be viewed according to the following real-time information (Note: the data items of the device may be different)



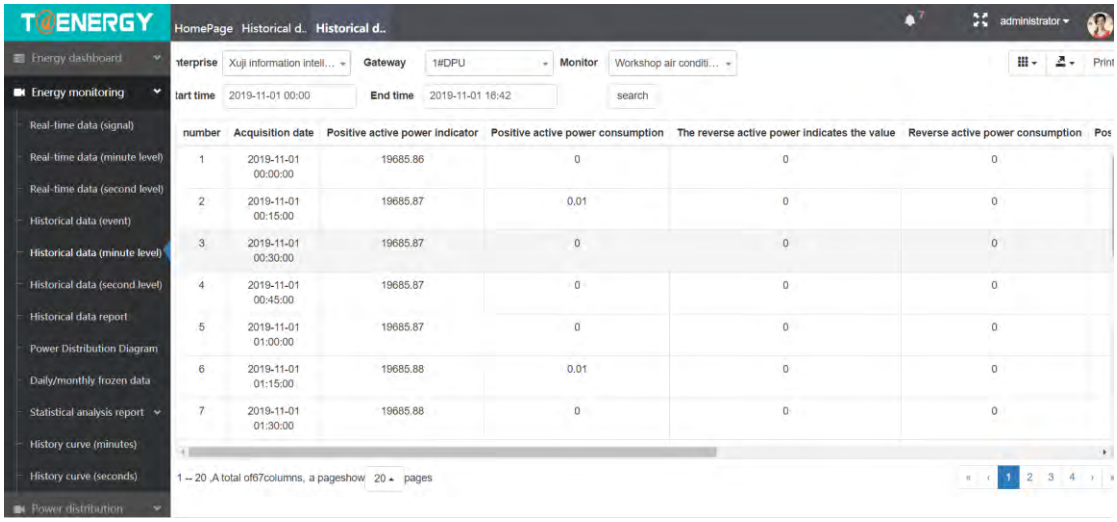
2.4 Historical data (event)

Select the device and event type and then find the corresponding data



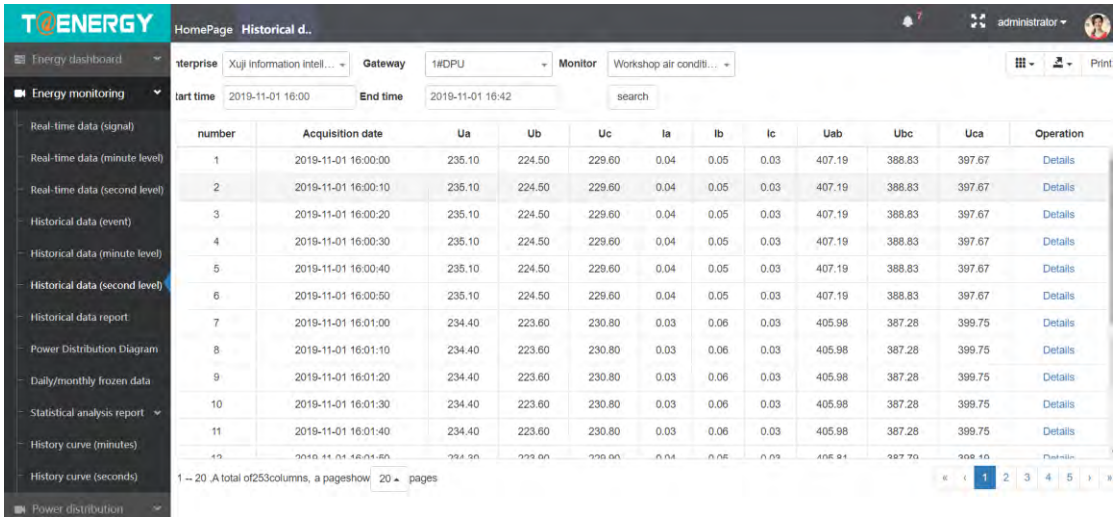
2.5 Historical data (minute level)

Query historical data according to the selected conditions, including: acquisition date, positive active value, positive active usage, positive reactive value, positive reactive power, reverse active value, reverse active usage, reverse Indicates the value of reactive power, reverse reactive power, and operation.



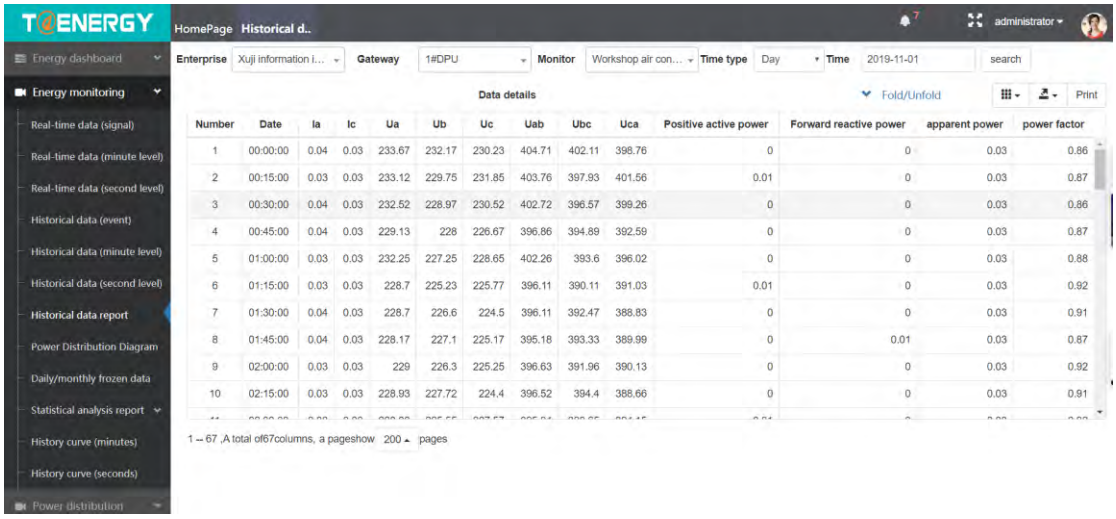
2.6 Historical data (second level)

The historical data is queried according to the device, including: acquisition date, phase A voltage, phase B voltage, phase C voltage, Ab line voltage, Bc line voltage, Ca line voltage, phase A current, phase B current, phase C current, operation.



2.7 Historical data report

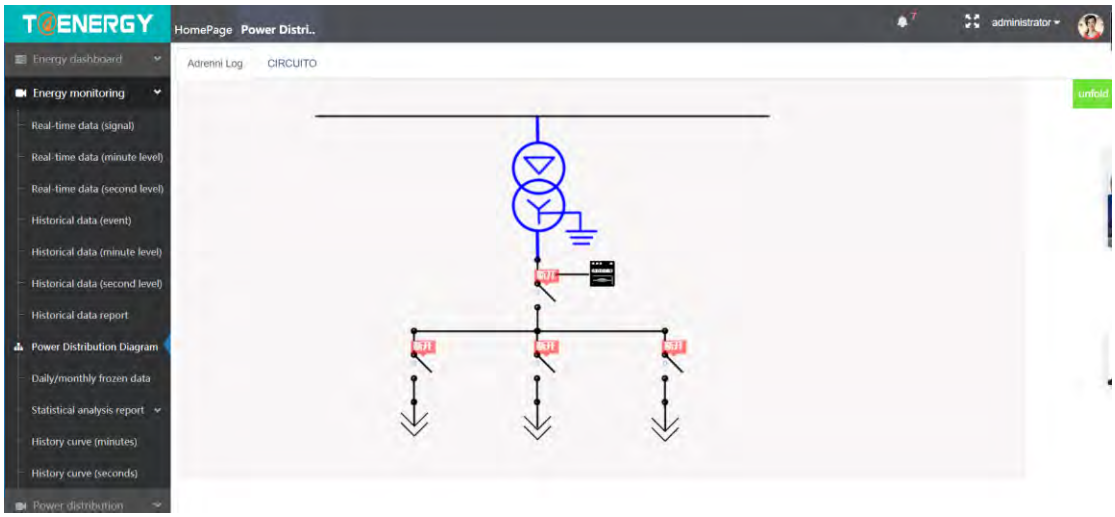
Query the historical data report of the device according to the device, including: date, phase A current, phase C current, phase A voltage, phase B voltage, phase C voltage, line AB voltage, BC line voltage, CA line voltage, positive active power Degree, positive reactive power, apparent power, power factor.



Note: You can click on the circle in the picture to view the device-related data items.

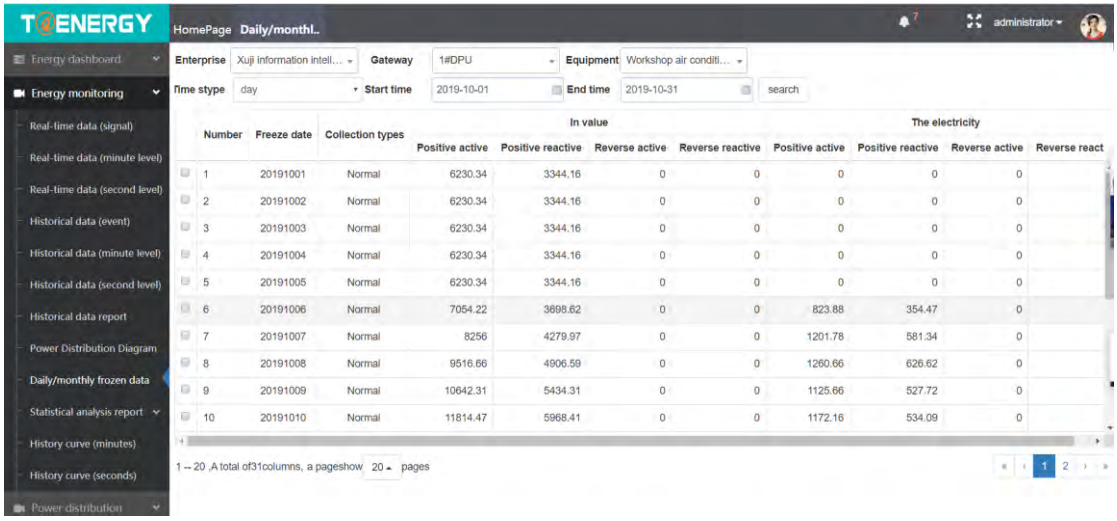
2.8 Power distribution diagram

View physical structure circuit diagram.



2.9 Daily/Monthly frozen data

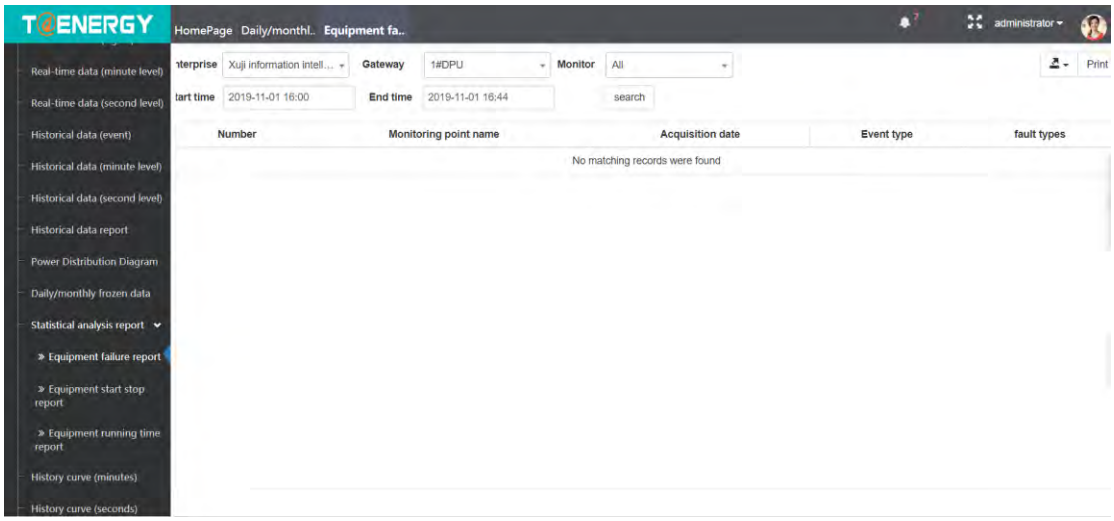
Find the frozen data of the corresponding time type of the device, including: freeze date, acquisition date, positive active value, positive reactive value, reverse active value, reverse reactive value, positive active power Positive reactive power, reverse active energy, reverse reactive power.



2.10 Statistical analysis report

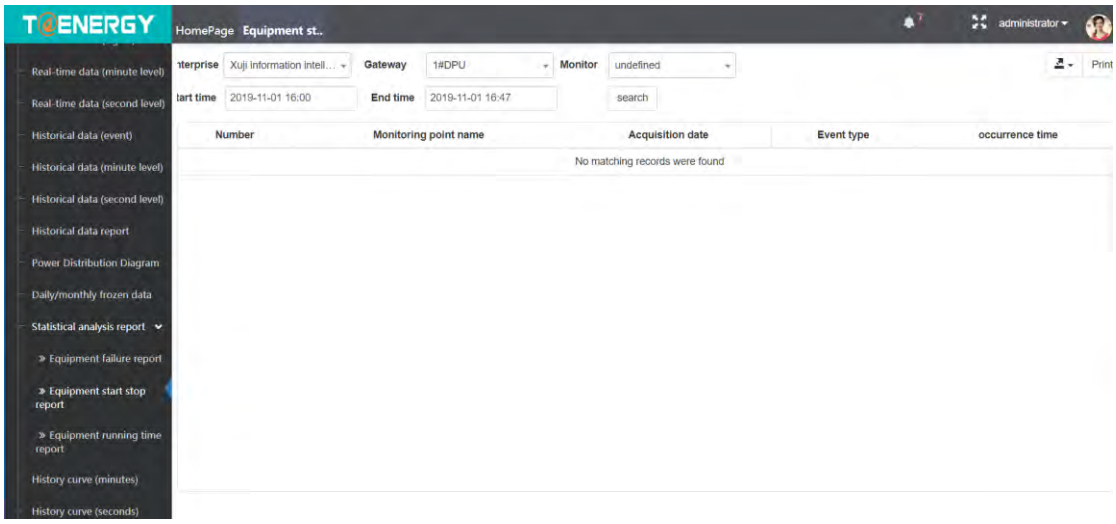
2.10.1 Equipment failure report

Query device failure report according to selected conditions.



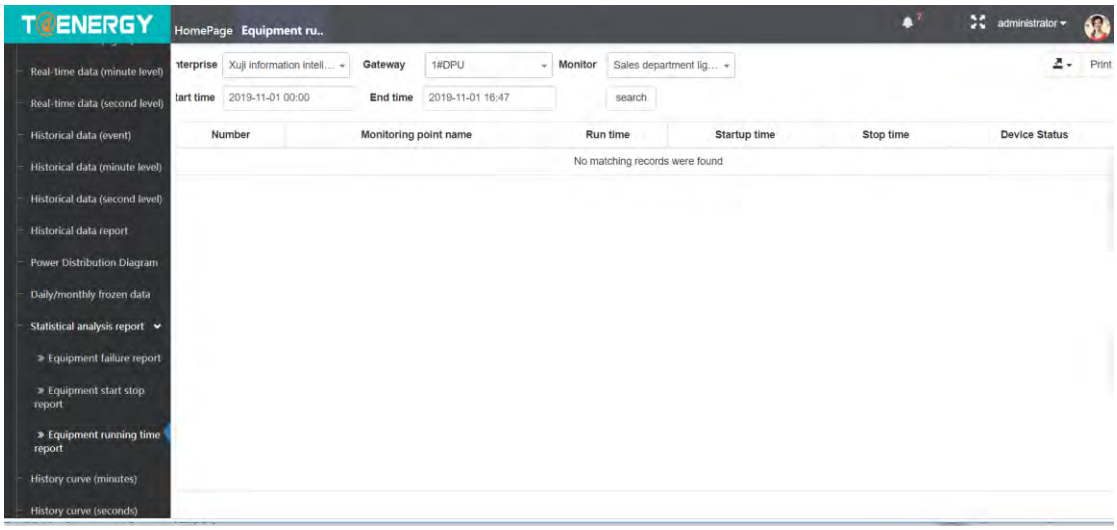
2.10.2 Equipment start-stop report

View equipment start and stop information.



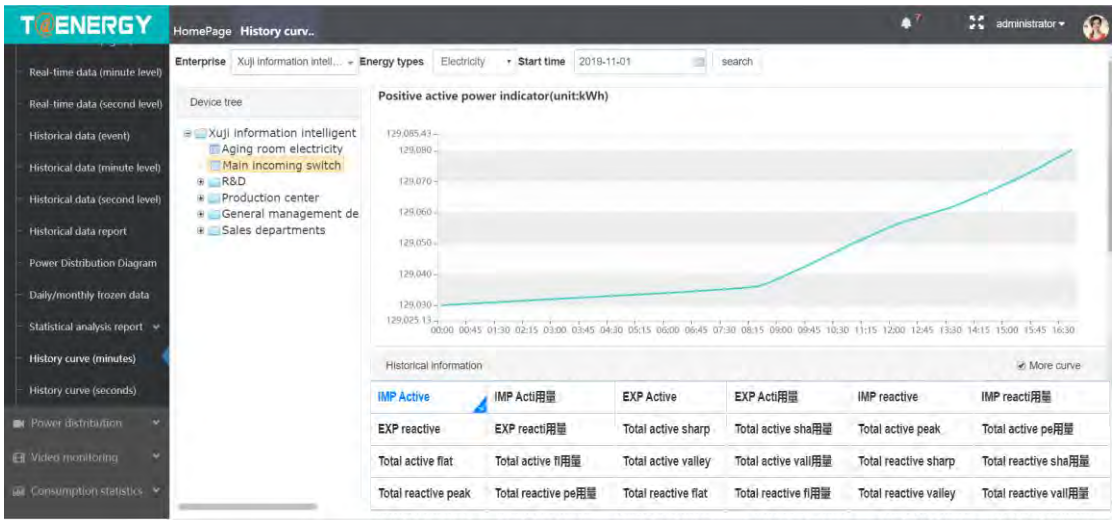
2.10.3 Equipment running time report

Query device runtime report



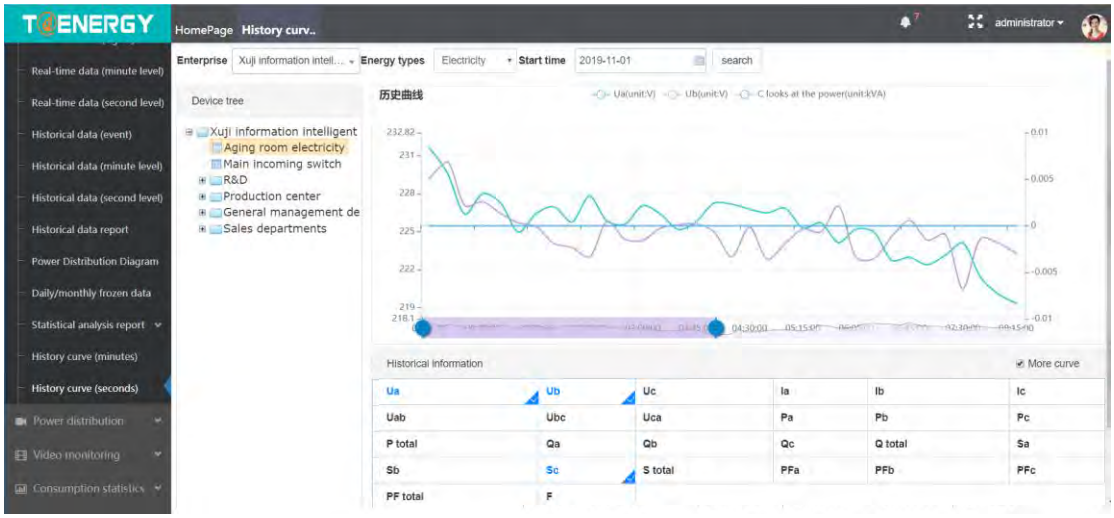
2.11 Historical curve (minutes)

View the device's minute-level history curve, and select the data item of the device to be viewed according to the following historical information (Note: the device's data items may be different).



2.12 Historical curve (seconds)

View the device's second-level history curve, and select the data item of the device to be viewed according to the following historical information (Note: the device's data items may be different).

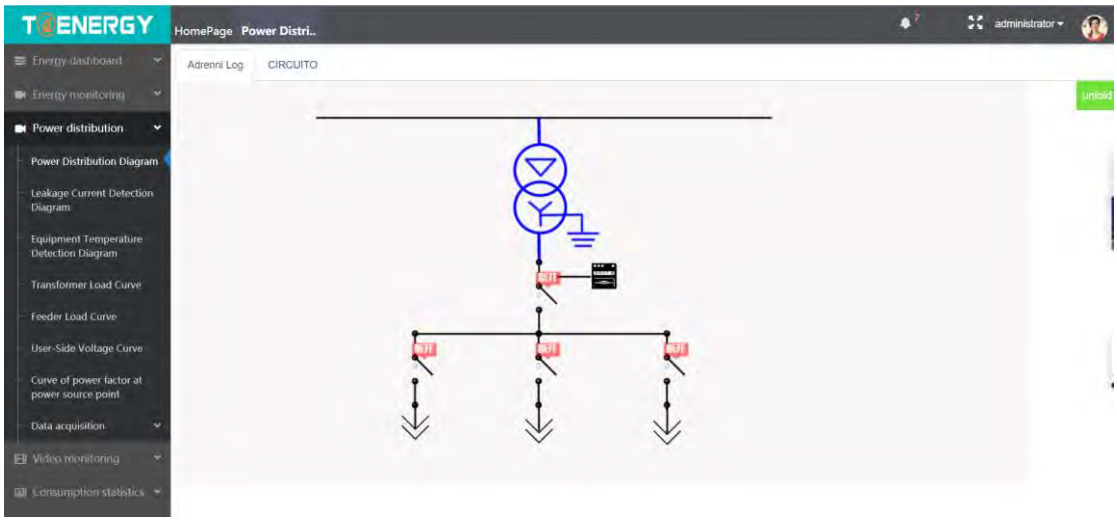


3. Power Distribution

Note: This module could not work temporarily.

3.1 Power distribution diagram

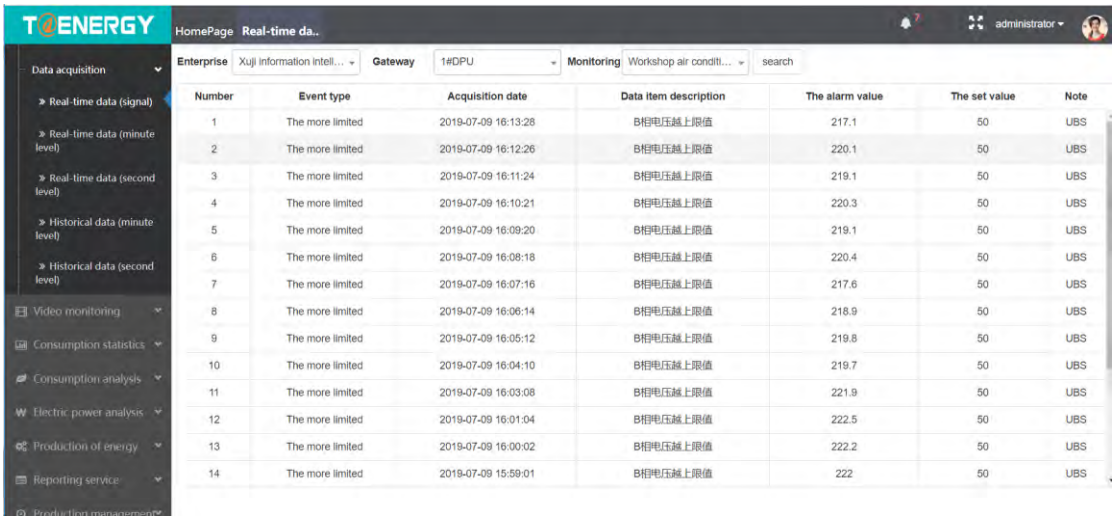
View the physical structure circuit diagram.



3.2 Data collection

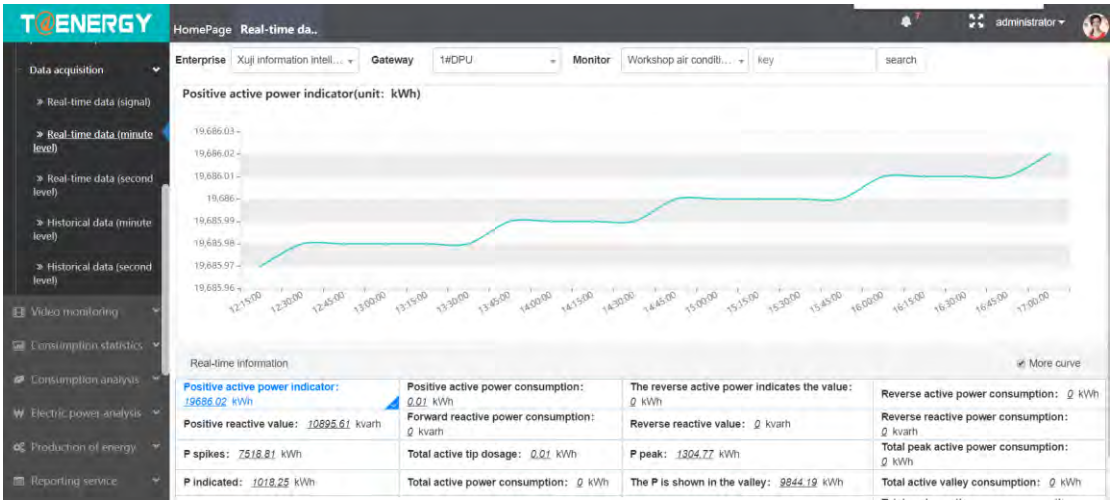
3.2.1 Real-time data (signal)

Query real-time data of devices in the enterprise.



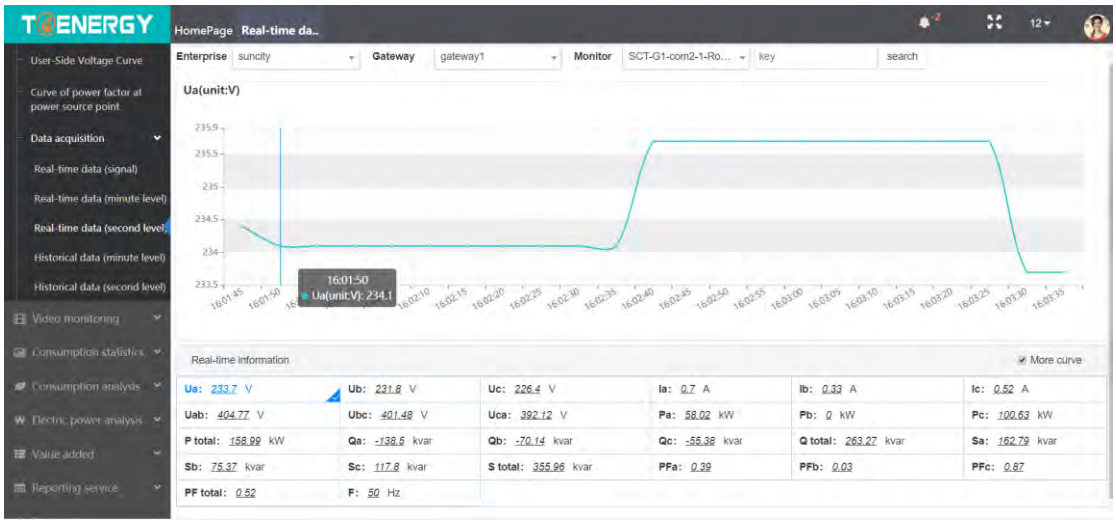
3.2.2 Real-time data (minutes)

Query data of equipment items in the enterprise



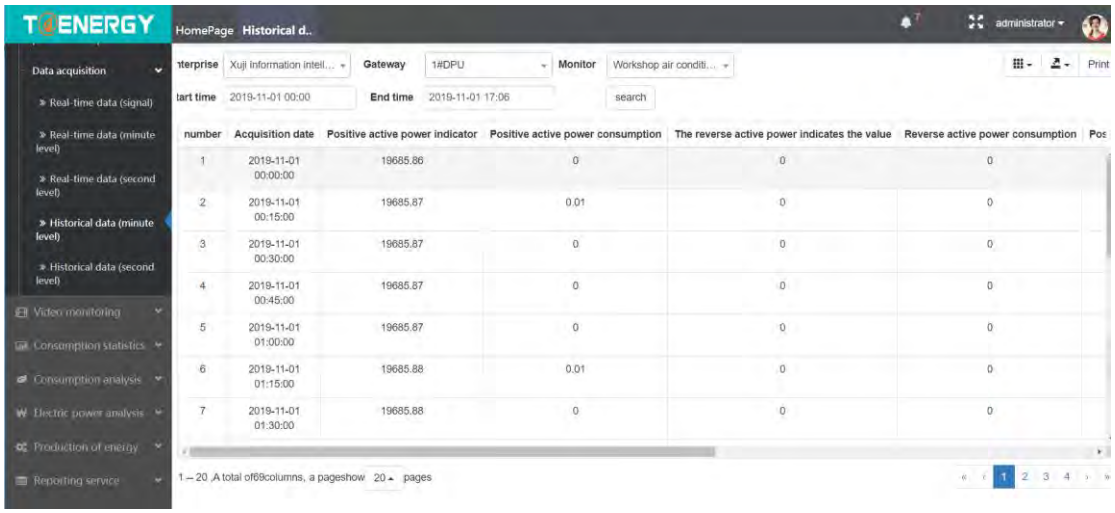
3.2.3 Real-time data (seconds)

Query data of equipment items in the enterprise



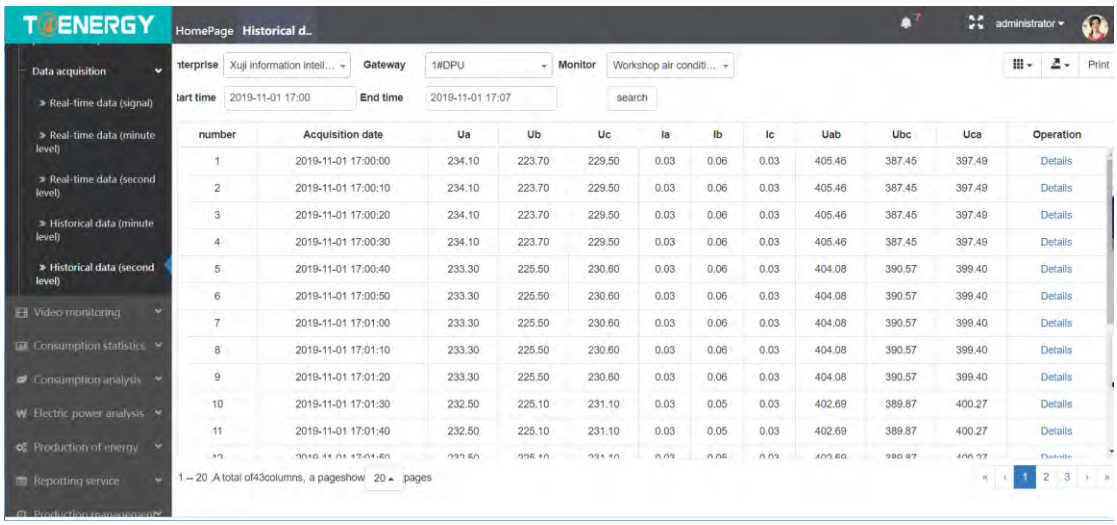
3.2.4 Historical data (minutes)

Query historical data based on selected criteria



3.2.5 Historical data (seconds)

Query historical data based on selected criteria



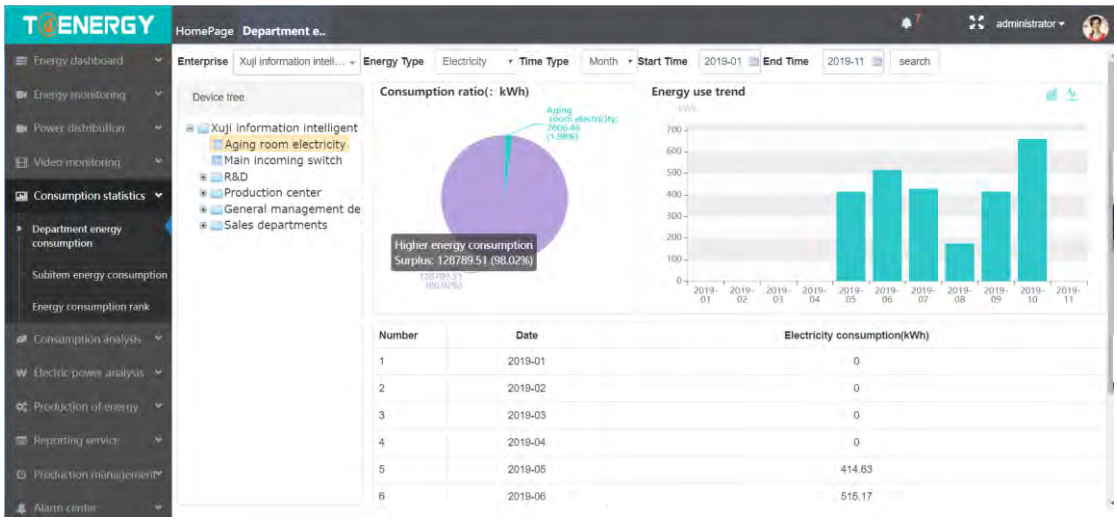
4 Video monitoring

This module is still under test temporarily.

5 Energy consumption statistics

5.1 Department energy consumption

View energy consumption for departments and equipment



Interface description:

There are three cases of grading energy consumption:

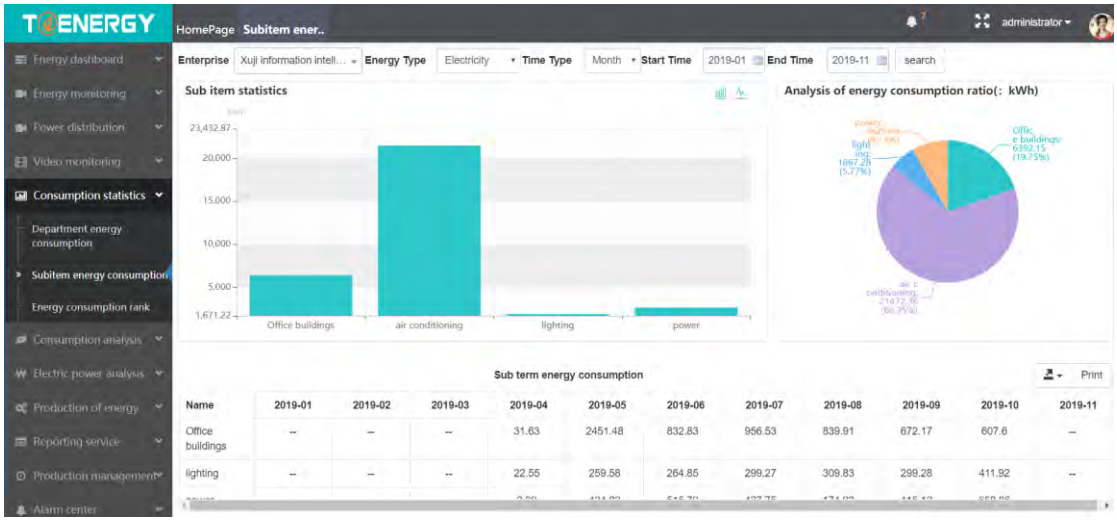
1. If it is a device under the enterprise, the graph is the energy consumption of the device and the total energy consumption of the enterprise.

2. If the department is clicked, the graph is the department energy consumption and the total

energy consumption of the enterprise.
3. If it is a device under the department, the graph is the energy consumption of the device and the energy consumption of the department.
Energy trend: If the device is clicked, it indicates the energy consumption trend of the device; if the department is clicked, it indicates that the department can use the energy trend.

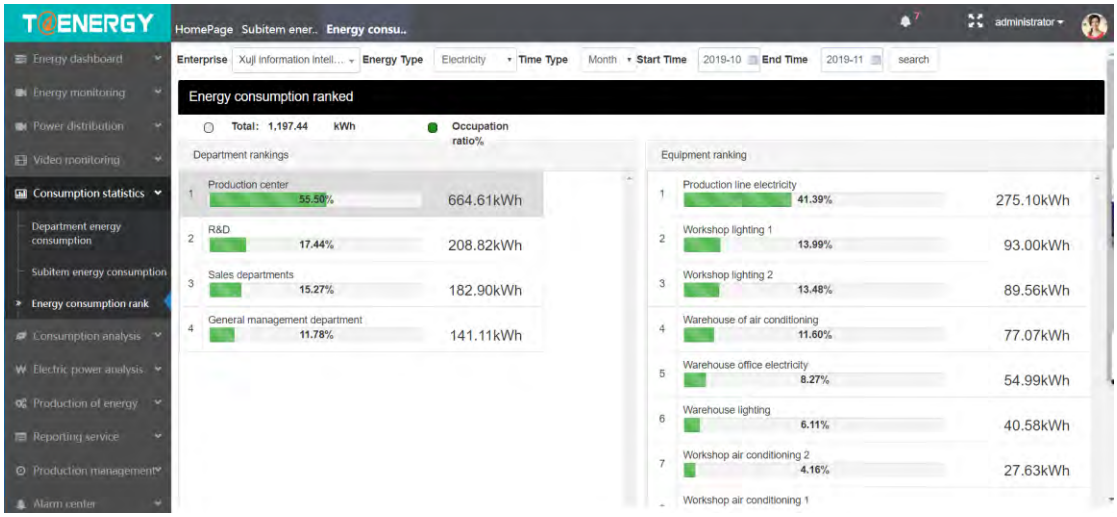
5.2 Sub-item energy consumption

This function is to count different types of consumption. The corresponding data can be viewed according to the selection criteria.



5.3 Energy consumption rank

Query the corresponding data according to the conditions.
The department ranking on the left: is the energy consumption data of all departments below the enterprise.
Device ranking on the right: All device data below the department. The first time you enter the default is the device energy consumption under the first department.

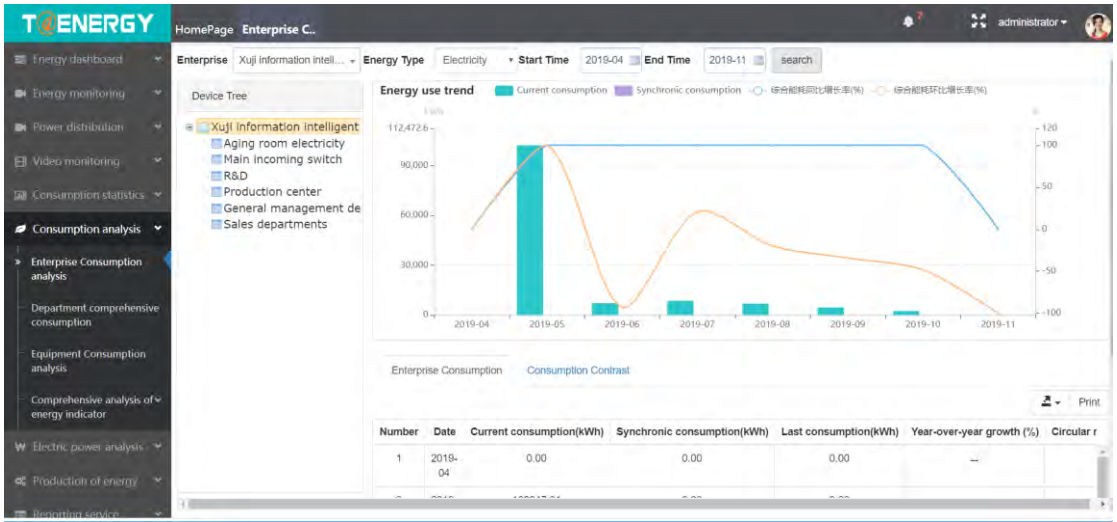


6 Energy consumption analysis

Under the energy consumption analysis, there are four modules: enterprise energy consumption analysis, department comprehensive energy consumption, equipment energy consumption analysis, and comprehensive analysis of energy indicators. Detailed description below:

6.1 Enterprise energy consumption analysis

The above is the query conditions: enterprise, energy type, time period, click search to see energy consumption graph. The upper left corner is the device tree of the monitoring points distributed within the enterprise. The right side is the graph showing the current and year-to-year comprehensive energy consumption information during the query time period. The following is a tabular display.



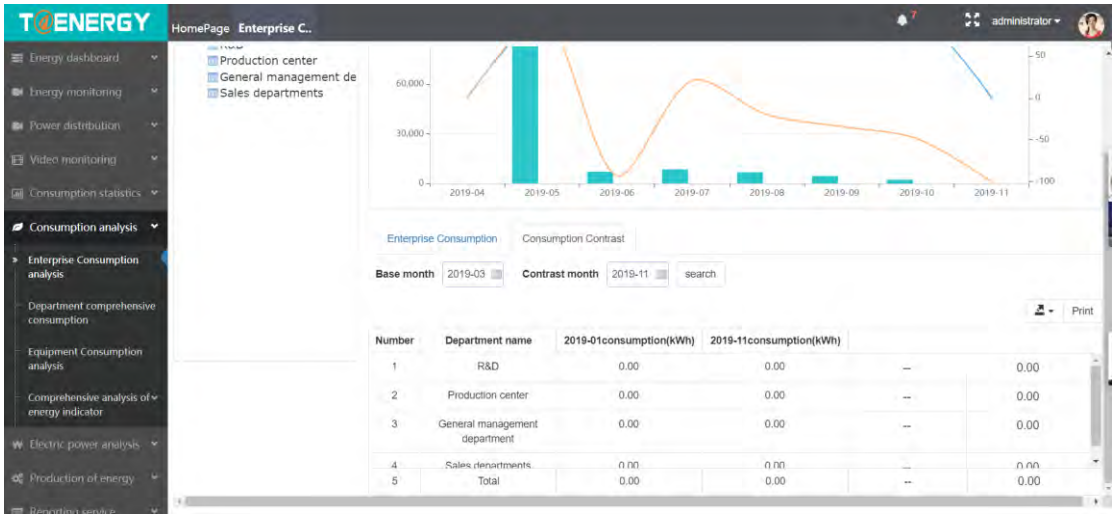
- The organization structure of the company is listed on the left, including the company name, the total entry line, and various departments. Click on "Enterprise" to view the analysis of the

energy use of the enterprise. Click on the "Department" to view the analysis of the energy use of the department.

- Click the Enterprise drop-down list box to select the enterprise. Click the Energy Type drop-down list box to select the energy type and support multiple time periods.
- The blue histogram shows the total energy consumption of the query month, and the purple histogram shows the total energy consumption of the corresponding period.
- The blue curve indicates the year-on-year growth rate of the comprehensive energy consumption of the month under review.
- The yellow curve indicates the overall energy consumption growth rate of the month under review.
- The enterprise energy/department energy tab page below shows the data report of the energy consumption of the enterprise or department. Click the enterprise to display the enterprise energy consumption report, and click the department to display the department energy consumption report. The report details are explained below：
  - No.: Report number
  - Date: The date of the query selected by the user.
  - Current comprehensive energy consumption: total energy consumption for the month of the year(unit / kWh)。
  - Comprehensive energy consumption during the same period: total energy consumption in the previous month (unit / kWh)
  - Comprehensive energy consumption in the previous period; total energy consumption in the previous month (unit / kWh)
  - Year-on-year growth rate of comprehensive energy consumption: (Total energy consumption in the current month - Total energy consumption in the same period last year) / Total energy consumption in the previous year
  - Comprehensive energy consumption growth rate: (current total energy consumption in the month - total energy consumption in the previous month) / total energy consumption in the month
- When selecting an enterprise, the energy consumption comparison data report will appear on the tab page below (when the department is selected, the energy consumption comparison tab page will disappear).
- The comparison of energy consumption shows the energy consumption comparison of various departments within the enterprise. The details of the data report are explained as follows：
  - Base month: Select the month to compare
  - Contrast month: select the month that needs to be compared
  - Serial number: report data serial number
  - Department Name: The name of the internal department of the company
  - Yyyy-mm consumption：Total energy consumption in the base month (units / kWh)
  - Yyyy-mm consumption： Contrast monthly energy consumption (units / kWh)
  - Ring: (compared month - total energy consumption for the month of the previous year) / total energy consumption for the previous month
  - Increase or decrease: Compare the total energy consumption in the month - the total energy consumption in the base month, the red font indicates that the energy

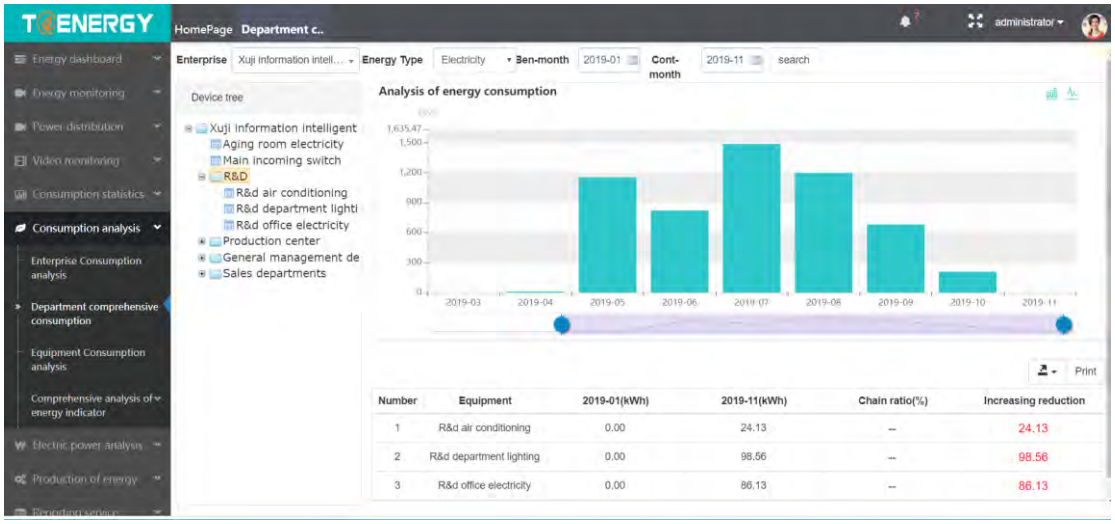
consumption is rising, and the red font indicates the energy consumption is decreasing.

- Click the Export button at the top right of the report to export the report data to the local.



6.2 Departmental energy consumption analysis

The function of this module is to analyze the energy consumption of various departments within the enterprise and the energy consumption of each monitoring point under the department.:

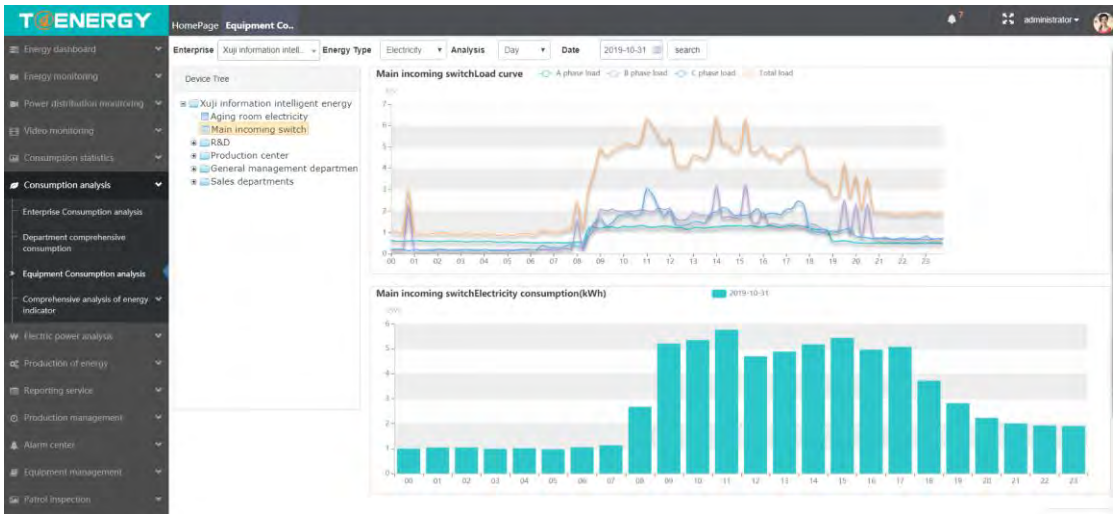


- The left side shows the organizational structure of the company, including the company name, the total entry line, the monitoring points under various departments and departments. Support the energy analysis of departments and monitoring points.
- Click the enterprise drop-down list box to select the enterprise. Select the energy type drop-down list box to select the energy type. Select the base month and contrast month controls to select the base month and the comparison month.
- The blue histogram shows the total energy consumption of the monitoring points in the department or department under the query month.
- Drag the lower slider to zoom in or out of the histogram.

- The lower table shows the comparison between the base month and the contrast month of the selected department or monitoring point. The details of the data report are explained as follows:：
  - Serial number: report data serial number
  - Monitoring point: When the department query is selected, the names of all monitoring points under the department are displayed. Display the name of the monitoring point when selecting a monitoring point query.
  - Yyyy-mm energy consumption: total energy consumption in the base month (unit / kWh)
  - Yyyy-mm energy consumption: total energy consumption in contrast months (units / kWh)
  - Ring ratio: (total energy consumption of contrast month - total energy consumption same month in the previous year) / total energy consumption same month in the previous year
  - Amount of increase and decrease: The total energy consumption of the contrast month - the total energy consumption of the base month. The red font indicates an increase in energy consumption and the green font indicates a decrease in energy consumption.
  - Export the report data to the local by clicking the Export button at the top right of the report.

6.3 Equipment energy consumption analysis

The function of the energy analysis module of the equipment is to show in detail the load curve and the electricity consumption of each hour of a certain device in each day through the graph curve and the histogram:



- The left side shows the organizational structure of the company, including the company name, the total entry line, all departments, and all equipment under each department. Select a device to view the energy consumption of that device for the day.
- Click the Enterprise drop-down list box to select the enterprise. Select the Energy Type drop-down list box to select the energy type. Select the Analysis Dimension drop-down list

box to select the analysis dimension and select the date control to select the date of the query.

- The upper right graph is the electric load curve, the blue curve is the A phase load curve, the purple curve is the B phase load curve, the light blue curve is the C phase load curve, and the yellow curve is the total load curve.
- The histogram in the middle of the right side shows the amount of electricity used per hour on the day.
- The lower table shows the energy consumption and comparison of the selected equipment in the past two days. The data report details are explained below.
    - Serial number: report data serial number
    - Yyyy-mm-dd Energy consumption：Base day total energy consumption(unit/ kWh)
    - Yyyy-mm-dd Energy consumption：Contrast day total energy consumption(unit/ kWh)
    - Ring ratio: (the total consumption of contrast day - the total consumption of base day) / tthe total consumption of base day. The red font indicates an increase and the green font indicates a decrease
    - Increase or decrease: consumption of contrast day - consumption of base day. Red font indicates increased energy consumption, green font indicates reduced energy consumption
    - Export the report data to the local by clicking the Export button at the top right of the report.

Daily comparison: you can check the energy usage of any two days.

- The upper part of the right side is the electric load curve, which compares the load conditions of the two days using the load curve form.
- The right middle histogram shows the total energy consumption per hour for the selected date, the blue histogram is the consumption of base day, and the purple histogram is the consumption of contrast day.
- The lower table shows the energy consumption and comparison of the selected equipment in the past two days. The data report details are explained below.
    - Serial number: report data serial number
    - Yyyy-mm-dd Energy consumption：Base day total energy consumption(unit/ kWh)
    - Yyyy-mm-dd Energy consumption：Contrast day total energy consumption(unit/ kWh)
    - Ring ratio: (the total consumption of contrast day - the total consumption of base day) / tthe total consumption of base day. The red font indicates an increase and the green font indicates a decrease
    - Increase or decrease: consumption of contrast day - consumption of base day. Red font indicates increased energy consumption, green font indicates reduced energy consumption
    - Export the report data to the local by clicking the Export button at the top right of the report.

Day range: You can view the energy curve for three consecutive days and the histogram display of sharp, peak, flat, valley, and ridge.

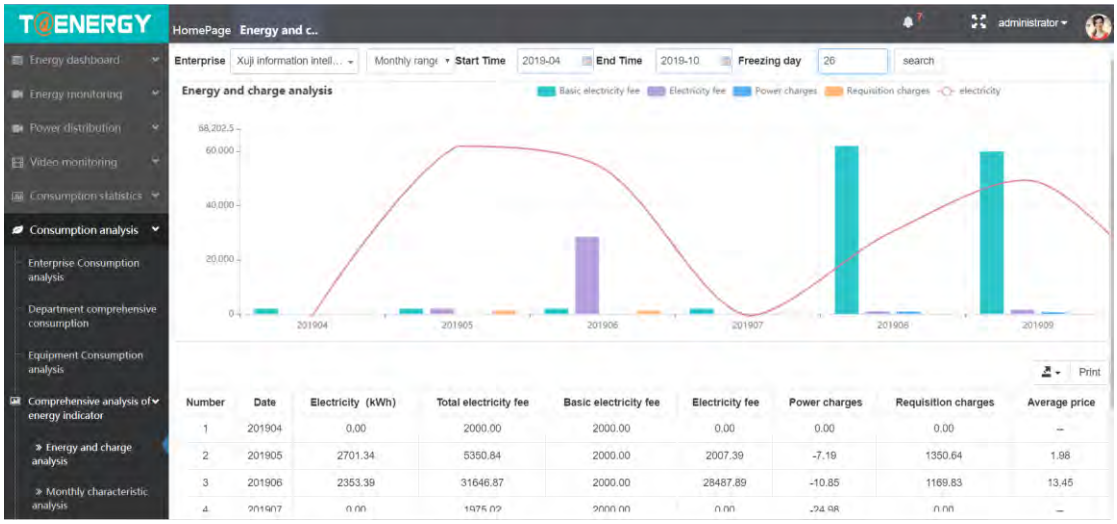
- The upper part of the right side is the electric load curve, showing the average of the three-day load. The blue curve represents the A phase load, the purple curve represents the B phase load, the light blue curve represents the C phase load, and the yellow curve represents the total load.
- The bottom bar chart on the right side shows the total energy consumption during the electricity hours of the sharp, peak, flat, valley and ridge. Different colors represent unused power consumption periods. For details, please refer to the legend.

6.4 Comprehensive analysis of energy indicators

Comprehensive analysis of energy indicators includes electricity tariff analysis, load characteristics analysis, electricity price period analysis, power factor analysis.

6.4.1 Energy and charge analysis

Analyze and query the electricity bills of the enterprise during a certain period. It is displayed in graph (electricity), basic electric fee (column pattern), Electricity fee (column graph), Power charges (column graph), and Requisition charges (column graph). You need to select a positive integer from 1-28 as the freezing day. Need to go along the route: "system management" >"price management" to set the electricity tariff parameter

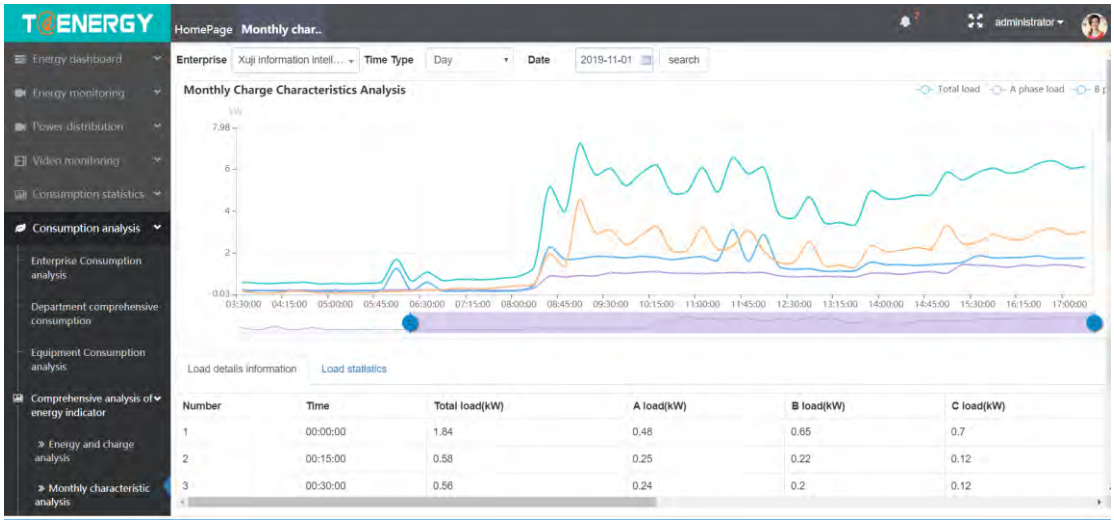


- At the top of the page, you can set the company to be queried, date range, specific start time and end time.
- After selecting the “month range”, the histogram shows the expenses (units/yuan) of various types of electricity charges for each month in the selected range. The current supported electricity tariffs are: basic electric fee, electricity fee, power charges (column graph), and requisition charges .
- The curve shows the total power consumption of each month.
- The lower table is the electricity and electricity cost data report of the selected company.
  - Serial number: report data serial number
  - Date: Queryed month

- Electricity: The total electricity consumed by the company during the month (units / kWh)
- Total electricity bill: The total electricity cost of the enterprise this month (units/yuan).
- Basic electric fee: The maximum capacity of the transformer of the enterprise in the month * Capacity basic electricity price (unit / yuan).
- Electricity fee： The company consumes total electricity for the month *tariff (units/yuan).
- Power charges： The company's active and reactive power used in the month to calculate its average power factor, and calculate the electricity fee (units/yuan).
- Requisition charges： The electricity fee (unit/yuan) converted by the water conservancy construction fund collected by the power supply company on behalf of the government during the month.
- Average electricity price： The total electricity bill of the company for the month / total electricity (unit / yuan).
- Export the report data to the local by clicking the Export button at the top right of the report.

6.4.2 Load characteristic analysis

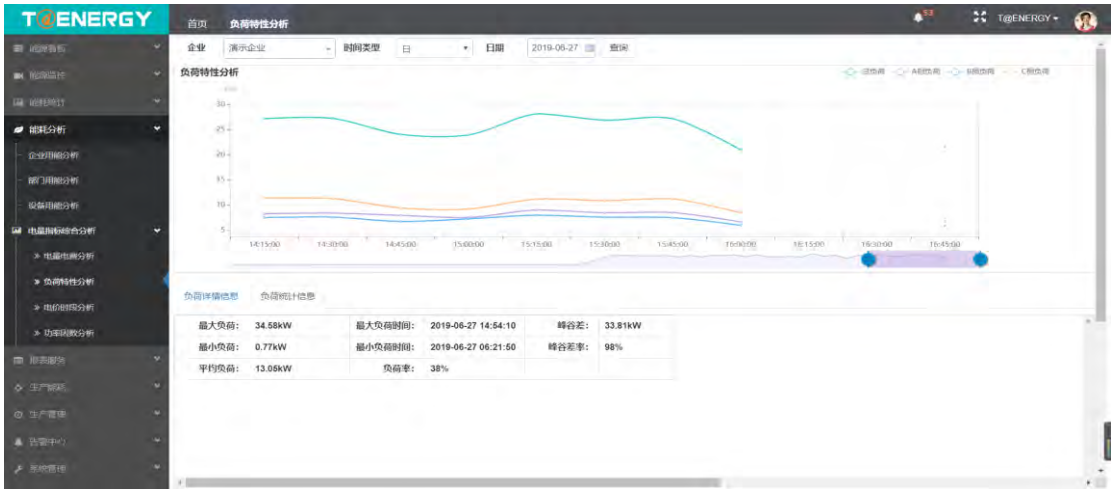
The module functions to analyze the energy load analysis of the enterprise for a certain period of time (a certain day, a few days, a certain month, a few months).



- At the top of the page, you can set the company to be queried, the date range, the specific start time and end time.
- When the time range is set to "day", the load characteristic graph shows the load of the total load, phase A load, phase B load, and phase C load of the enterprise at that time.
- When the time range selects “day range” or “month range”, the load characteristic graph shows the analysis results of the maximum load, minimum load, peak-to-valley difference, and average load of the enterprise during the set time period.。
- The load details report summarizes the maximum load (kW), minimum load (kW), peak-to-valley difference, average load (kW), peak-to-valley difference, and load rate for a

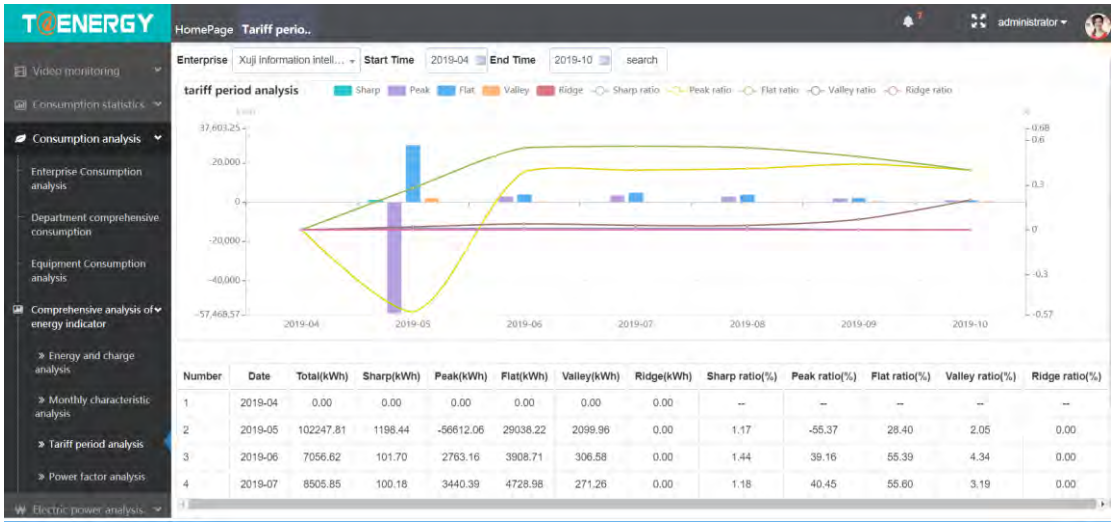
certain period of time.

- Load statistics report: It summarizes the maximum load (kW), minimum load (kW), peak-to-valley difference, average load (kW), peak-to-valley difference, load rate, maximum load time, minimum for a certain period of time. Load time detailed data (as shown in the figure below).



6.4.3 Tariff period analysis

The function of the tariff period analysis module is to analyze the total energy consumption of the sharp, peak, flat, valley and ridge and their ratio.

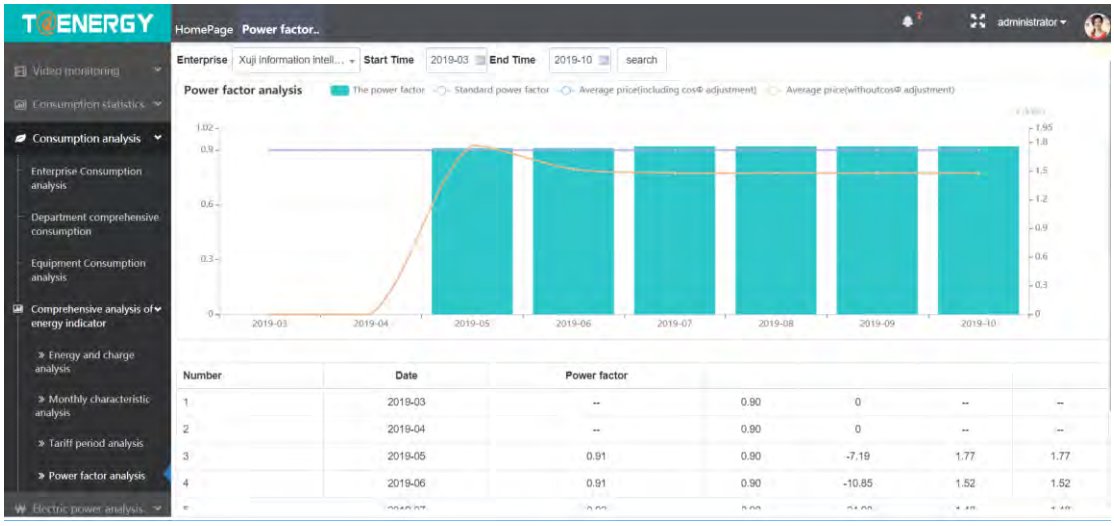


- At the top of the page, you can set the company to be queried, the date range, the specific start time and end time.
- The histograms in the upper chart show the total energy (in kWh) of the sharp, peak, flat, valley, and ridge energy consumption for each time period of the query in different colors (see legend).
- The curves in the upper chart show the proportion of the energy consumed in each period of the sharp, peak, flat, valley, and ridge in the total power consumption of the enterprise during that period in different colors (see legend).

- The lower report summarizes the energy consumption and the proportion of each tariff period. The details of the data report are explained below：
  - Serial number: report data serial number
  - Date: Selected date to be queried
  - Total electricity: The total energy consumption of the enterprise during the month (unit / kWh)
  - Sharp power: The amount of electricity (in kWh) consumed by the company during the sharp period of the month.
  - Peak power: The amount of electricity (in kWh) consumed by the company during the peak period of the month.
  - Flat power: The amount of electricity (in kWh) consumed by the company during the flat period of the month.
  - Valley power: The amount of electricity (in kWh) consumed by the company during the valley period of the month.
  - Ridge power: The amount of electricity (in kWh) consumed by the company during the ridge period of the month.
  - Sharp power consumption ratio: the proportion of electricity used in the sharp period in the total power consumption of the month (unit/%)
  - Peak power consumption ratio: the proportion of electricity used in the peak period in the total power consumption of the month (unit/%)
  - Flat power consumption ratio: the proportion of electricity used in the flat period in the total power consumption of the month (unit/%)
  - Valley power consumption ratio: the proportion of electricity used in the valley period in the total power consumption of the month (unit/%)
  - Ridge power consumption ratio: the proportion of electricity used in the ridge period in the total power consumption of the month (unit/%)

6.4.4 Power factor analysis

The function of this module is to analyze the change of power factor and power charges in each month of the enterprise.



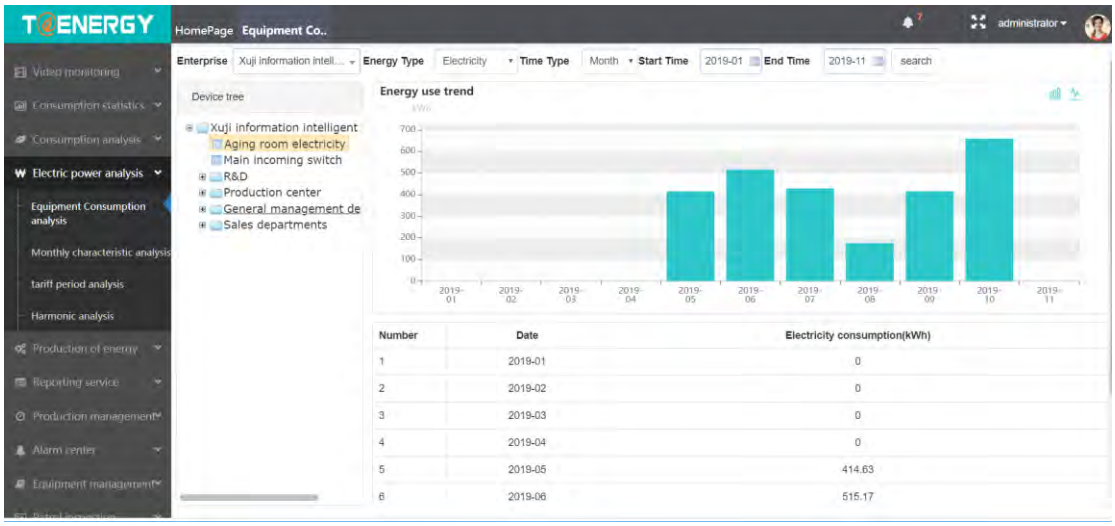
- At the top of the page, you can set the company to be queried, the date range, the specific start time and end time.
- The histogram in the upper chart shows the power factor of each month of the company being queried.
- The curves in the upper chart show the standard power factor, average electricity price (including power factor adjustment electricity bill), and average electricity price (excluding power factor adjustment electricity bill) in different colors (see legend).
    - The lower report summarizes the power factor related data. The data report details are explained as follows:
    - Serial number: report data serial number
    - Date: Selected date to be queried
    - Power factor: active power / apparent power
    - Power factor standard: The power factor standard specified by a country.
    - Power charges：Electricity bill based on power factor (units/yuan)
    - Average electricity price (including power charges): The average electricity price of the enterprise for the month, the electricity fee calculation includes the power charges (unit/yuan)
    - Average electricity price (excluding power charges): The average electricity price of the enterprise for the month, the electricity fee calculation does not include the power charges (unit/yuan).

7 Electric Power Analysis

It includes four modules: Equipment consumption energy analysis, load characteristics analysis, electricity price period analysis, power factor analysis. Detailed description below.

7.1 Equipment energy analysis

The equipment energy analysis module analyzes the energy consumption of all equipment under the enterprise during the selected query date, and displays it in the form of histogram and data report.



- The left lists the organization structure of the enterprise, including the enterprise name, the total incoming line, all departments, and all devices under each department.
- Choose the enterprise, energy type, time period through drop-down list box in the top.
- The upper histogram shows the total energy consumption (units / kWh) of the device during queried time.
- The lower report shows the energy consumption data of the device. The details data report means:
    - Serial number: report data serial number
    - Date: Queried time period
    - Power consumption: The total energy consumption (in kWh) of the equipment during this period.
    - Click the Export button at the top right of the report to export the report data to the local.

7.2 Load characteristic analysis

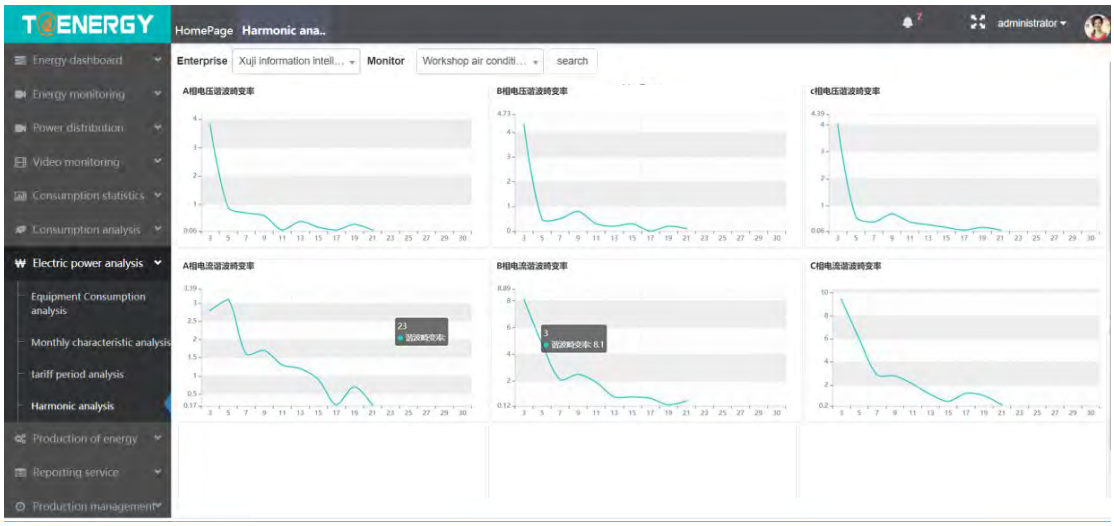
For module descriptions, see the “Energy Analysis – Comprehensive Analysis of Electricity Indicators – Load Characteristics Analysis” module description.

7.3 Electricity price period analysis

For the module description, please refer to the “Energy Analysis – Comprehensive Analysis of Electricity Index – Electricity Price Period Analysis” module description.

7.4 Harmonic analysis

The harmonic analysis module analyzes the phase-A phase-B phase-C voltage and current harmonic distortion rate.

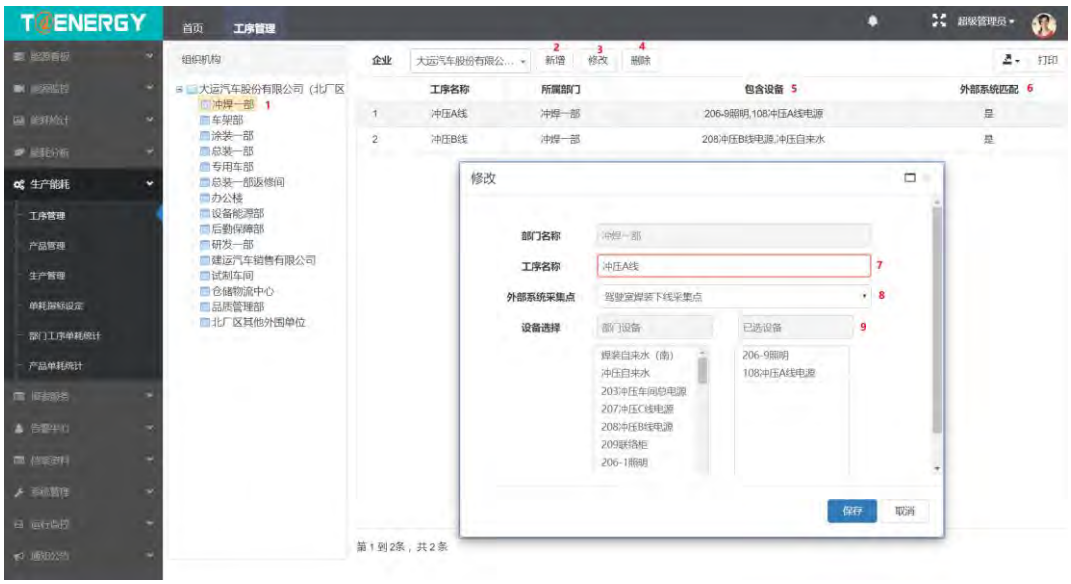


- Choose the enterprise, monitoring point by drop-down list box to query the harmonics.
- The upper curve shows phase A, B, C voltage harmonic distortion rate.
- The lower curve shows phase A, B, C current harmonic distortion rate.
- Harmonic Analysis show in graph form:
  - The x-axis represents the waveform of odd harmonics from 3 to 30 times.
  - The y-axis represents the harmonic distortion rate

8 Production energy management

8.1 Process management

This module is mainly used for processes addition, modification and deletion in each department. The equipment in this department can be selected as the monitoring point of the process, used for energy consumption statistics. The modify button can modify the "Process name" and "selected device". One department can’t have the duplicate operation, the "selected device" cannot be empty; the delete button can delete the selected process. Note that the delete operation will delete all the metrics and production records for the process together.



① Device tree. Related process operations after selected the department.

② Add button. Click to add new process.

③ Modify button. Click to modify the process after selected.

④ Delete button. Click to delete the process.

⑤ Included devices。Display the devices included in this process。

⑥ External system matching. If the process was already matched the external system data collection node, the below will show “Yes”, otherwise show “No”.

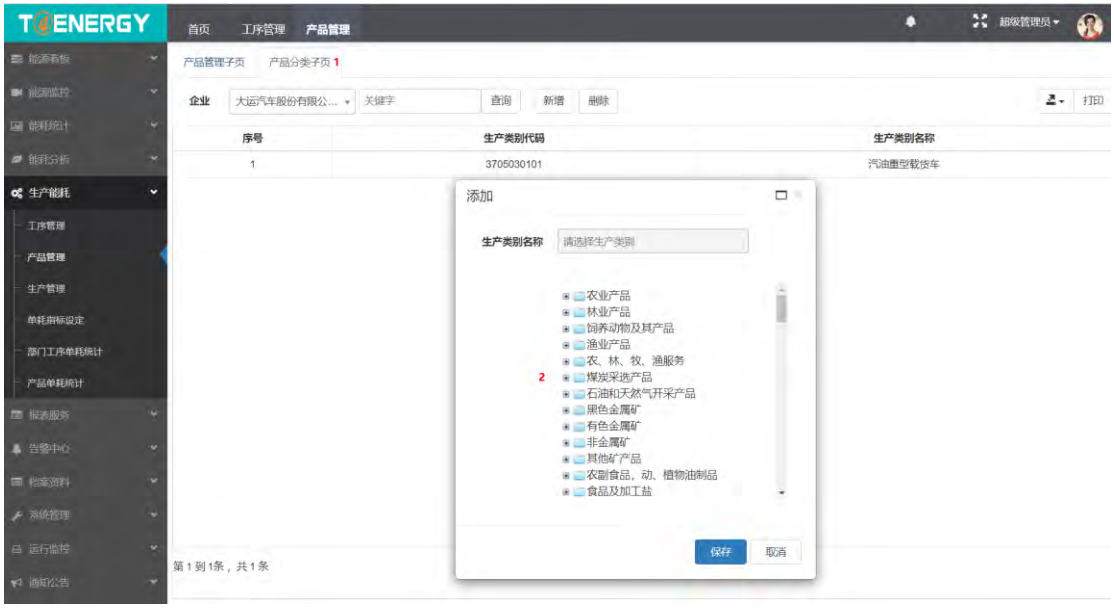
⑦ Process name filling. Fill in/modify the process name.

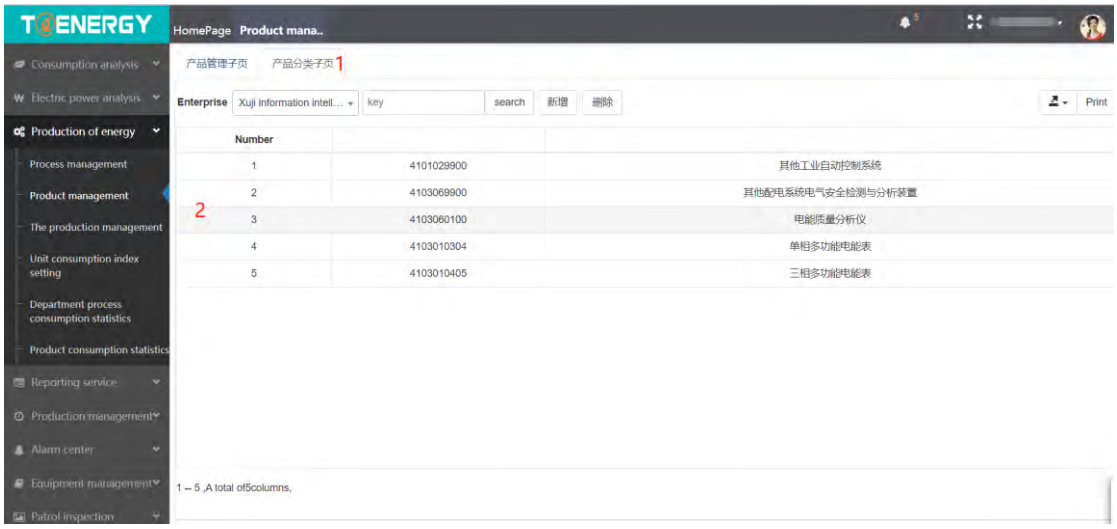
⑧ External system data collection nodes list. If the system is already connected to an external system, the list will show all collection nodes of the external system.

⑨ Device selection list. Display all devices under the department, click to select/remove devices.

8.2 Production management

8.2.1 Product category subpage

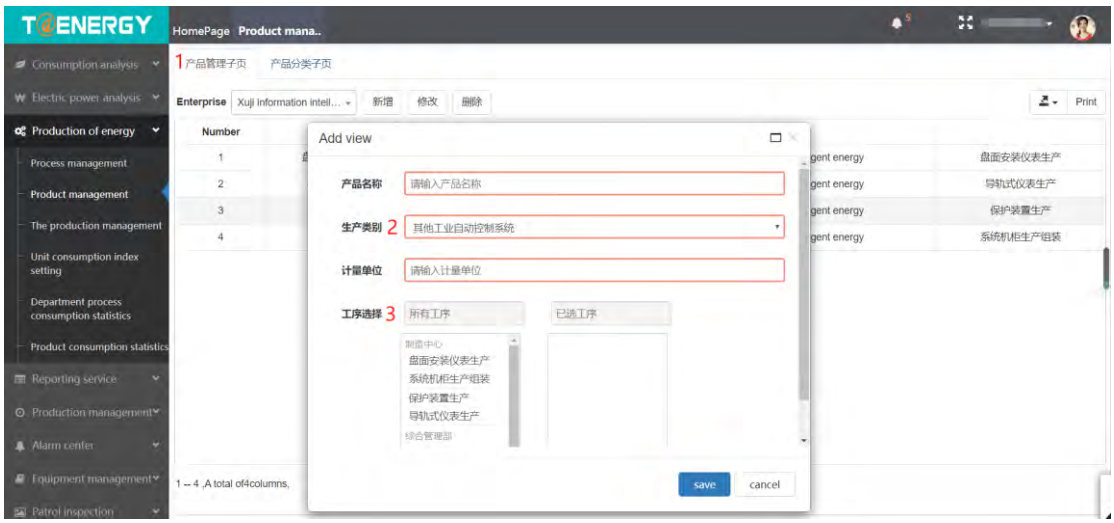




② Product category subpage. Click on the sub-page to manage the product category.

② Production category device tree. Click once to select the specific production category name and number.

8.2.2 Product management subpage



① Product Management Subpage. Click on the sub-page to manage the product.

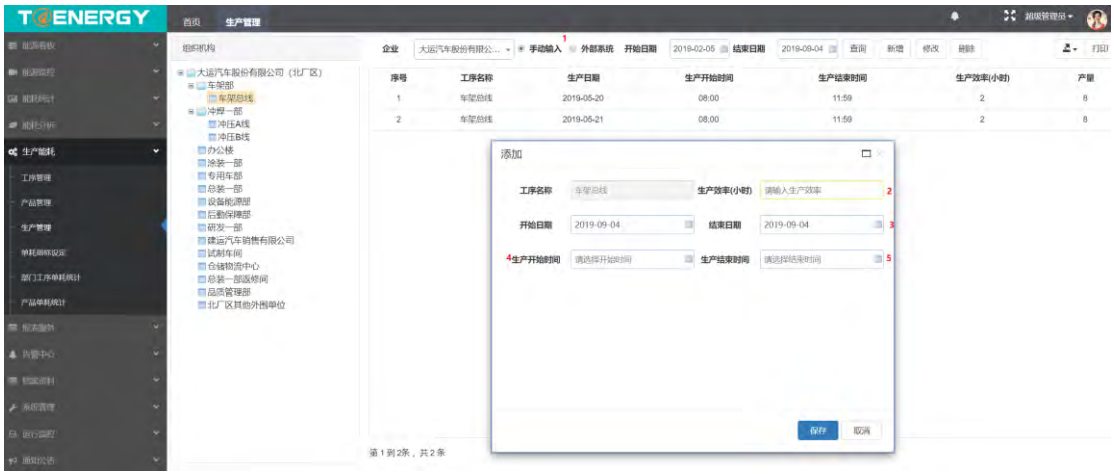
② Production category list. The content in the list comes from the product categories established in 2.1.

③ Process selection list. This list shows all the completed processes, click once adding and removing them.

8.3 Production management

This module can set the production time for existing processes. Users can set multiple working time segments in batches. The start time is “XX:00” and the end time is represented by “XX:59”. For example, set [08: 00-11:59], it means the working time is four hours. Only one production record can be set in the same hour on the same day. The system will warn if the setting is repeated. Production efficiency (hours) means the process executed times per hour and can be accurate to two decimal places.

In the example, if the production efficiency (hour) is set to "2", then in the [08:00-11:59] time period, the number of process executions is 2*4=8. During the production time, the energy consumption of the process is the sum of each device’s energy consumption in the process. At the same time, if the connection with the external system is successful, the production data imported from the external system can be queried, but the modification and deletion cannot be added.



① Data mode selection button. Selecting “Manual Input” displays the production record set manually, and “External System” is the production record obtained from the external system.

② Production efficiency input box. Hourly process operated time, support for retaining two decimal places。

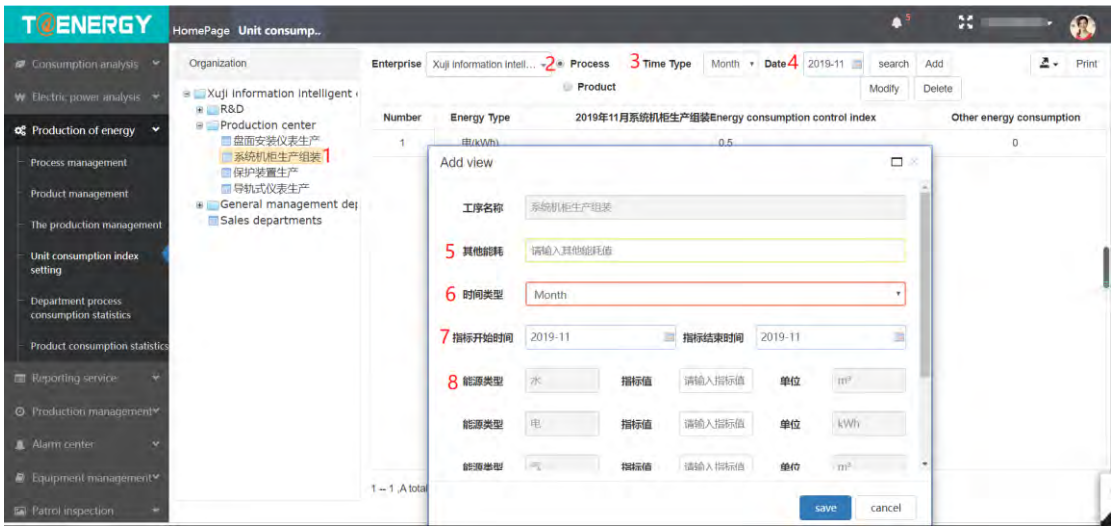
③ Start date, end date selection box. Batch set the same production time and production efficiency during this time period.

④ Production start time selection box. You can choose 00 minutes for any hour to start as time.

⑤ Production end time selection box. You can choose 59 minutes for any hour as the end time.

8.4 Unit consumption index setting

In unit consumption index setting, the daily, monthly, and annual unit consumption index of the process can be added in batches, corresponding to the calculation of the daily, monthly, annual unit consumption statistics in the two sub-modules of “department unit consumption statistics” and “product unit consumption statistic”. Each index can be modified and deleted individually. When the department is clicked, the indexes of the department are equal to the sum of the indexes of all the processes. Similarly, the indexes of the products are equal to the sum of the indexes of the processes involved. The "Other Energy Consumption" field is mainly for the convenience of the user to adjust the value of the "Departmental Unit Consumption Statistics". The default value is 0.



① Process/ product device tree。

② Process/product switch button. When you select "Process", you can operate on the detailed indexes of the process; when you select "Product", you can view the automatically calculated product indexes.

③ Time type selection。Daily, monthly, annual can be selected.

④ Date selection. Date corresponding to ③ can be selected。

⑤ Other energy input. This is used with the two modules “Departmental Unit Consumption Statistics” and “Product Unit Consumption Statistics” to calculate the unit consumption. After calculating the production energy consumption, if the “other energy consumption” in the corresponding time type and date has a value, then the unit consumption will be the production energy consumption minus other energy consumption. If this input box has no value, "Other Energy Consumption" defaults to 0.

⑥ Time type selection. You can choose to add/modify the time type of the index in batches.

⑦ Index start time and end time. Selecting, adding or modifying the same index in batches.

⑧ Index input. You can input the system existing energy type index value. Index value will be involved in the actual consumption calculation and the percentage statistics of "consumption statistics department process" and "product consumption statistics”.

8.5 Department process unit consumption statistics

Click on the department. The first table shows the list of all the process in the department. “Production energy consumption” and “productivity” are calculated from the “production management” module. “Other energy consumption” and “unit consumption index” are obtained from the “unit consumption index setting” module. “Net production energy consumption” and “unit consumption”, “compared with the index" are calculated by formula.

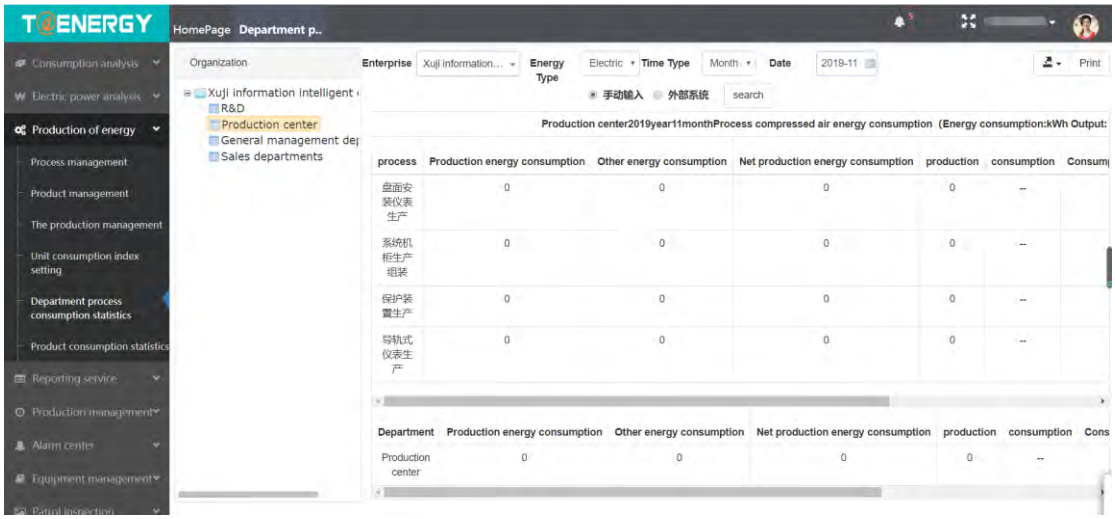
The second table shows the energy consumption of the department. The “production energy consumption, other energy consumption, output, and unit consumption index” are equal to the sum of the process values, and others are also obtained through automatic calculation. The energy type is detected from the dictionary table. The specific data like energy consumption belongings, the department processes and process devices, energy types can be quired.

Formula：

Net production energy consumption = production energy consumption - other energy consumption

Unit consumption = net production energy consumption / output

Compared with index = (consumption - consumption indexes) / consumption indexes * 100%



8.6 Product unit consumption statistics

The calculation principle of product unit consumption is like the unit consumption of the department. It is also the sum of the process values and the automatic calculation. The difference is that the “other energy consumption” is not calculated when calculating the unit consumption, 12.83 (kWh/set)=205.3 (kWh) /16 (set), consistent with the process "frame bus" (production energy/output). Product unit consumption calculation must ensure that all the processes for manufacturing this unit have a production record during the selected time. Otherwise the product can’t be logically formed, and a warning will pop up.

Formula:

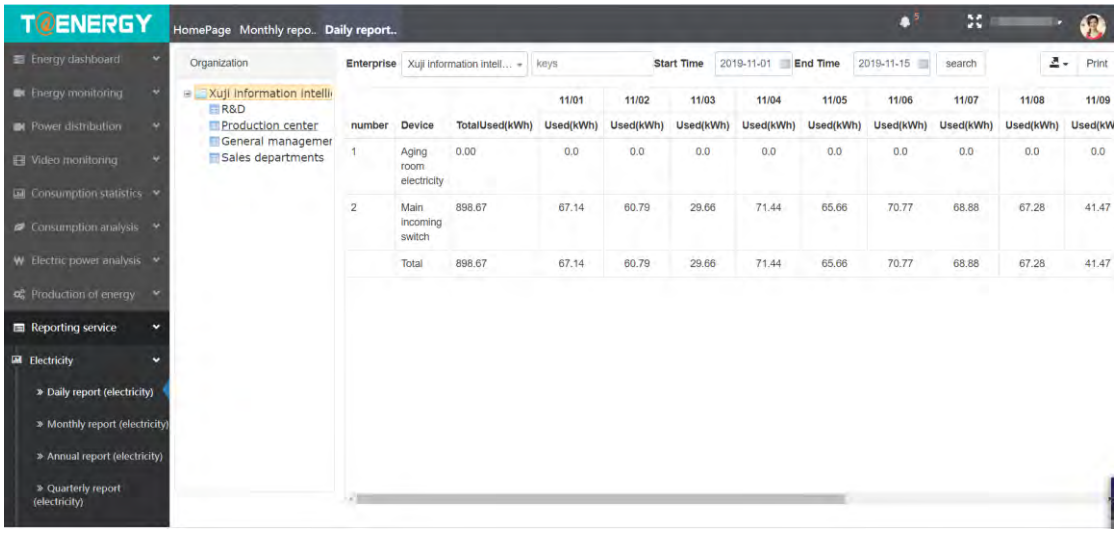
Compared with the index = (product consumption - unit consumption index) / unit consumption index * 100%

9 Report service

The report service module is divided into water, electricity, gas (etc.) and statistical report sub-modules. Sub-modules also include daily, monthly, annual, quarterly, and group reports. The daily report counts the energy consumed by a company. or each device energy consumption under each department for a period (electricity refers to kwh, water refers to m^3), monthly and annual. Statistical reports are same as report services.

9.1 Electricity

9.1.1 Daily report



First, the head is a variety of filter conditions, next to the enterprise is a drop-down list, you can freely choose the enterprise.

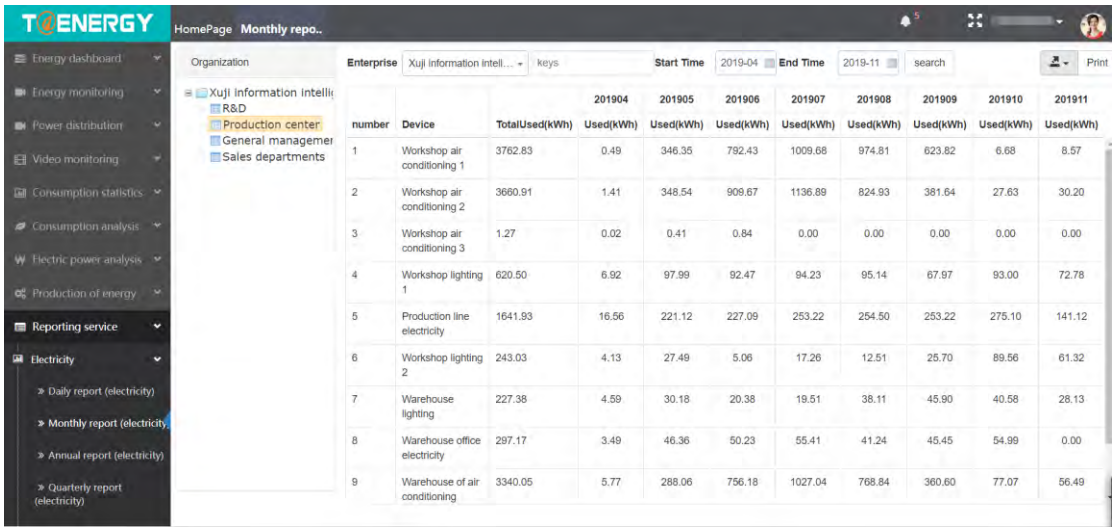
Start time and end time are time controls, you can freely choose the query time.

The left side is the enterprise organization tree. The organization structure shows the selected The various departments under the enterprise, the content area on the right.

The specific operation steps is:

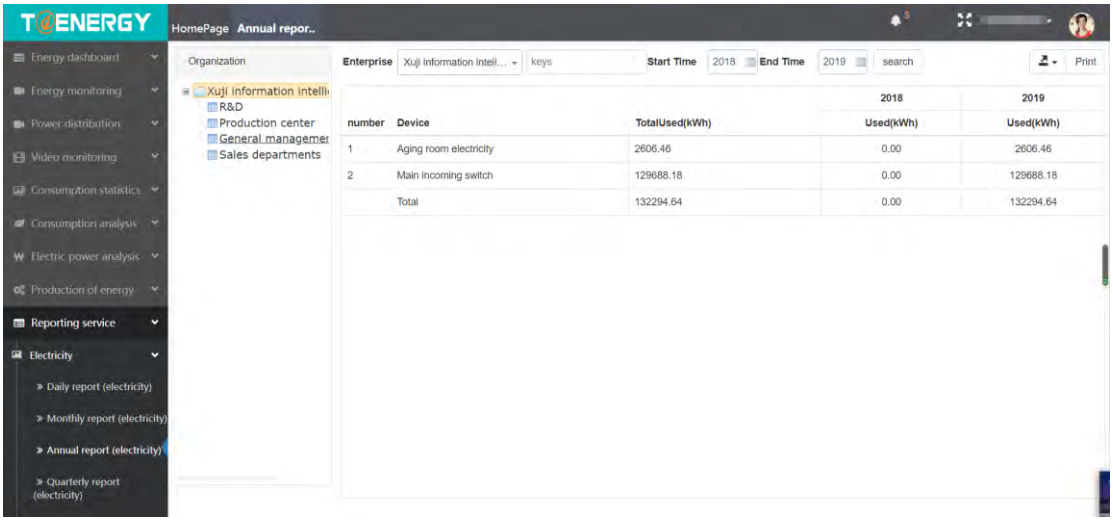
Enterprise---department---start time and end time---search.

9.1.2 Monthly report



In general, similar to the daily report, query the energy consumption information of the equipment under the enterprise or department in certain months.

9.1.3 Annual report



Query energy consumption information of equipment under the company or department in certain years.

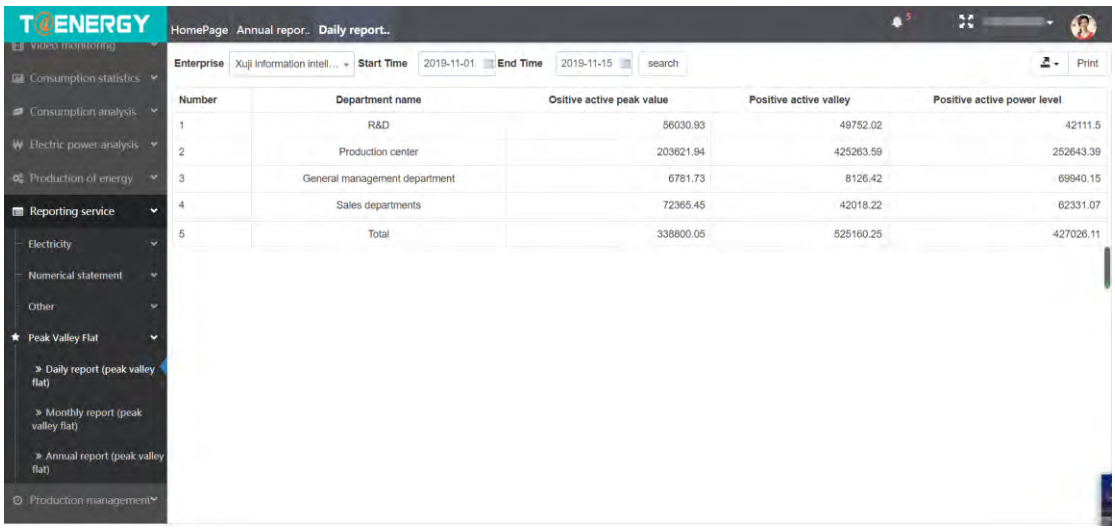
9.1.4 Quarterly report

Query energy consumption information of equipment under the enterprise or department in certain quarters.

9.2 Peak valley flat

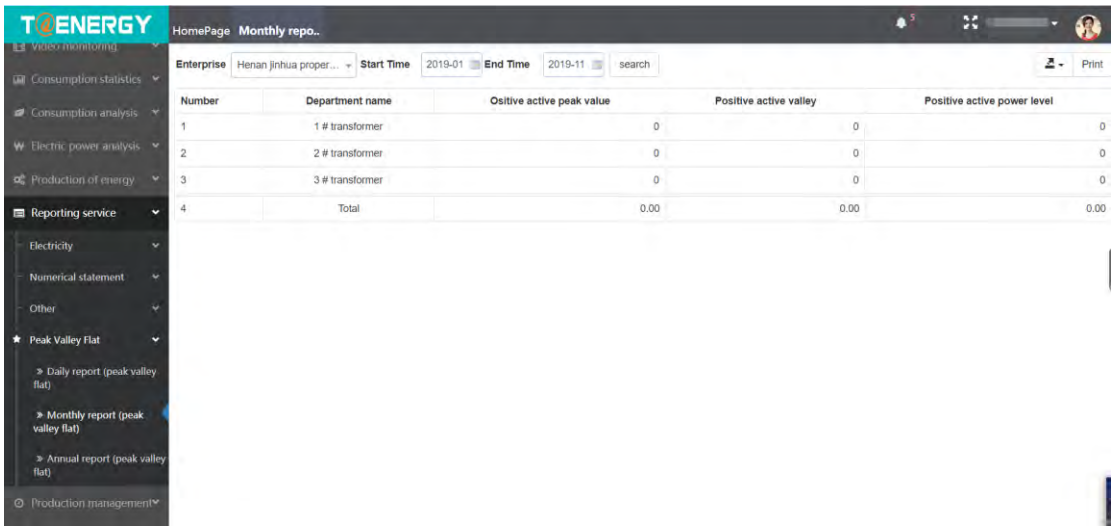
9.2.1 Daily report（peak valley flat）

The interface is for displaying import active energy peak, valley, flat time data for each department of the day.



9.2.2 Monthly report（peak valley flat）

The interface is for displaying import active energy peak, valley, flat time data for each department of the month.



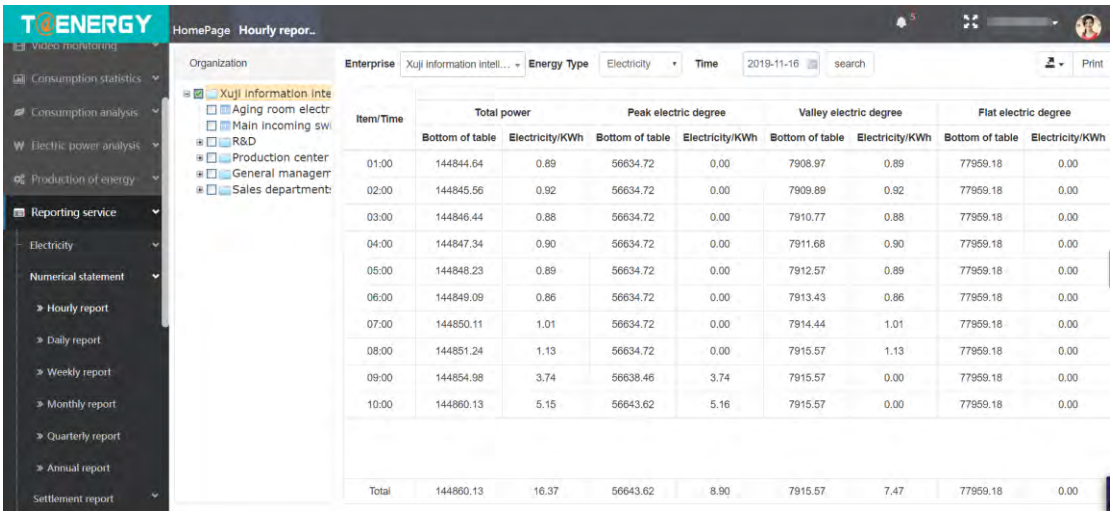
9.2.3 Annual report（peak valley flat）

The interface is for displaying import active energy peak, valley, flat time data for each department of the year.

9.3 Statistical report

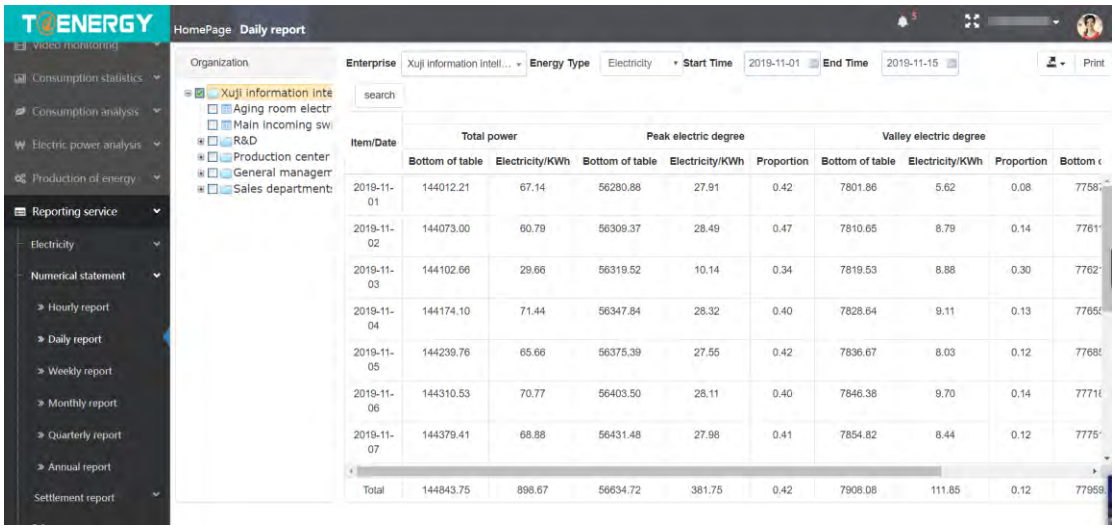
9.3.1 Hourly report

This page is for hourly data statistical display of enterprises and departments, as follows. The left side is the device tree, and the top is the time and energy type selection. After the selection, the data for each hour of the day will be listed.



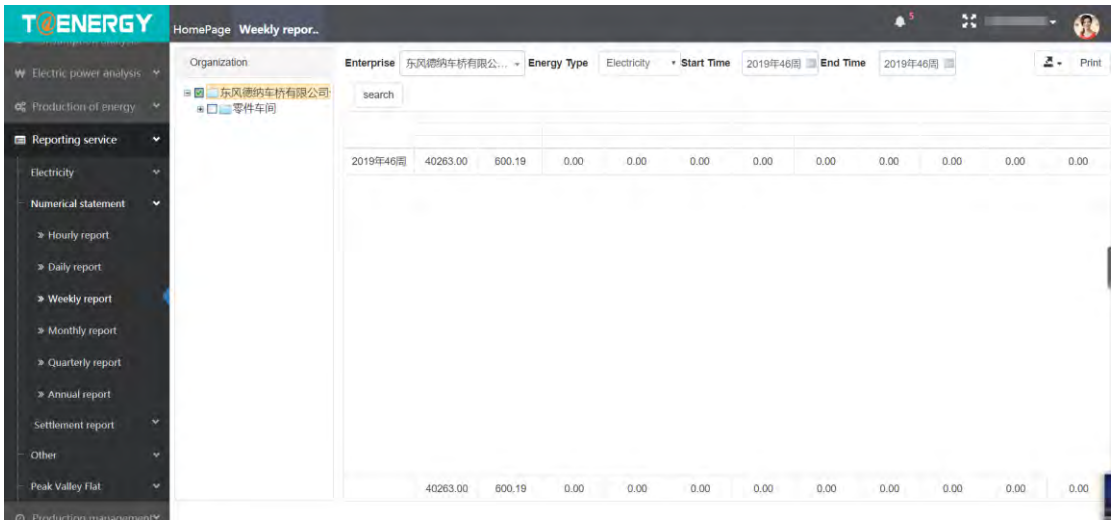
9.3.2 Daily report

Query the data for the selected time period. The data can be queried for up to 31 days. If it is exceeded, the query cannot be performed. The interface is as follows:



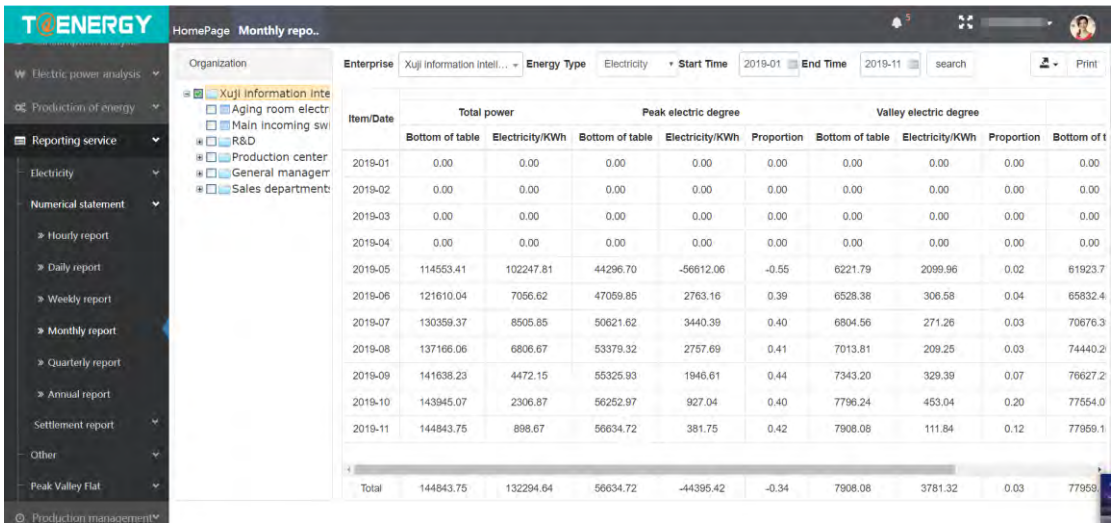
9.3.3 Weekly report

Display per week energy usage.



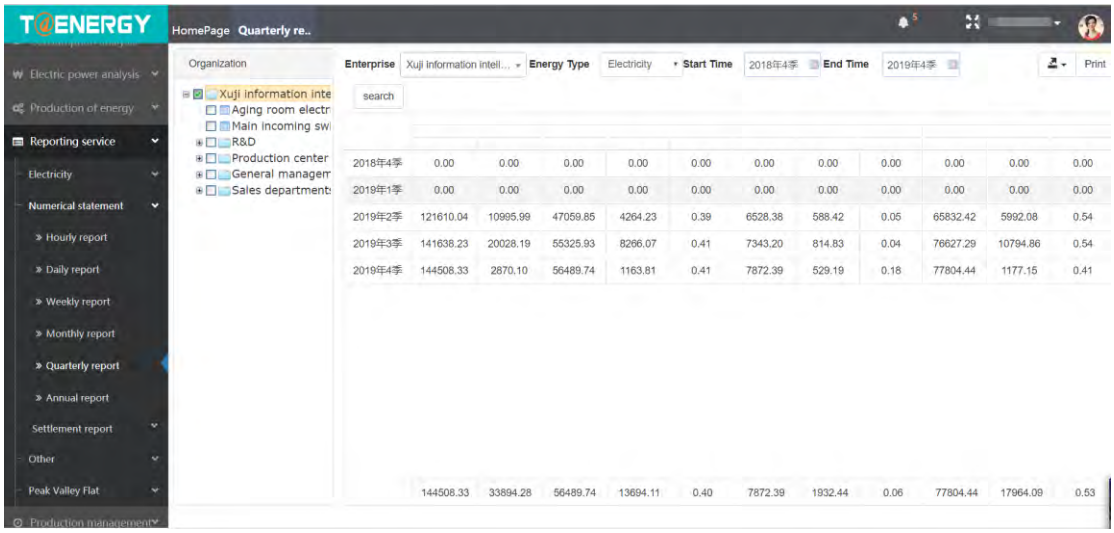
9.3.4 Monthly report

Statistical display energy usage of per month, as follows



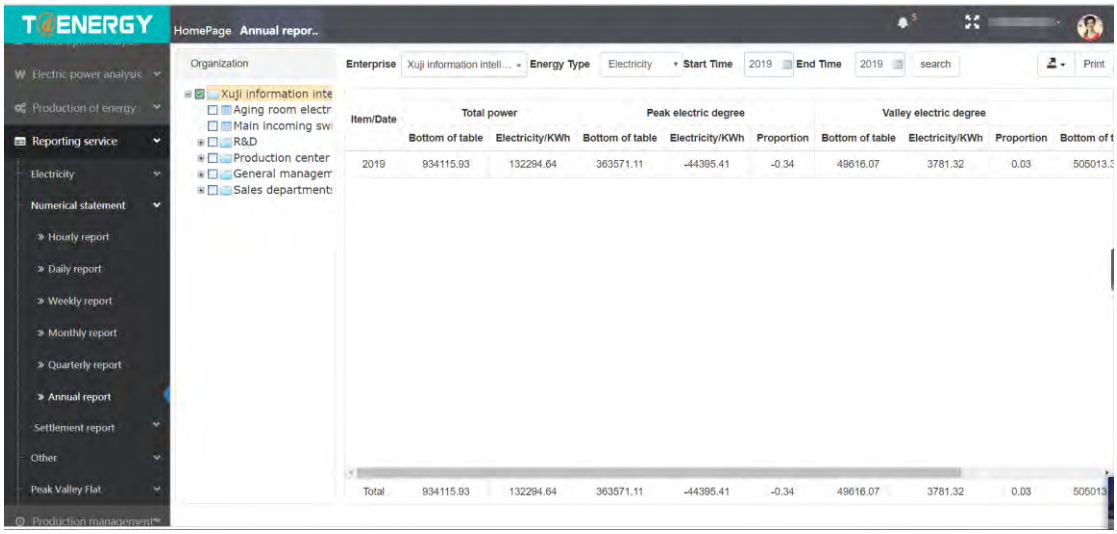
9.3.5 Quarterly report

Query the energy usage of each quarter, as follows:



9.3.6 Annual report

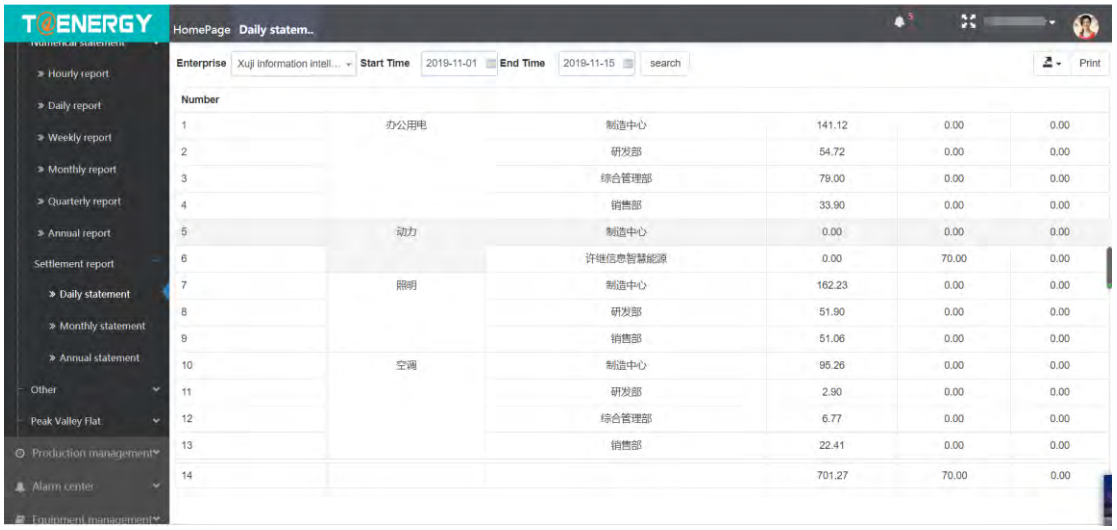
Query energy usage within one year, as follows:



9.3.7 Settlement report

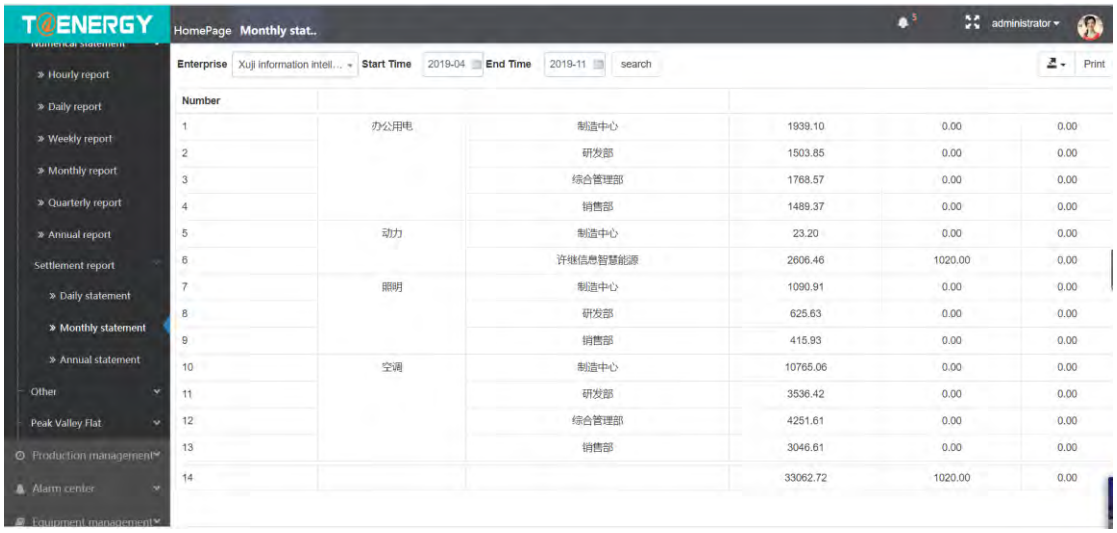
9.3.7.1 Daily settlement report

Statistical display each energy type used by each department in the selected day time period.
This data is consistent with the data of the energy dashboard flow diagram.



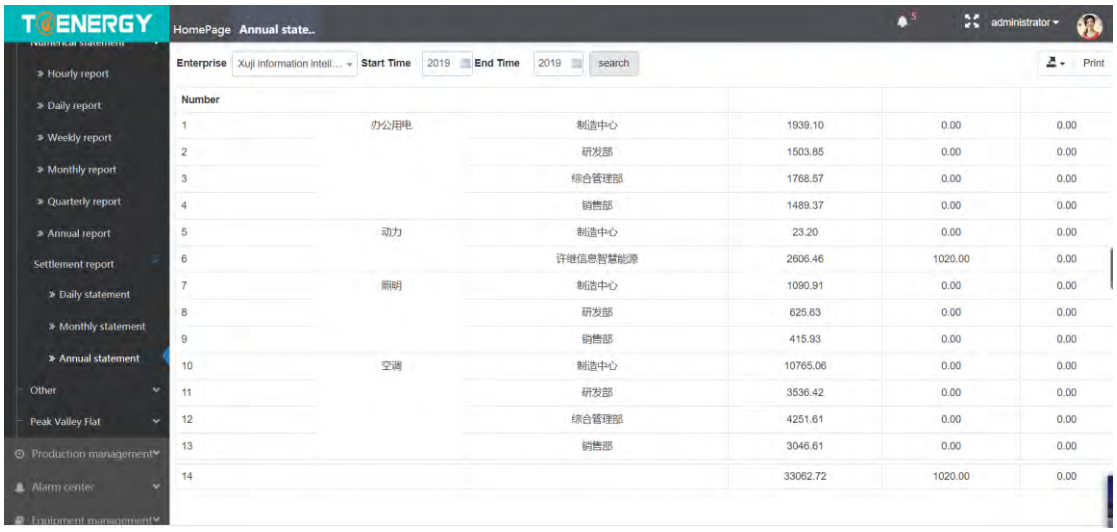
9.3.7.2 Monthly settlement report

Query the usage of each energy type in each department within the selected month period



9.3.7.3 Annual settlement report

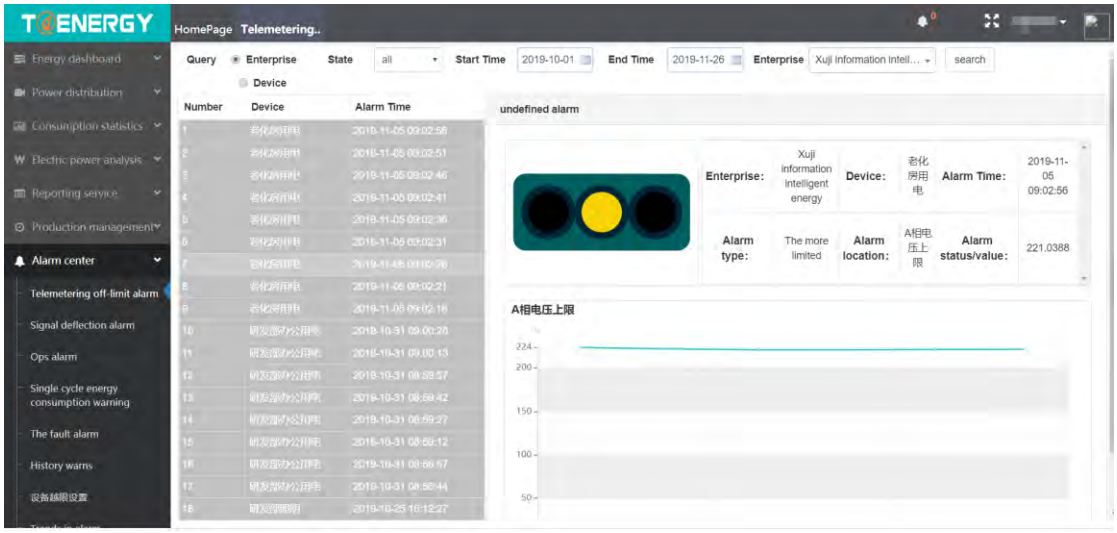
Query the usage of each energy type for each department in the selected year.



10 Alarm center

10.1 Telemetry over-limit alarm

This module queries and displays the device over-limit alarm information.



1 enterprise / device selection button. When you click “Enterprise”, you can select the enterprise in the drop-down box of the enterprise marked 5; when you click “Device”, you can select the enterprise in the drop-down box of the enterprise. Also select the device included in the enterprise at the drop-down box of the device marked 6.

2 status drop down box. You can select the alarm records of the three states "Unprocessed" (yellow) / "Processed" (gray) / "All" to view.

3 Start time selection bar. Select the start date of the query range, which is actually 00:00 for that date.

4 End time selection bar. Select the end date of the query range, which is actually 23:59 for that date.

5 enterprise drop-down box. Show all businesses under this user.

6 device drop-down box. Show all devices under the selected enterprise.

7 alarm list. Click on the record in the alarm list, the record will change from yellow to gray, 8 alarm details will display the detailed information of the record, and 9 graph will show the curve change of the record.

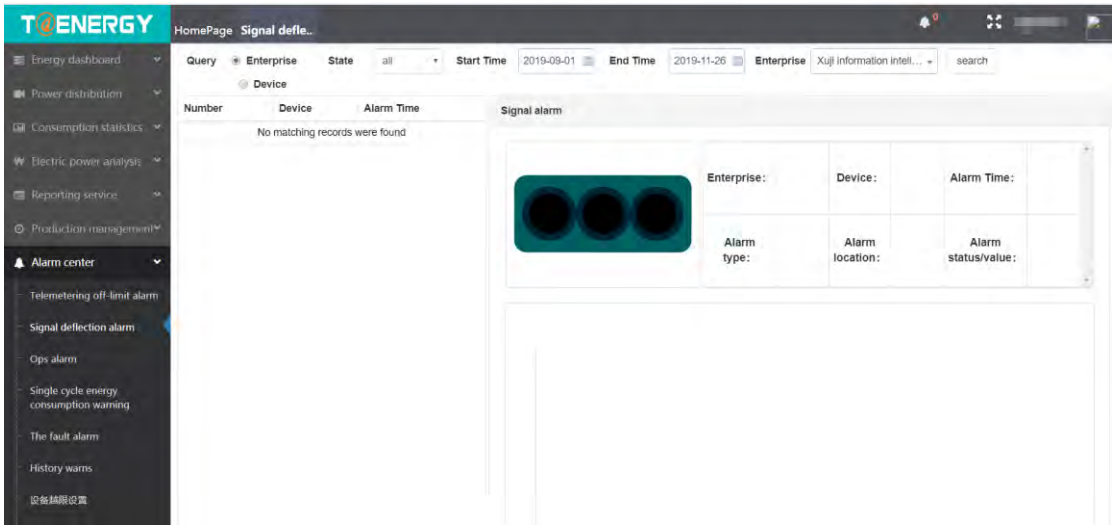
8 alarm details. Displays the enterprise, device, alarm time, alarm type, alarm location, and alarm status/value in the alarm record.

9 graph. Displays the coordinate curve formed by the monitoring value, set value, and time of the alarm record. The time is the abscissa, the monitoring unit is the ordinate, the green line is the detected value, and the red line is the set upper and lower limits.

10.2 Switch status change alarm

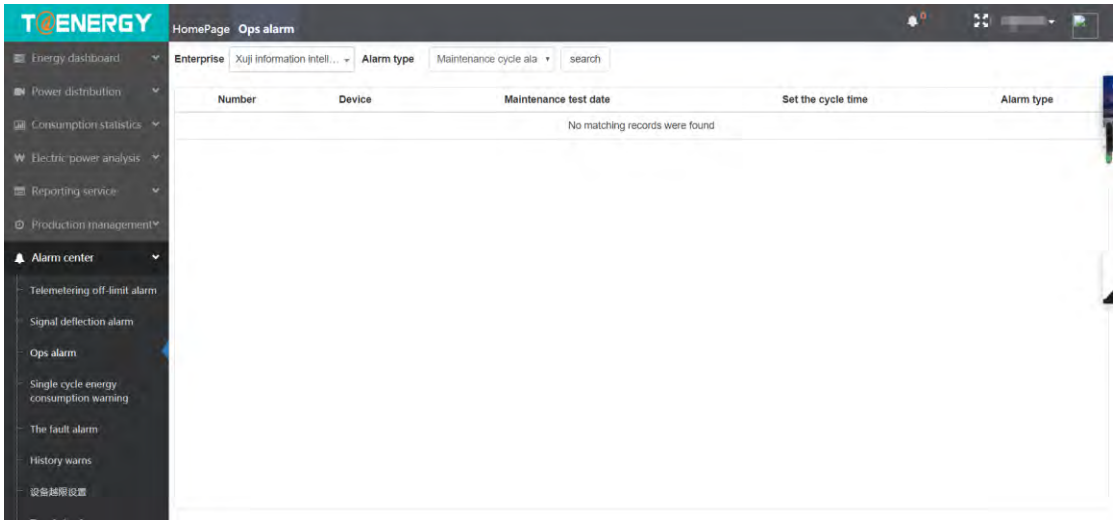
This module queries and displays the switch status change alarm information. Using this module requires the meter to have DI/DO, which can then be implemented by configuring it in the gateway and synchronizing variables in the system. When the meter detects a change in the switch status, the module will record the corresponding alarm information.

For the function layout, please refer to the "Telemetry over-limit alarm" module.



10.3 Operation and maintenance alarm

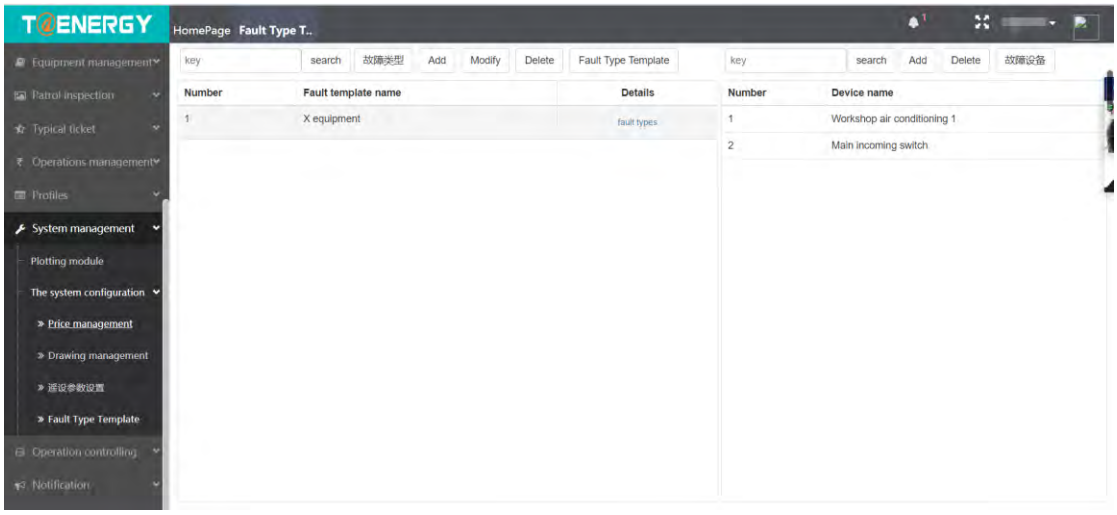
This module is under development and is temporarily not supported.



10.4 Fault alarm

This module can display customized fault alarm information.

First, this module needs to be used in conjunction with System Management - System Configuration - Fault Type Template. It is required to establish related fault information in the "Fault Type Template" first.



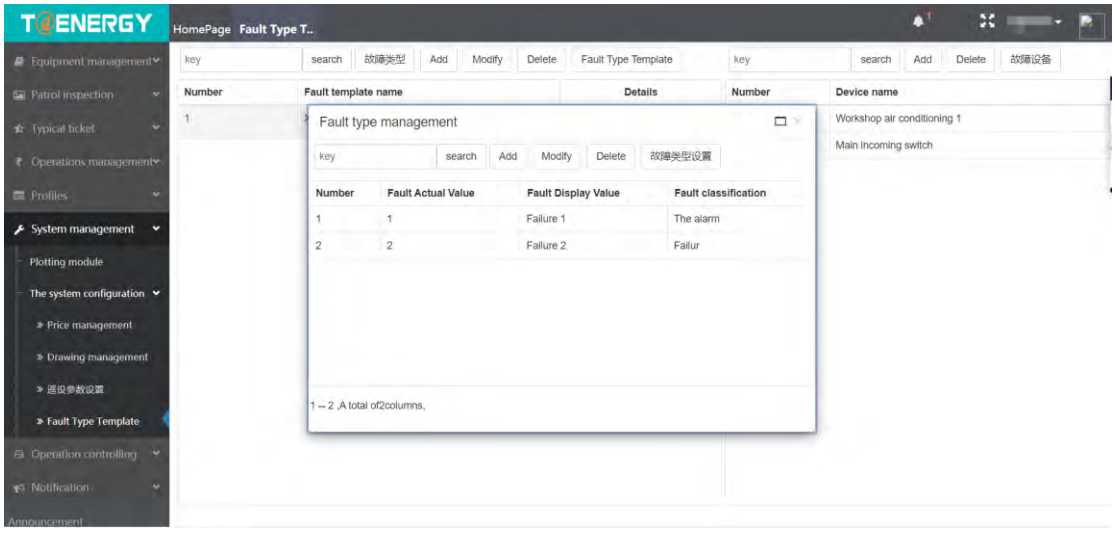
①Query the fault template. Enter the word contained in the fault template for query

②Template added button. Click the button to pop up the template add box to fill in the new template name.

③Template modification button. Click the button to modify an existing template

④Template delete button. Click the button to delete an existing template

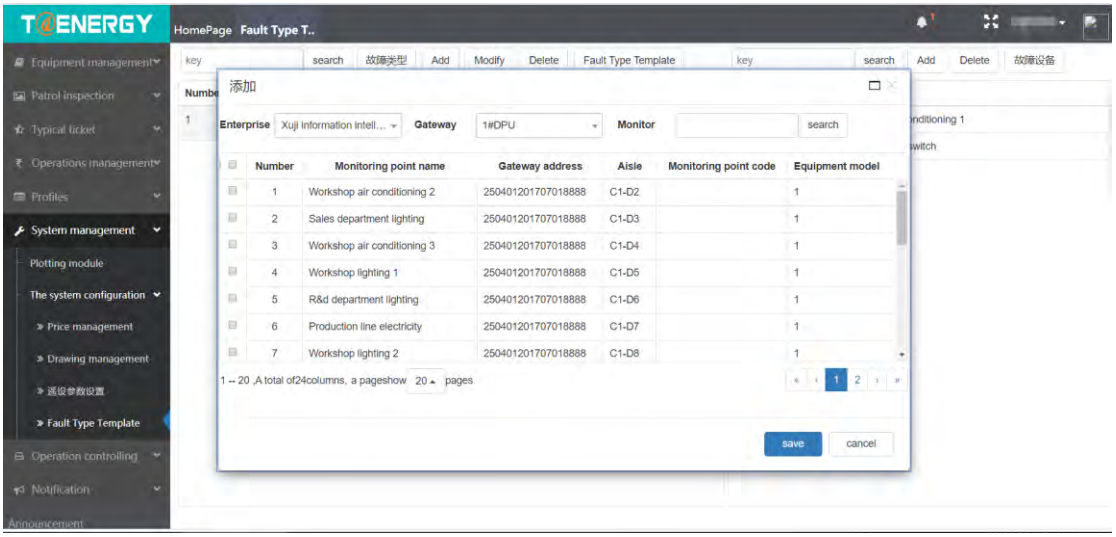
⑤Fault type setting button. Manage fault types, such as adding, modifying, and deleting. Using this function requires that the actual value of the fault transmitted by the gateway is known, and then the actual value of the fault is associated with the fault display value and the fault type is selected, so that the system can convert to the actual value of the fault when it is received. Defined fault display value to achieve fault alarm function.



⑥Query the device that uses the fault template.

⑦Add a device button. Add a device that uses a template.

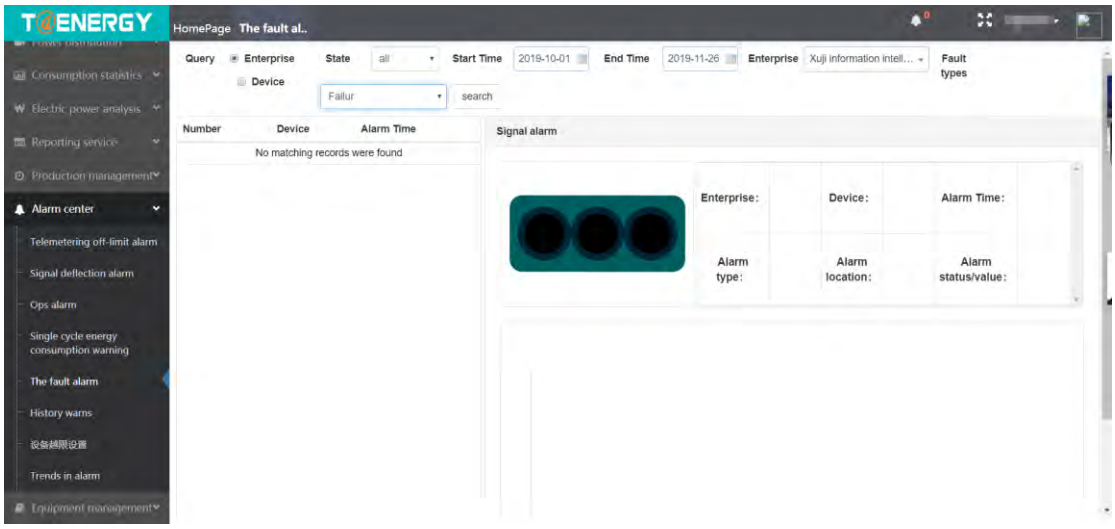
⑧ Remove device button. Delete a device that uses a template.



⑨

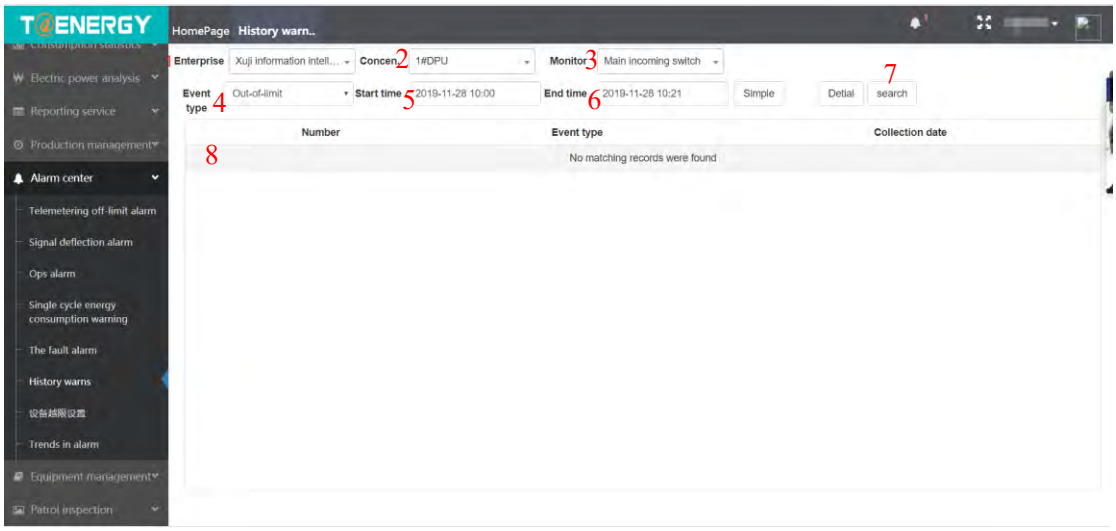
Once the setup and synchronization is complete, you can use the "Fault Alert" feature.

For the function layout of the "Fault Alarm", please refer to the "Telemetry Over Limit Alarm" module.



10.5 Historical event alarm

This module can query each type of alarm record for a specific device (within a day).



①Enterprise drop-down box. Show all companies under user rights.
②Concentrator drop-down box. Display all gateways (concentrators) under selected enterprises.
③Monitor point drop-down box. Display all monitoring points (devices) under the selected concentrator.
④ Event type drop-down box. Contains three types of "over limit", "State change" and "fault"。
⑤Start time selection.
⑥End time selection. (The start time and end time interval cannot exceed one day).
⑦Query button. When all the above query conditions are set, click here to query。
⑧The subtable displays the button. After all the records are displayed, click the “+” sign in the first column of the record to display the details of the record in the pop-up sub-table, such as “data item description”, “value”, “remarks”.

10.6 Device over limit setting

This module is used with the "telemetry over-limit alarm". In this module, the upper and lower limits of the parameter are set. When the monitoring data exceeds the limit, alarm data will be generated. The set alarm data items are: voltage, current, power, power factor, harmonic distortion rate, ambient temperature, and unbalance.

①Device tree. Click on the device, the interface will display the upper and lower limit records already set by the device, or add/modify the record of the device after clicking.

②Add button. Click to generate a new record.

③Save button. After filling in the recorded data, click this button to save.

④Delete button. After selecting a record, click this button to delete it.

After generating a new record or deleting an old record, you need to select the concentrator related to the record in the Operation and Maintenance Management - Background Maintenance - Operation and Maintenance Management interface, click "Start Calling", and click "Upper and Lower Limit Delivery". Once determined, the system can perform/deactivate the alarm function based on this record.

11 System Management

11.1 Module management

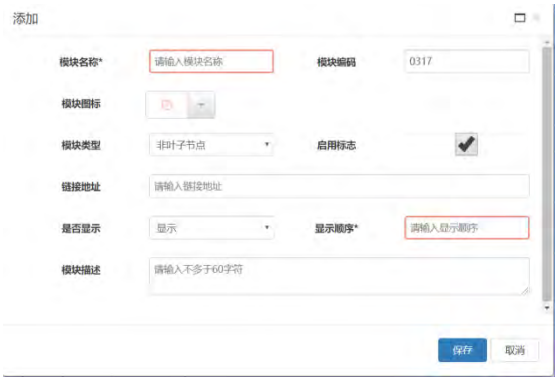
This function is to manage all the modules under this account. When entering this module, the following interface will appear. The left side shows the device tree of the module level. The right

side shows all the first level modules, and the upper part is the right module. Some function buttons for operation, click on the device tree on the left to display the secondary module under the first-level module, and also have three-level modules under some secondary modules.

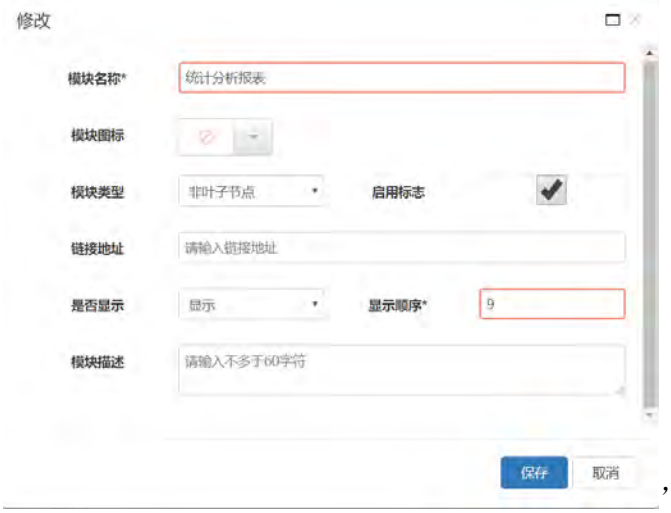
If we enter a secondary module, but want to operate on the primary module, we need to exit this module and re-enter

①Status Query: There are two states: Enabled and Disabled. The enabled state is to allow this module to be displayed in the system, and then we can use the module directly. Disabling the state hides the module. And the module is not available at this time.

②Add a new module: Add a new module, click on the first-level module page, it will add a first-level module by default, select the first-level module and click Add, it will add a secondary module under the first-level module. The interface is as follows. At this time, fill in the corresponding module information. (This feature will generally be added by our company's developers, and don't worry if there are any unclear places)



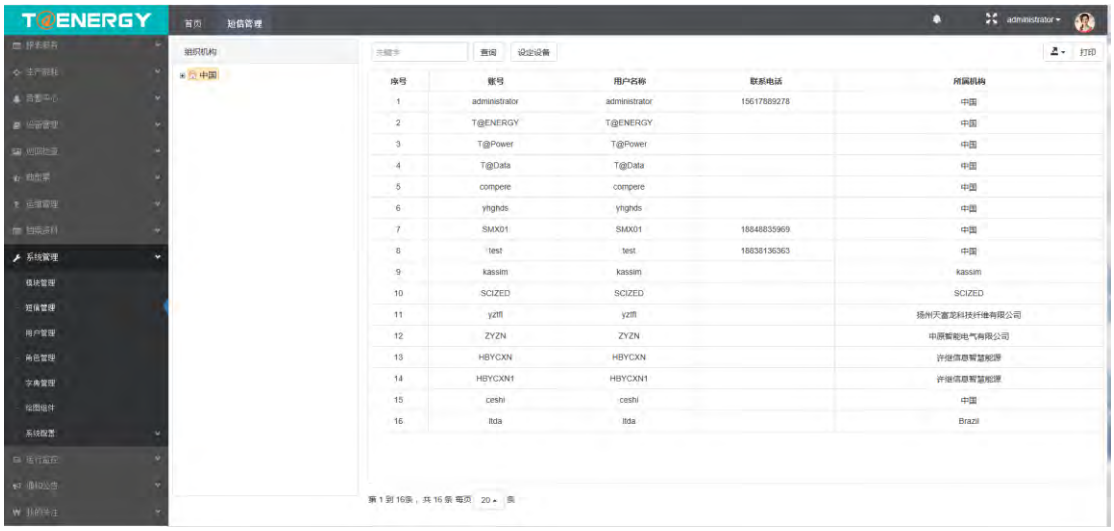
③Modify the module: If the function information of our new module or an old module is incorrect, we can use this function to modify the information. Select the module you want to modify, click Modify Module, the following interface will pop up, and you can add the information you want to modify.



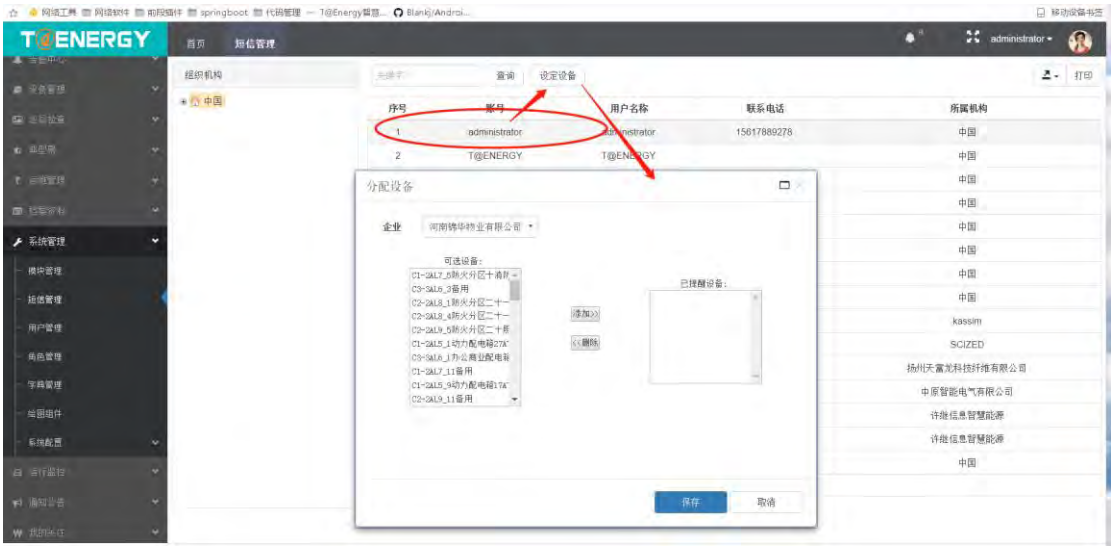
④Delete module: Select the module to be deleted, and then click Delete. There will also be some special cases. For example, when deleting, it will prompt “The submodule under this module cannot be deleted”. In this case, you need to select this module in the device tree on the left. After clicking, the right side will show that there are some sub-modules under this module. After deleting these sub-modules, the module can be deleted.

11.2 SMS management

(the abnormal information of the assigned device is sent to the specified user)



Set the device (1-select the user, 2-click the set device button, 3-the bullet box for the assigned device appears, 4-select the device for the assignment, 5-submit).



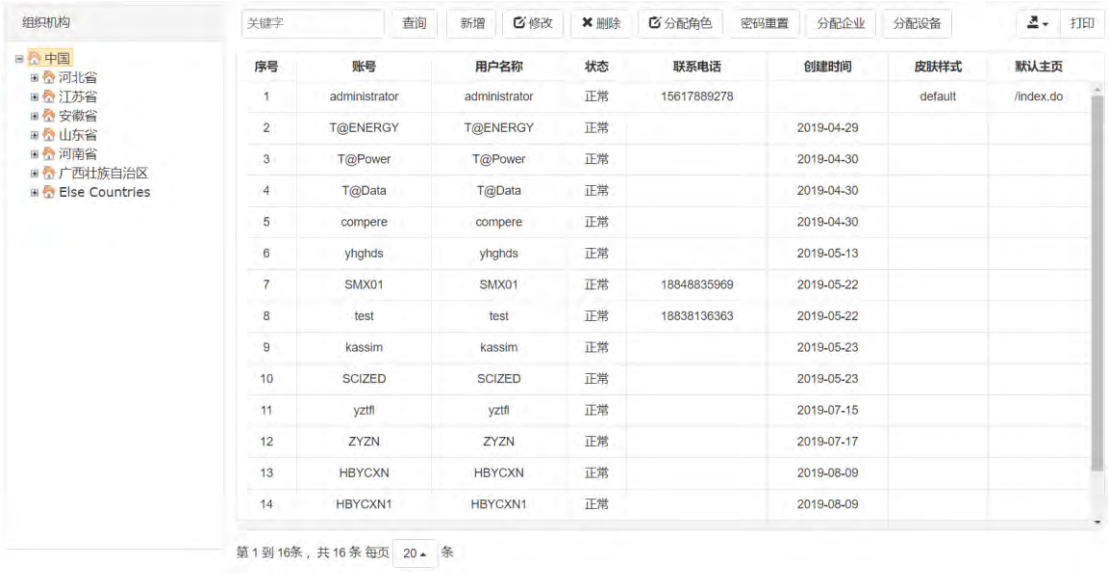
11.3 User Management

The user management page is a page for managing the accounts that can be logged into the system. After entering the page, the following interface appears. Users and roles are used together. The specific process is as follows:

1- Create a role first and assign permissions to the role.

2- Create an account and assign a role to the account.

3-Distribute the enterprise and allocate equipment. (You need to add a role to the role management before using user management).

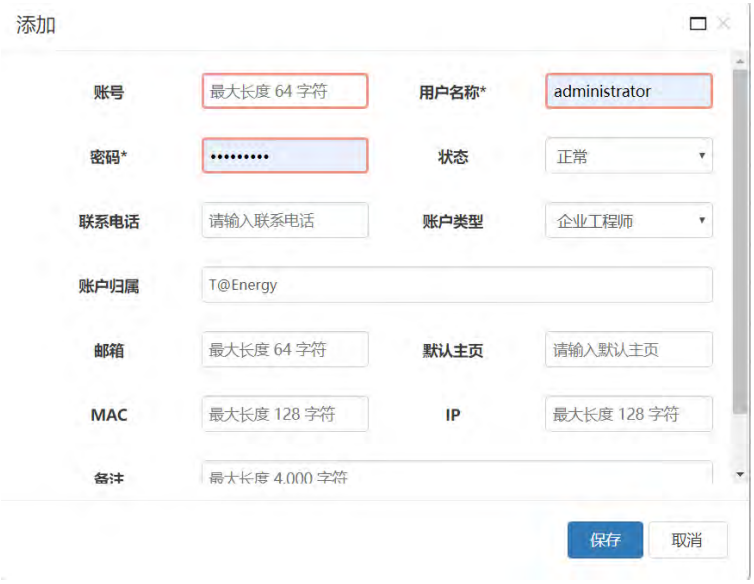


On the left is the organization, the address information is displayed, and the right side shows all the user information under the address, including serial number, account number, user name, status, contact information, creation time, skin style and default home page.

The button above is for editing user information.

①Keyword search function: Enter the keyword of the account and click Search to quickly find the required account information.

②Click the Add button and the following interface will appear.

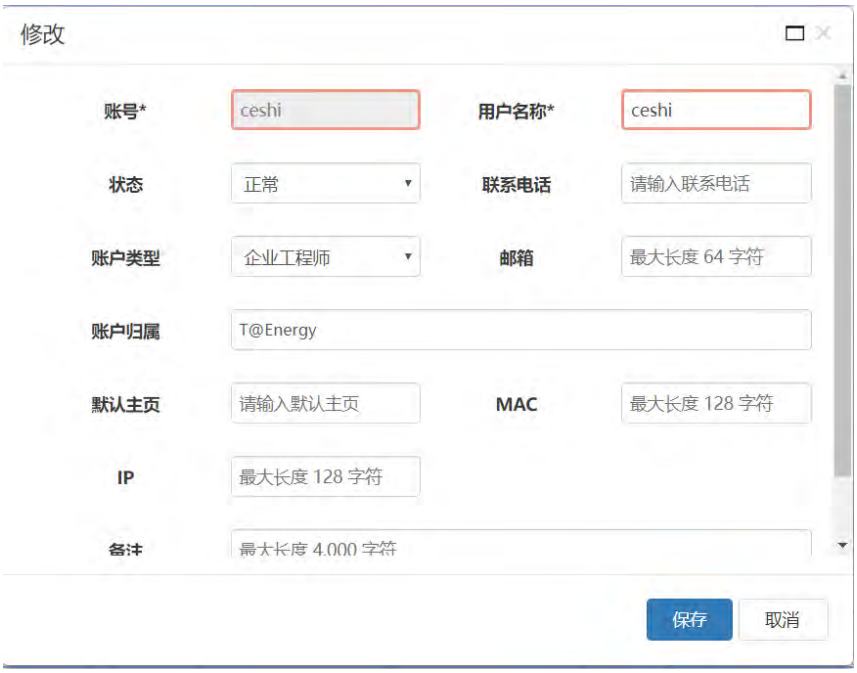


You can create a new system account by editing the corresponding account information. After you have assigned the enterprise and device, you can use it to log in.

③Modify: If you need to modify the existing account information, click this button to modify it. The steps are as follows:

1-Select the information you want to modify

2- Click Modify to bring up the following information interface that can be modified.



④Delete: First select the account you want to delete and click the delete button. PS: This operation will delete all the information of the account.

⑤Assigning Roles: The premise of this feature is that you have added roles to the role management (the role of the role will be discussed in the role management behind, do not explain too much here), click to select the account you want to assign the role Click on the assigned role, the following page will appear. At this time, select the role you have created and assign it to the account. The account can see the module under the role.

⑥Reset password: If you forget or need to change the login password of an account, you can use this function to reset the password. The steps are as follows:

1-Select the account you want to reset your password to.

2- Click Reset Password. If the following prompt appears, the password reset is successful.

⑦Assigning a business: Once you have assigned a role, you can assign it to your business. Select the account you want to assign, click on the distribution company, and the following page will pop up. If you want to specify this account to display one or some businesses, check the box in the back. (Open the enterprise, you can also assign the department under the enterprise)

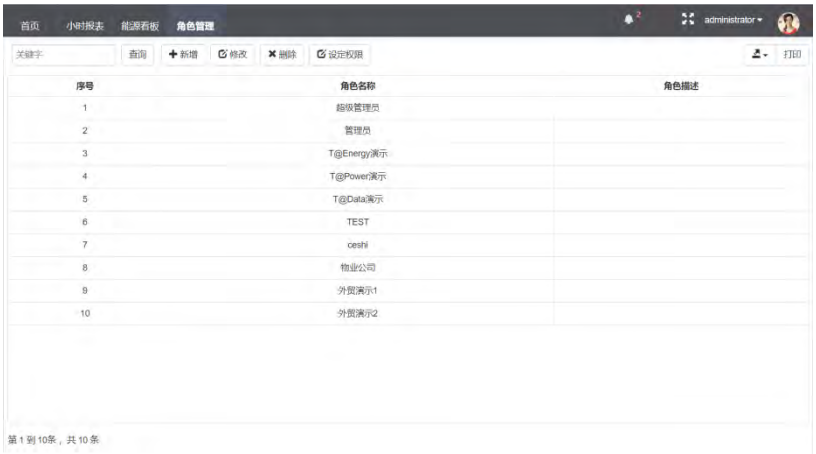
⑧Assigning devices: Once the roles and enterprise assignments are complete, the next step is to assign the devices. Proceed as follows:

1- Select an account and click Assign Device. The following page will pop up, the top left corner shows the name of the company (you can only select the company you have already assigned, select the other company's meeting, nothing will be displayed below), the upper right corner shows the one you just assigned. Departments under the enterprise, (if you have no choice when assigning a company, all departments will be displayed by default)

2- After selecting a department, the unassigned device under the department will be displayed in the lower left corner. Click the device to assign it, and the device will be transferred from the unallocated column on the left to the allocated column on the right.

After all the above steps are completed, you can log in using the newly created account.

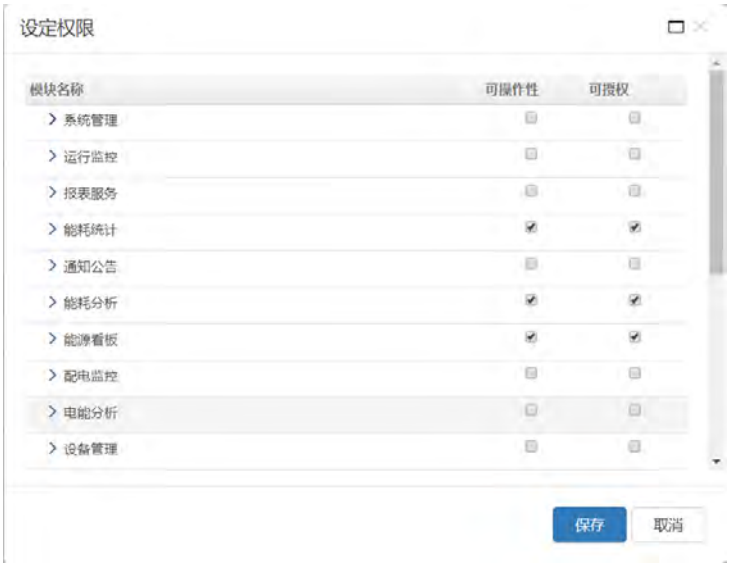
11.4 Role management



①Keyword Query: Enter the keyword you want to query in the search box, then click Search to quickly find the character information you need.

②Add a new role: After clicking the Add button, the following interface will pop up, fill in the corresponding information, click Save to add a new role.

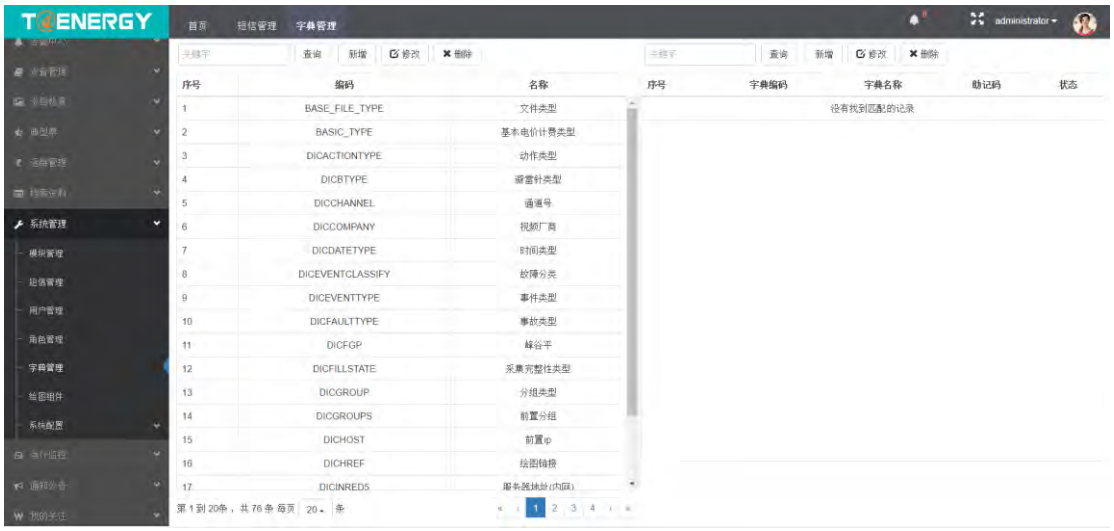
③Set permissions: Click on the rights assignment, the following interface will pop up, tick the required module.



④Modify: First select the role to be modified, then click Modify to pop up the following interface. Finally edit the information you want to modify.

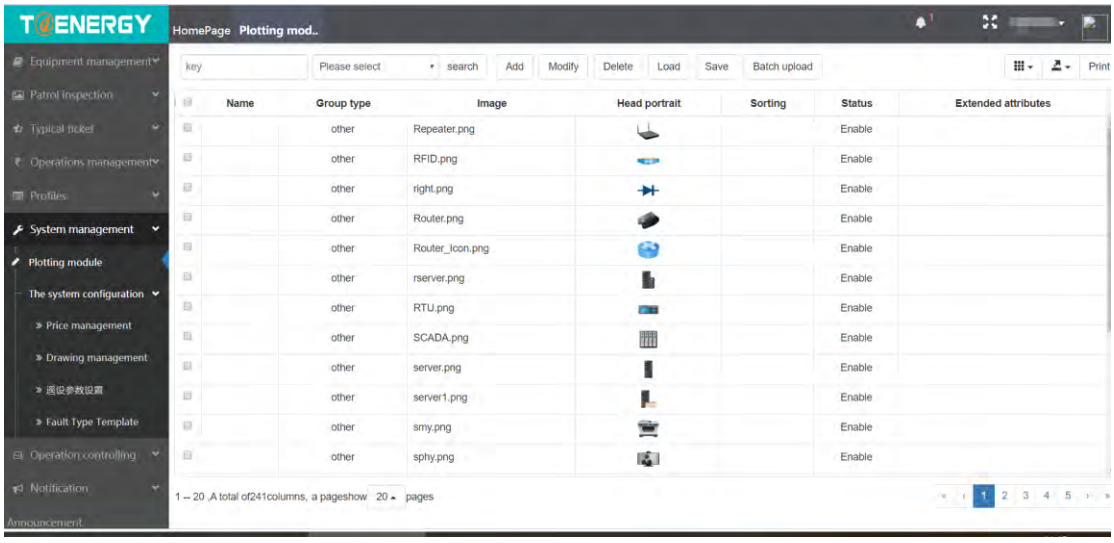
⑤Delete: Select the role you want to delete and click the delete button.

11.5 Dictionary management (need to be used with other modules)



11.6 Drawing component

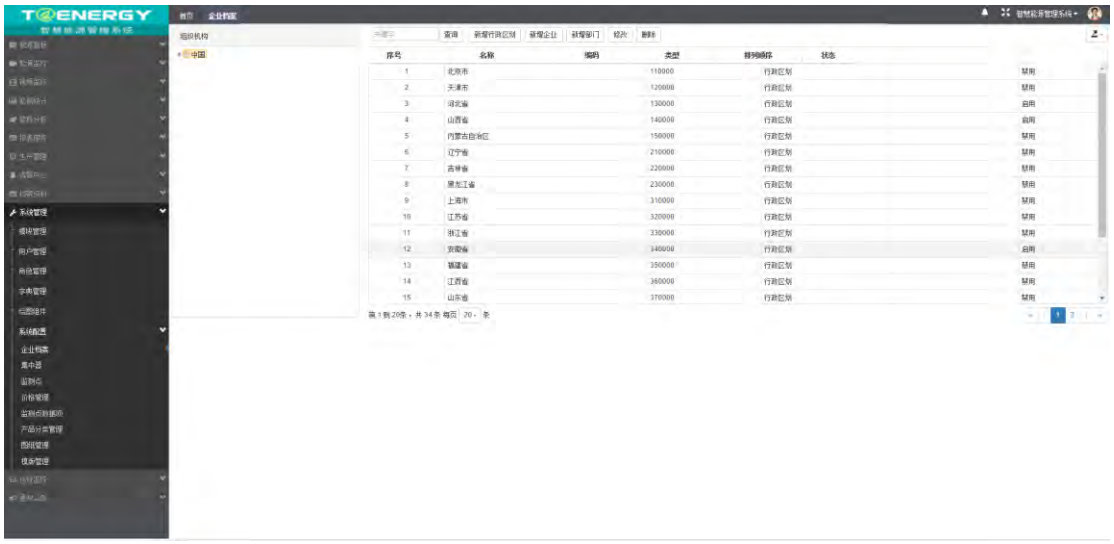
Display pictures, text, lines, etc. used in the drawing.



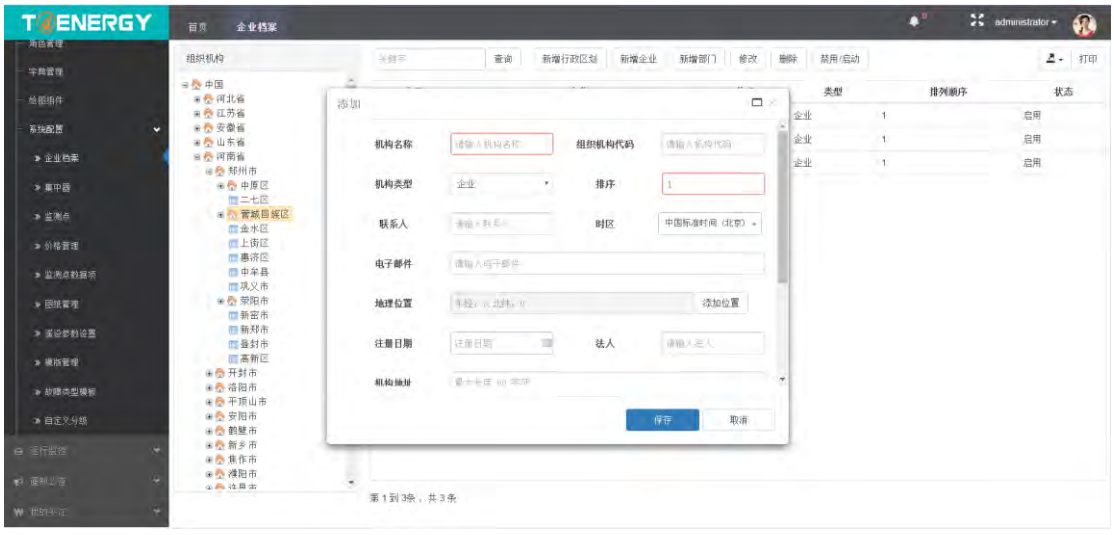
11.7 System Configuration

11.7.1 Enterprise Profile

Click on "Enterprise Profile" to display the following interface:：



You can create a new administrative district, or you can click on an administrative district to establish a business under it. Click Add New Enterprise, the following interface appears.



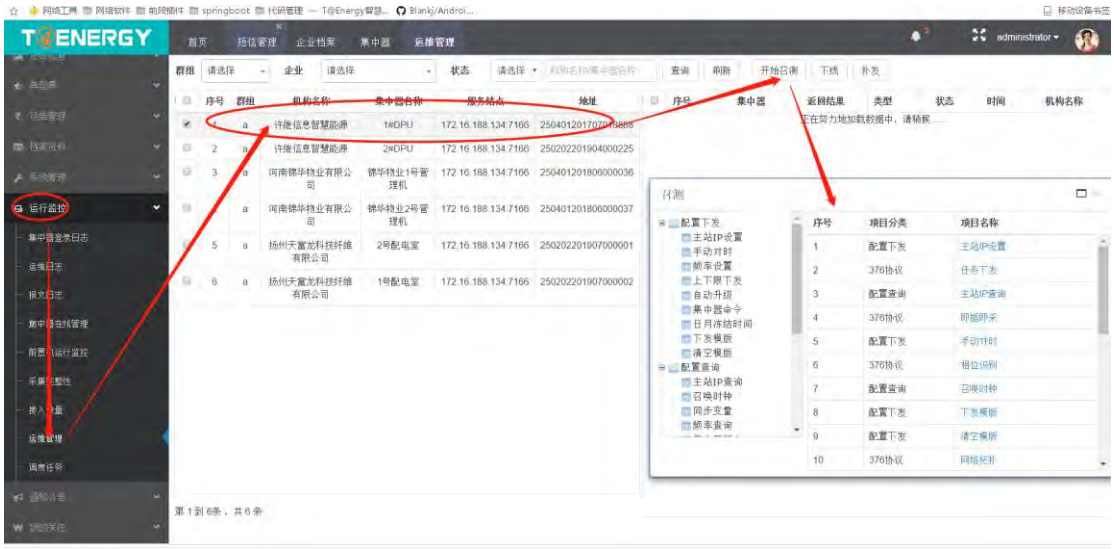
Special attention: Establish regional and enterprise under the region, establish enterprises and departments under the enterprise, establish departments under the department, click button to build new enterprise or department, pay attention to the choice of organization type in the bullet box (the first one is selected by default, this requires careful attention)

11.7.2 Concentrator

Click on the "concentrator", the following interface appears:：

Taking Xu Ji as an example, click“Xu Ji Information Smart Energy”in the organization, you can display all the concentrators of the enterprise and their number and modification time records on the right side, or click “Add” to add a new concentration. As shown below：

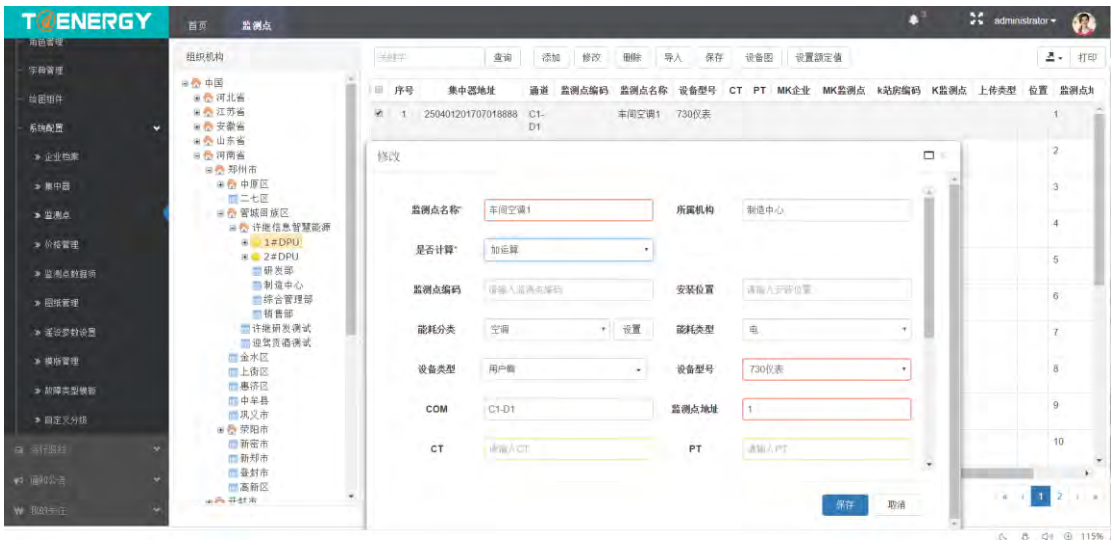
The concentrator name (customizable) and the concentrator address (16-bit length), the frequency is generally filled in 15, the group selects a. Click Save when you are done. The upper button add/delete/modify is for the selected concentrator, delete and refresh the cache (modify the monitoring point information) will use these 2 buttons, select the concentrator to be operated to delete first, and refresh. Start the call button (not available), generally operate under the operation and maintenance of the operation and maintenance.



11.7.3 Monitoring positions

The monitoring point module is operated on the device, such as adding, modifying or deleting monitoring points under a certain concentrator.

Let's take a modification of a monitoring point as an example.



Monitoring Point Name: Name (required)

Affiliation: Company or department (required)

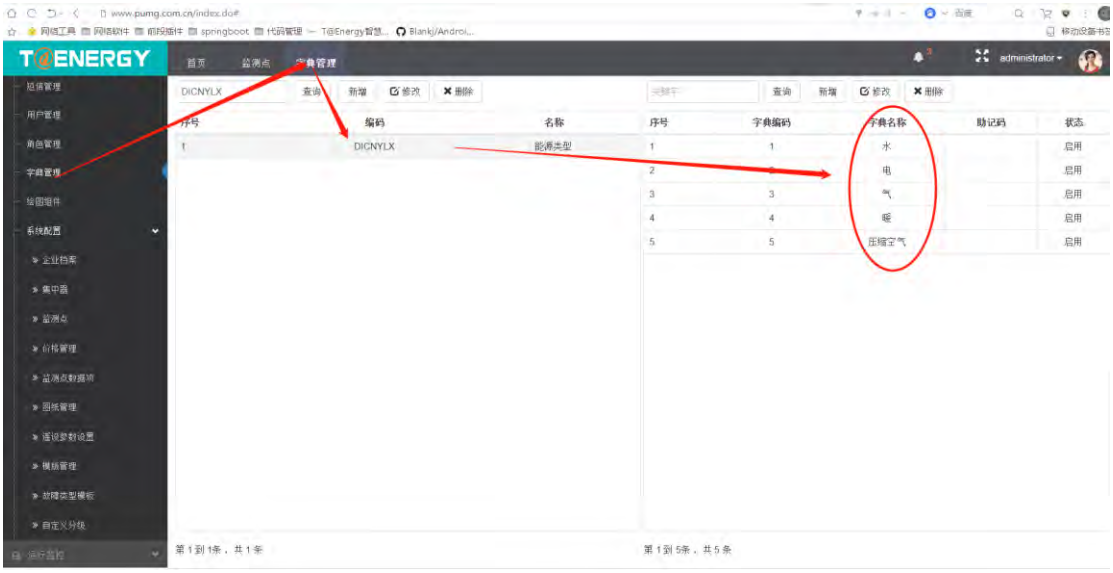
Whether to calculate: (the function is not developed for the time being), whether the device is added or subtracted in the area (required)

Monitoring point code, provincial platform data transmission will be used (not required).

Energy consumption classification You can set it yourself (it has a button next to it, click on the display below) to add, delete and change the operation, (required).

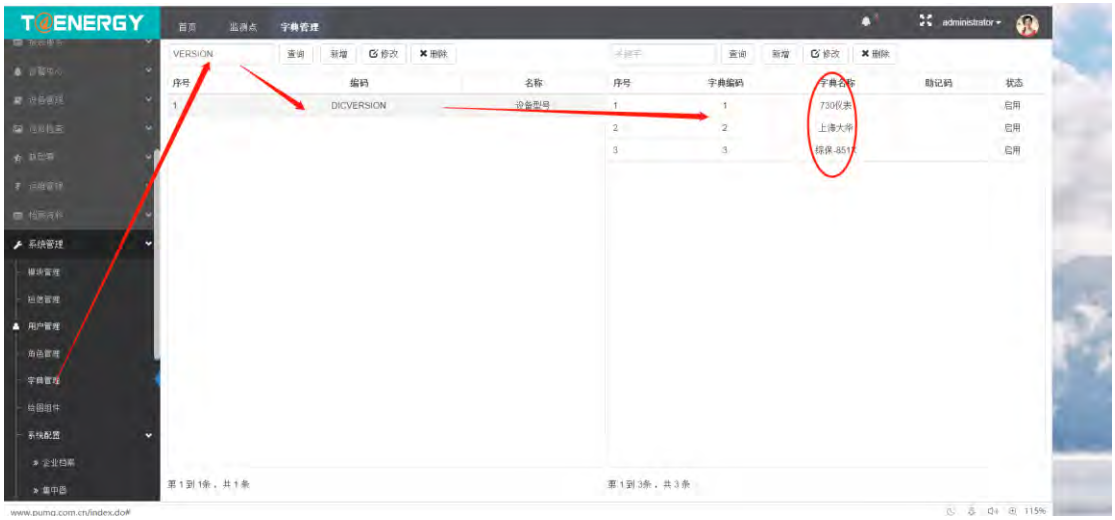
Installation location (not required)

Type of energy consumption: water, electricity, gas and warm. Can be set, in the dictionary management module, add (keyword DINYYLX), (required) screenshots are as follows



Device type: Customizable, (required), dictionary management (keyword DICSBLX)

Device model, customizable, (required), dictionary management (keyword VERSION).



COM ： No need to modify, default

Monitoring point address ： No need to modify, defaultCT ： (not required)

PT：(not required)

MK enterprise：(not required)

MK monitoring points：(not required)

K Station code：(not required)

K monitoring point：(not required)

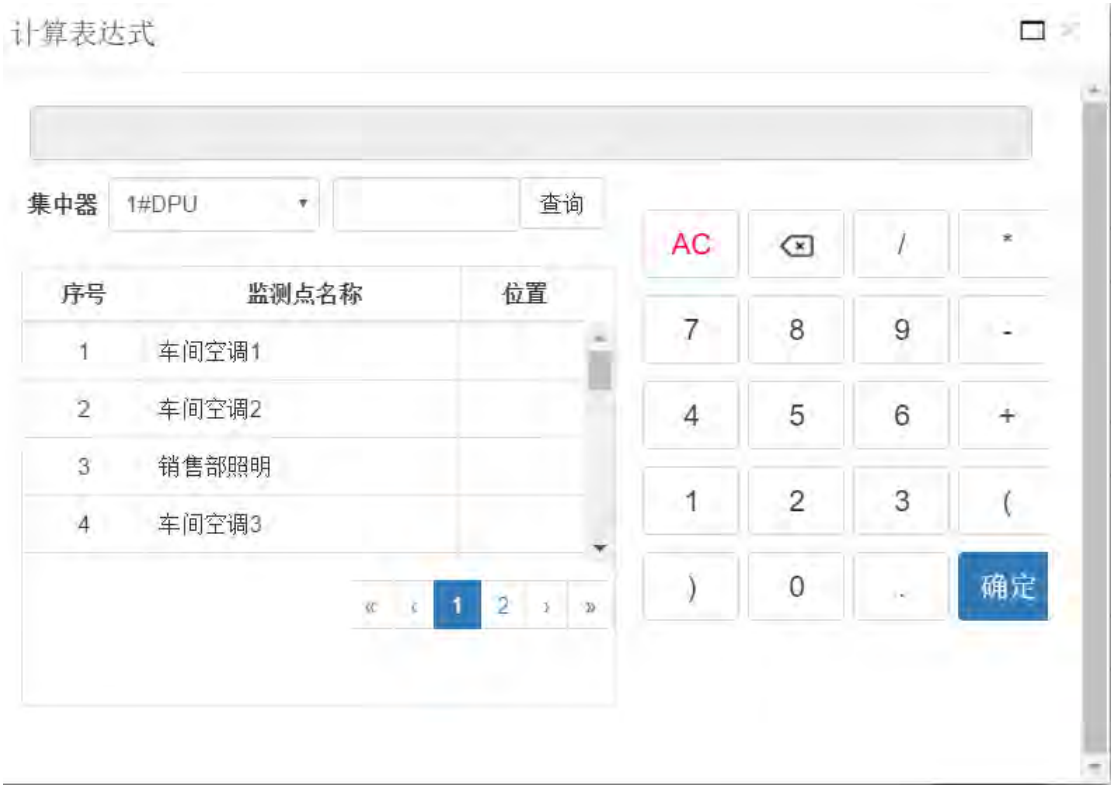
Range：(not required)

Accumulated value of the meter：(not required)，Feature not available

Meter code：(not required)

Whether virtual meter ： (not required)，Virtual computing

Calculation expression ： (not required)



Baud rate：(not required)

Asset Number ：(not required)

11.7.4 Price management

The price management module is used to calculate the price of all energy types of the system. After the price is set, it is mainly reflected in the cost proportion in the lower right corner of the energy board, the electricity cost analysis and power factor analysis of the energy analysis. When the page is opened, the following interface will appear. The action button is shown at the top and the cost information is displayed below.。

①Enterprise query function: Select the enterprise you want to query, click on the query to display the basic situation of the fee setting under the enterprise.

②Add: Set a new cost calculation, open the interface as follows, on this page, you can fill in the corresponding energy type and price information according to your situation (Note: only when the water and electric heating is entered at the same time, can be saved)

③Modify: Use this feature to modify. Select the piece of information you want to modify, click the Modify button and the following interface will pop up, then modify the corresponding information and save it.

④Delete: Click the Delete button after selecting it.

⑤Details: Click on "Details" on the right side of the price information to display the price information that has been set, as shown below:

⑥Expense inquiry: After clicking this button, the usage of each day in the time period will be listed, as shown in the figure below.

11.7.5 Monitoring point data item

Click “Monitor Point Data Item” to display the following interface：

Taking the demonstration enterprise as an example, if the concentrator "1#DPU" is clicked, the data item of all the monitoring points under the concentrator is displayed on the right side. If you click the monitoring point "Total Line Switch" in the organization, the data item information of the monitoring point is displayed on the right. The telemetry data item and the remote data item can be selected for query.

In addition, in the "coefficient" column, you can edit according to the actual situation of the meter, then click "save", and you need to refresh the concentrator cache to perform the modification at this time.

Remarks: Like the monitoring point, these data items are obtained by synchronizing the variables of the concentrator, and do not need to be added one by one.

Special attention here, the contents of the remote pop-up box are as follows

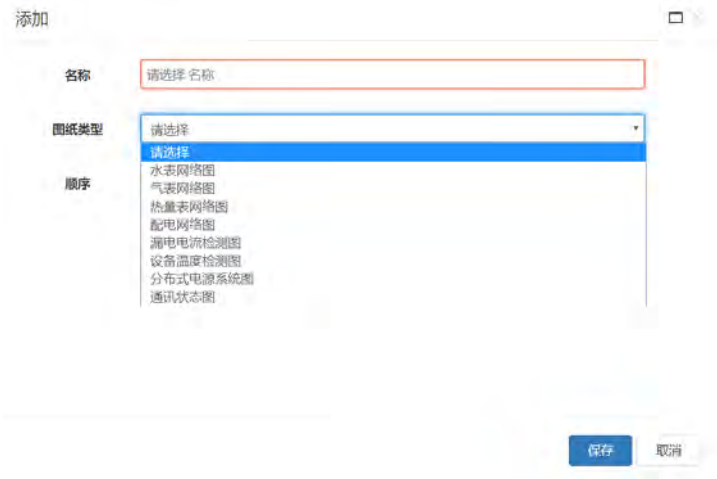
11.7.6 Drawing management

The function of the drawing management module is mainly to manage various drawings of the equipment of the enterprise. The left side of the interface shows the organization, select the corresponding area, and can display the drawing information of the enterprise under the area. The details are as follows.

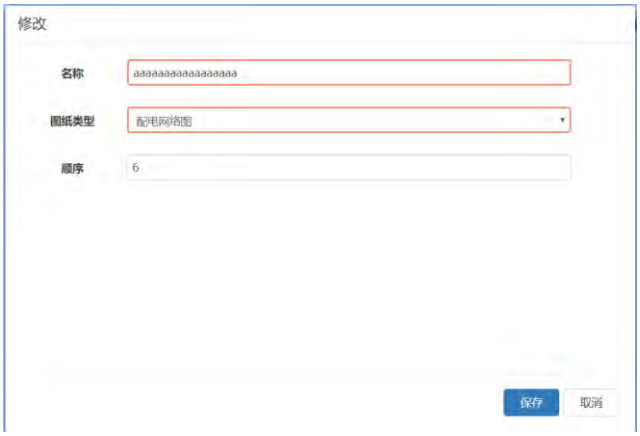
①Keyword query: After entering the keyword to be queried in the search box, click on the

query to quickly search for the drawing information you want to view.

②Add: Add a new drawing. First fill in the name and order of the drawing, then select the drawing type, and finally click Save.

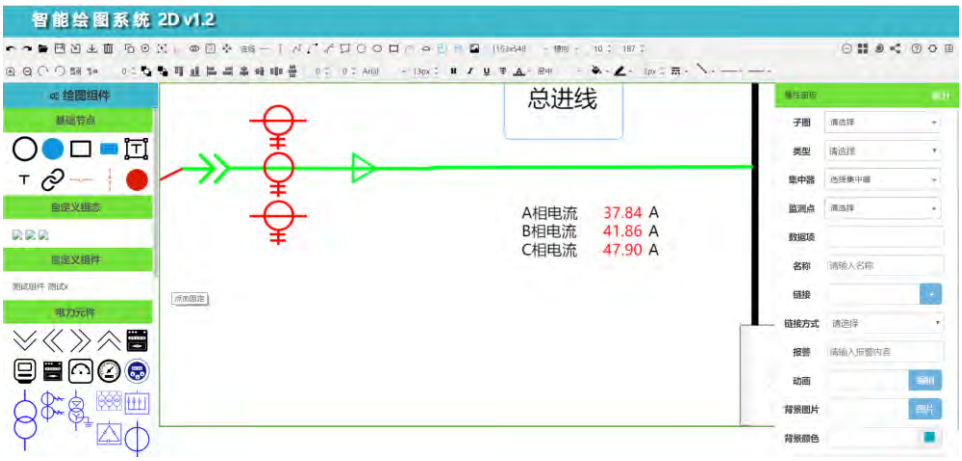


③Modify: Use the Modify button to modify some of the information related to the drawing. After clicking Modify, the following interface will appear, save the corresponding information and save it.



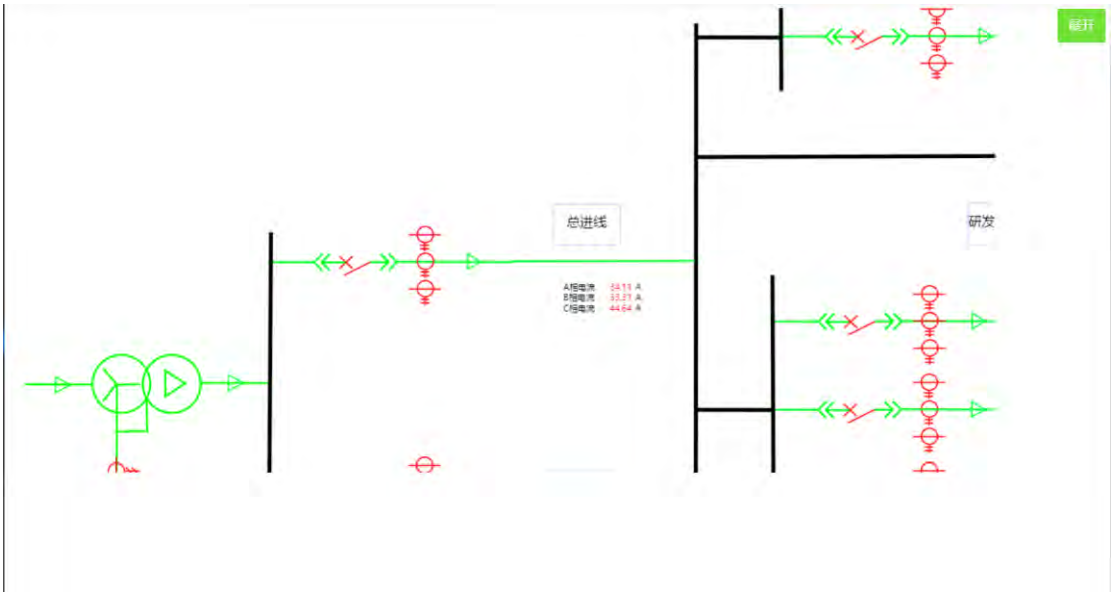
④Delete: Select the drawing you want to delete and click the delete button.

⑤Drawing: Adding a drawing, the next step is to draw a system diagram. Select the drawing you want to draw, click on the drawing, its page is as follows.

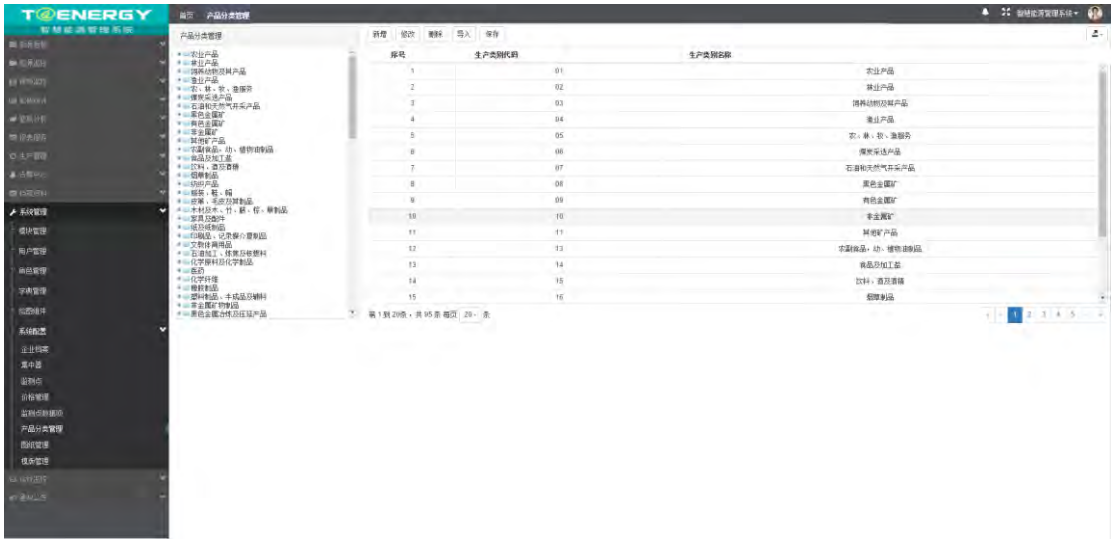


⑥View picture: This function is to view the system diagram that has been drawn, select the

drawing information, click this button to display the drawn system diagram information.



11.7.7 Product classification management

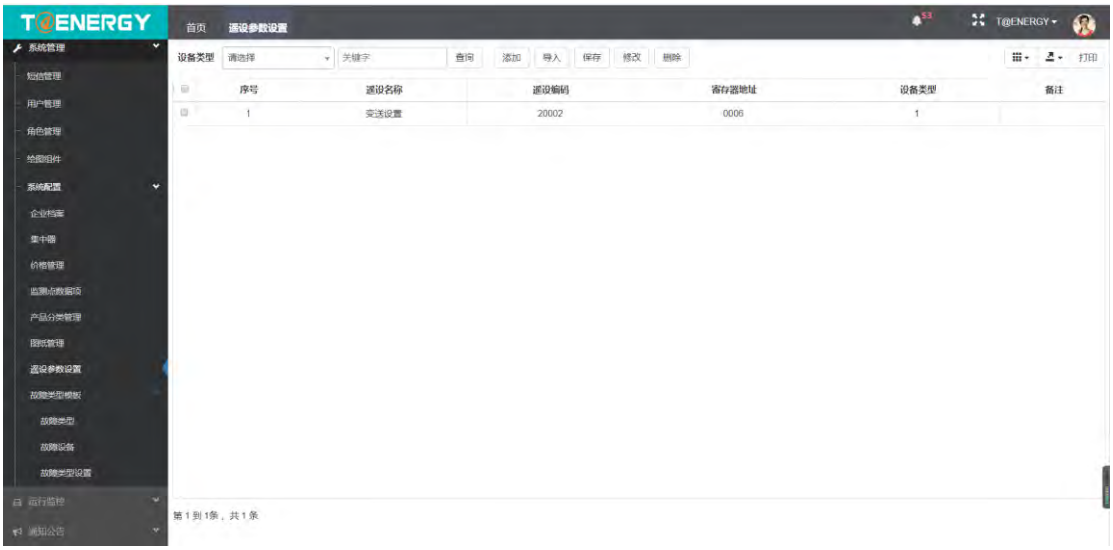


Support for import, add, delete and modify.

Pay attention to the number format when importing:：

11.7.8 Remote parameter setting

Click the remote parameter setting, the interface is as follows：
Above is the function menu, support for adding, importing, modifying, saving and deleting, etc., the following data items are displayed in the form of a table.



11.7.9 Fault type template

Click "Fault Type Template", the display interface is as follows：

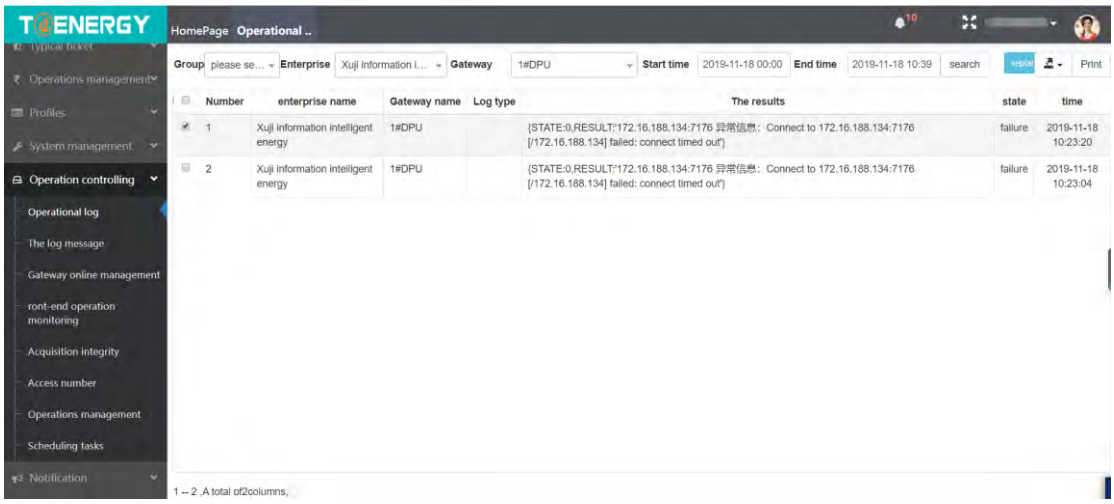
Support for adding, modifying, and deleting fault type templates.

Set the fault type

12 Operation controlling

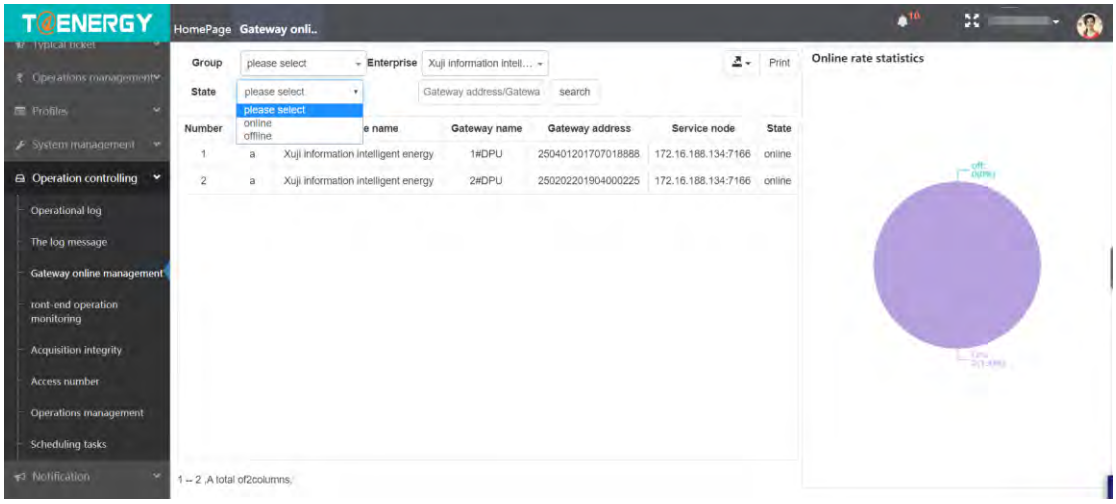
12.1 Operation log

After selecting the enterprise, time period, and gateway, all the interrogation records during this time period will be displayed on the page.



12.2 Gateway online management

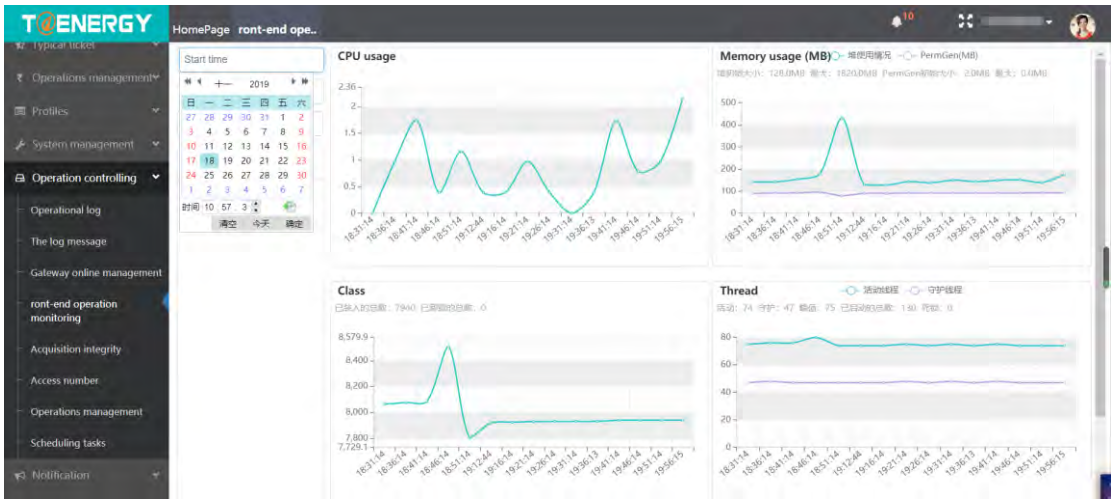
Click On “Gateway Online Management” to display the following interface:



The interface will display all the gateways under the account. It also can export the log to the excel table. On the right is the online rate statistics for the gateway. You can select the enterprise, click "Search" to display the gateway under the enterprise, and the online rate will be displayed on the right.

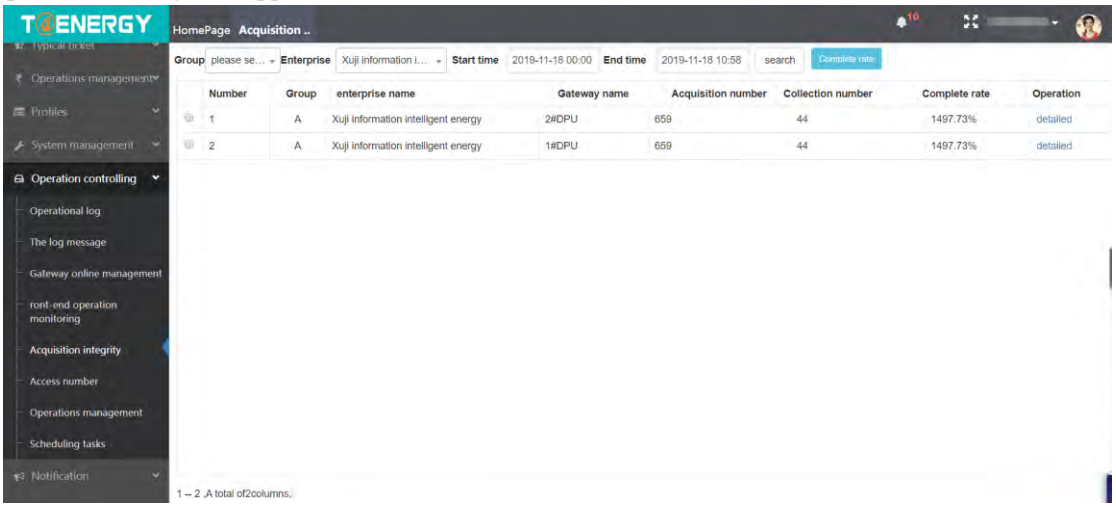
12.3 Front-end machine operation monitoring

On the left you can choose the start time and end time and the server list:



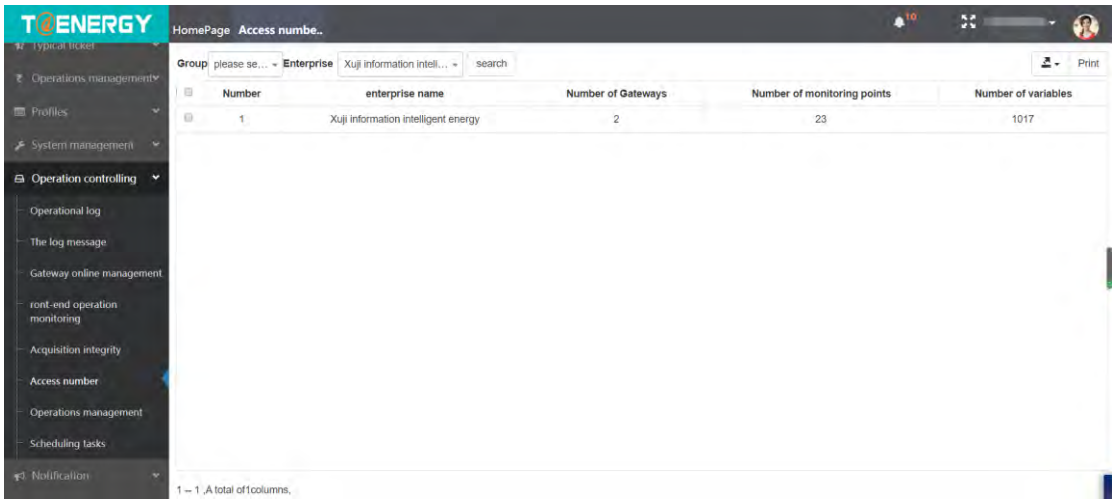
12.4 Acquisition integrity

Statistics on the gateway data collection of an enterprise, the corresponding number of acquisitions and the actual collection number are compared. If there is any missing mining, click “complement mining” to supplement the data.

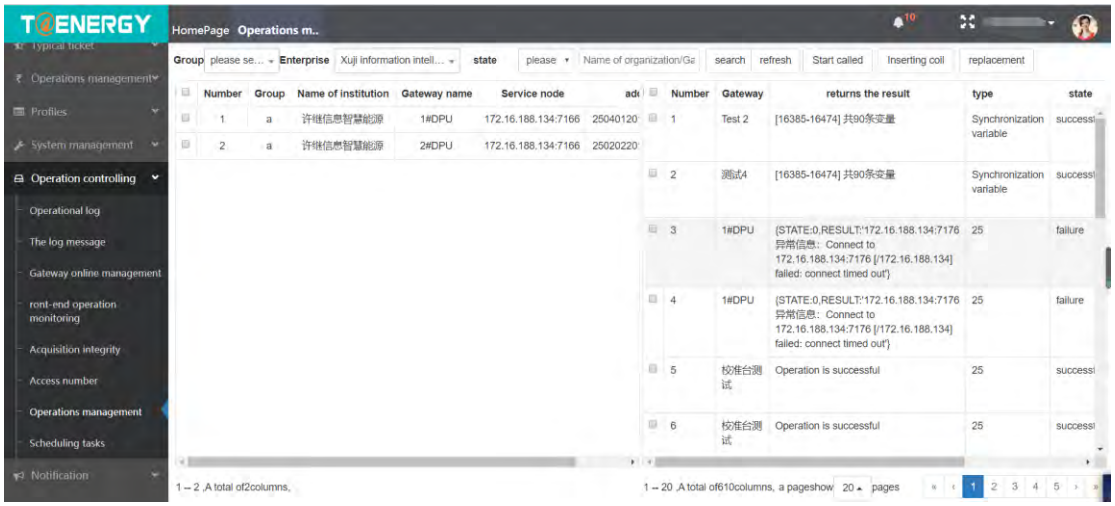


12.5 Access number

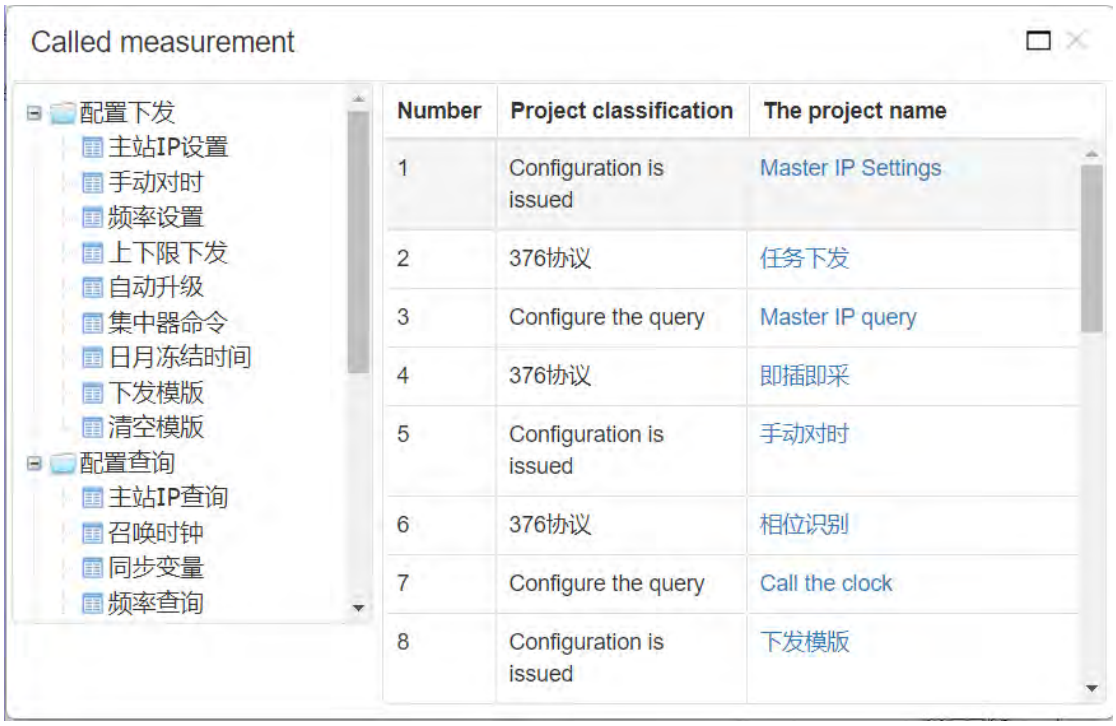
Display the gateway numbers, monitoring points numbers, and variables numbers under the account.



12.6 Operation management



The right side shows the online gateways after choosing the enterprise. Select the online concentrator and click “Start Called”, the following interface appears:



1、1. “Configuration Query” includes: main station IP query, summoning clock (gateway), synchronization variable, frequency query, gateway version.

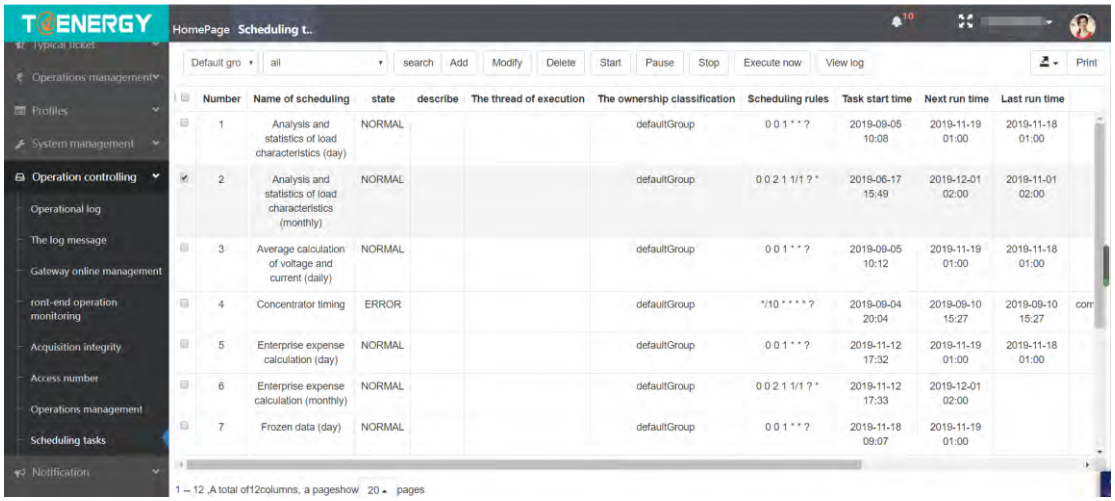
2、“Historical record” includes: event record, minute record, daily frozen history data, and monthly frozen history data.

3、"issued Configuration": master IP settings, manual time setting, frequency setting, delivery template, empty template, upper and lower limit delivery, automatic upgrade, concentrator command, daily and monthly freezing time.

The gateway can be operated as above according to the requirements.。

The right side is the Operation log. It can clearly display the various operations and operation results of the selected gateway. For a single log record, you can also click “Reissue” to reissue the interrogation command. And the "downline" function can make the online gateway offline.

12.7 Scheduling Tasks



The current task is the monitoring task of the data acquisition subsystem, and can also add, modify, delete, start, pause, suspend the task, and view the log for a certain task.

13 My concerning

This module is mainly for the device assigned to the specified user in the user management. The super management login will display all the devices under the enterprise, and the ordinary users will display the assigned devices.