



# Acrel-5000

Energy Consumption Online  
Monitoring System

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PART ONE

# Overview

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Acrel-5000 energy consumption online monitoring system realizes real-time online monitoring, visualized management and statistical analysis of building energy efficiency by installing energy metering devices such as power meters, water meters, gas meters and other meters in the building, adopting remote transmission and other means of real-time collection of energy consumption data, dynamically displaying the level of energy consumption in the building and the trends in energy consumption, which guarantees reliable, safe, economical and efficient use of energy in the building.





# PART TWO

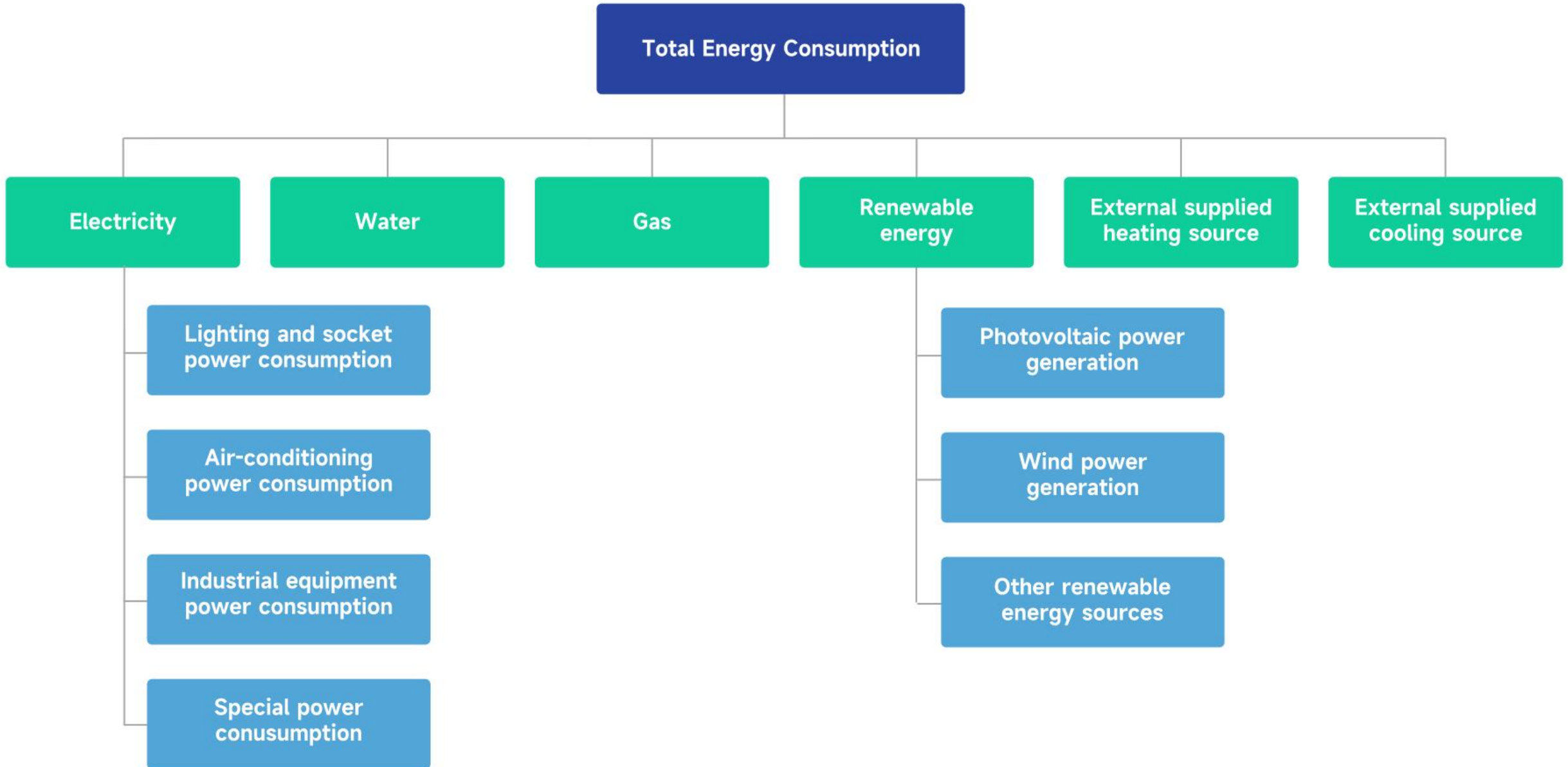
## Energy Consumption

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## Classification



# Energy Consumption Classification





# PART THREE

## System Structure

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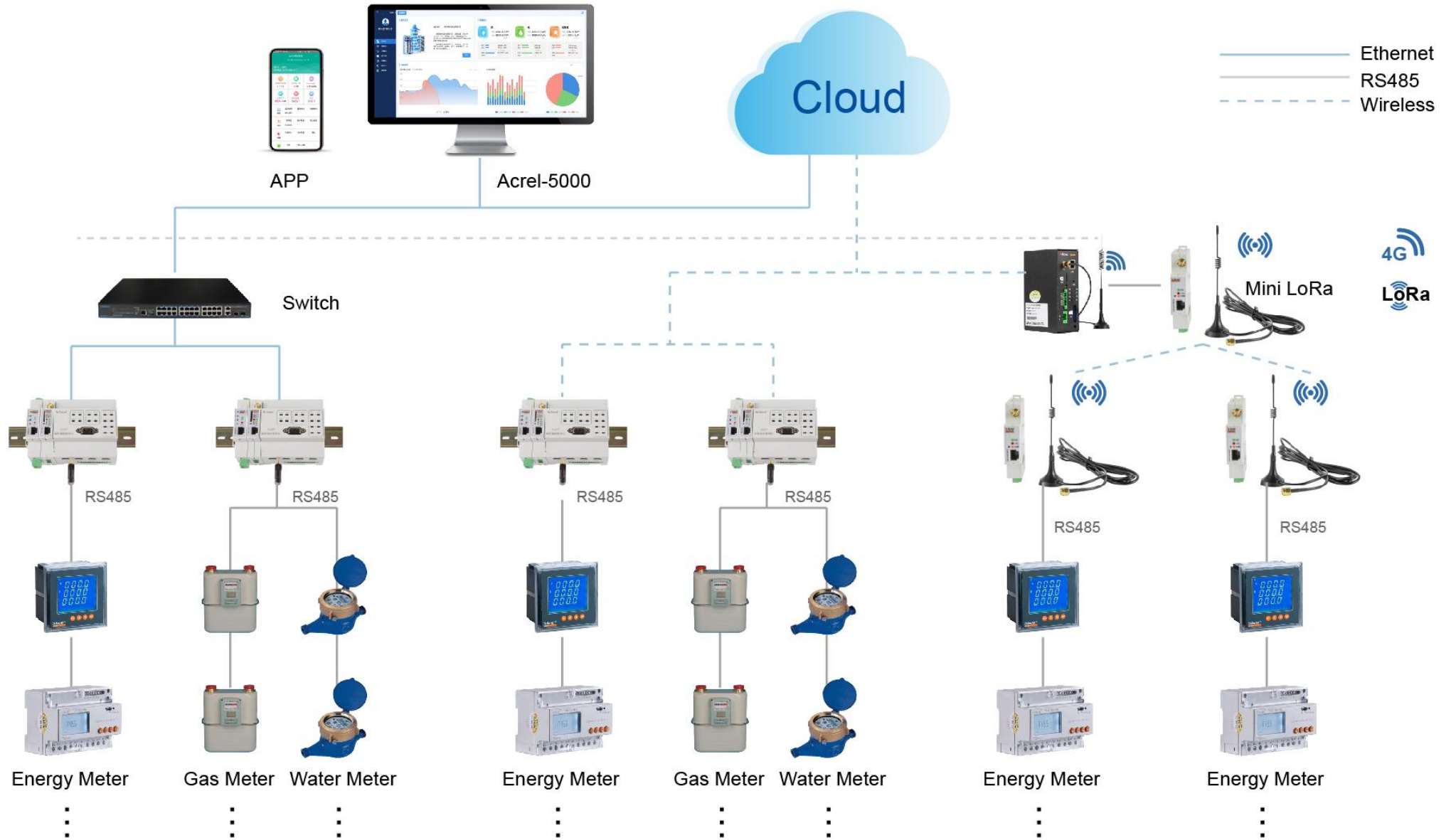
# System Structure



System Layer

Communication Layer

Measurement Layer





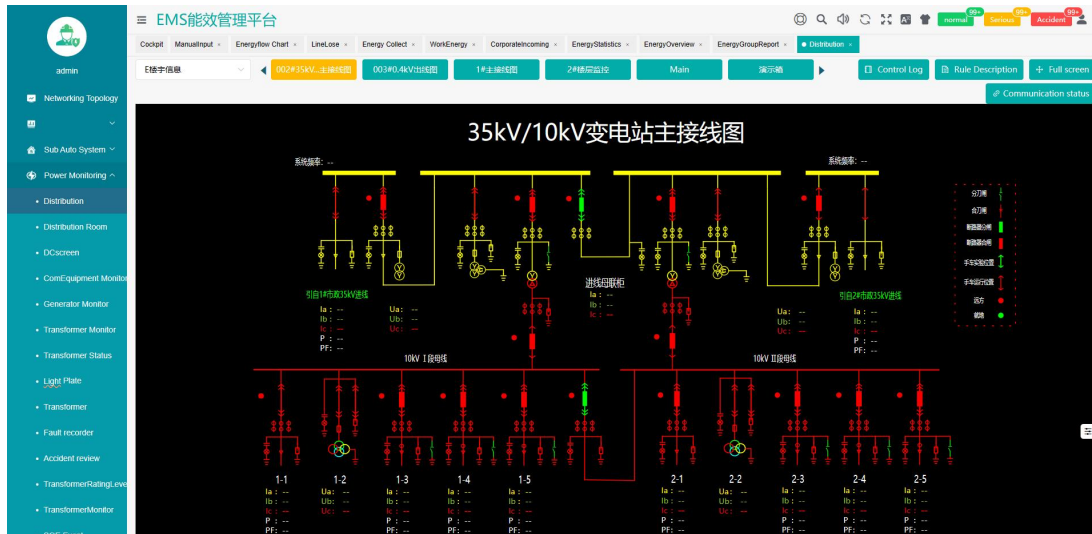
# PART FOUR

## System Function

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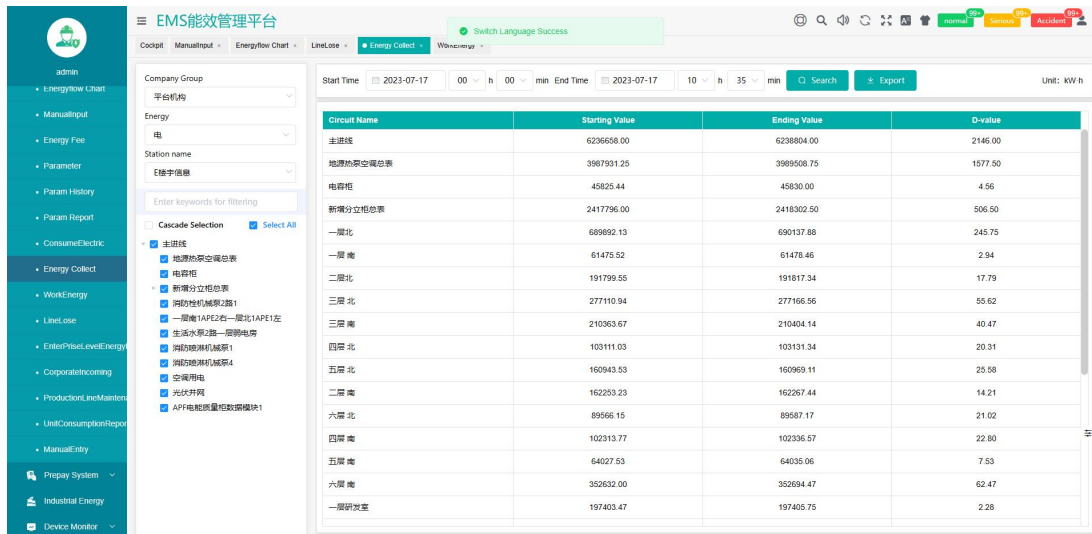


# System Function



## Real-time Monitoring

Real-time monitoring of various energy consumption data, providing functions such as historical parameter query and reading energy consumption datasets reading;

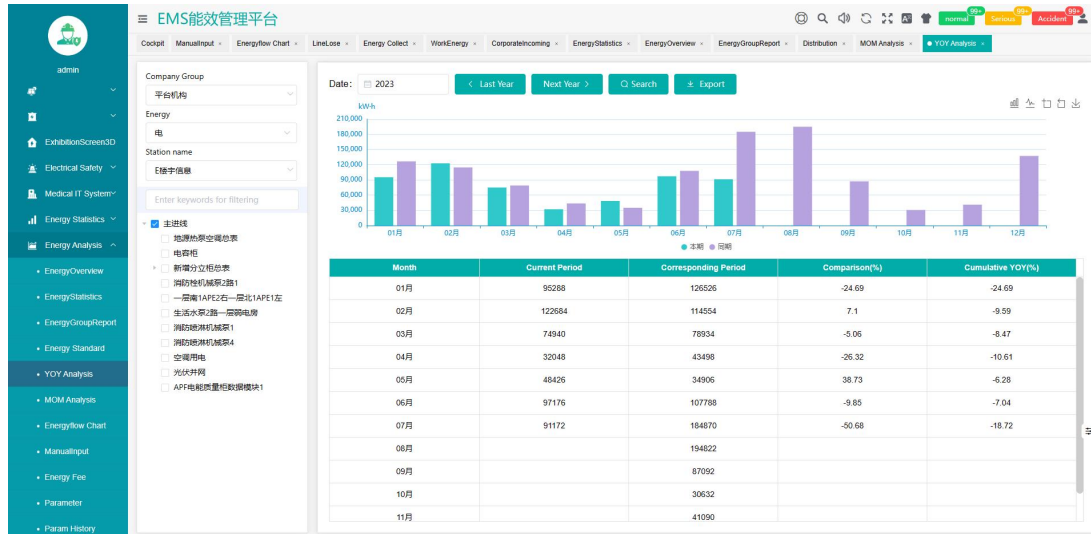


## Energy Consumption Statistics

Perform hourly, daily, monthly, and yearly statistics on various types of energy consumption data, and provide statistical functions such as energy consumption per unit area, energy consumption per unit air-conditioning area, and per capita energy consumption. The statistical results can be displayed in the form of curves, bar charts, pie charts, and other graphical or report forms, and export and print functions are provided;

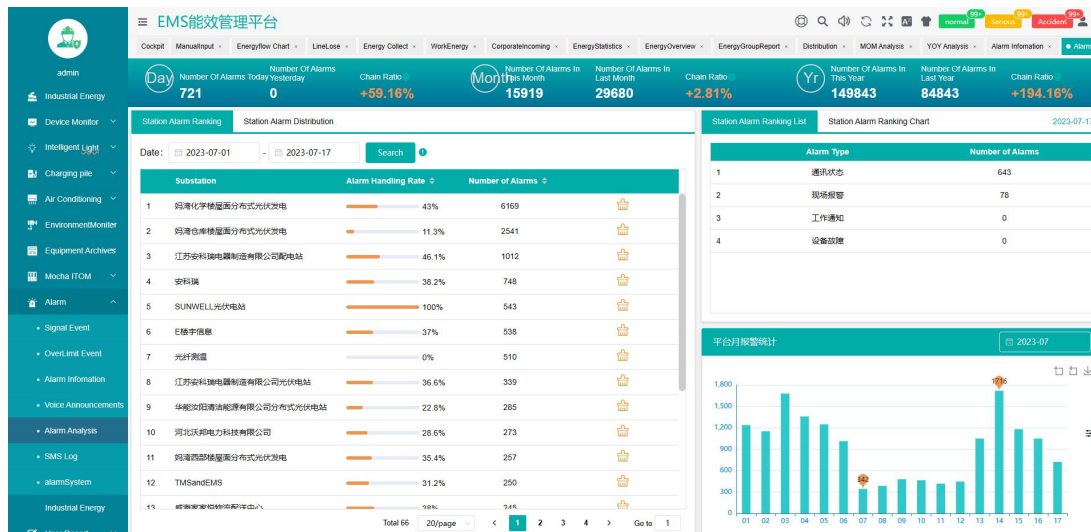


# System Function



## Energy Consumption Analysis

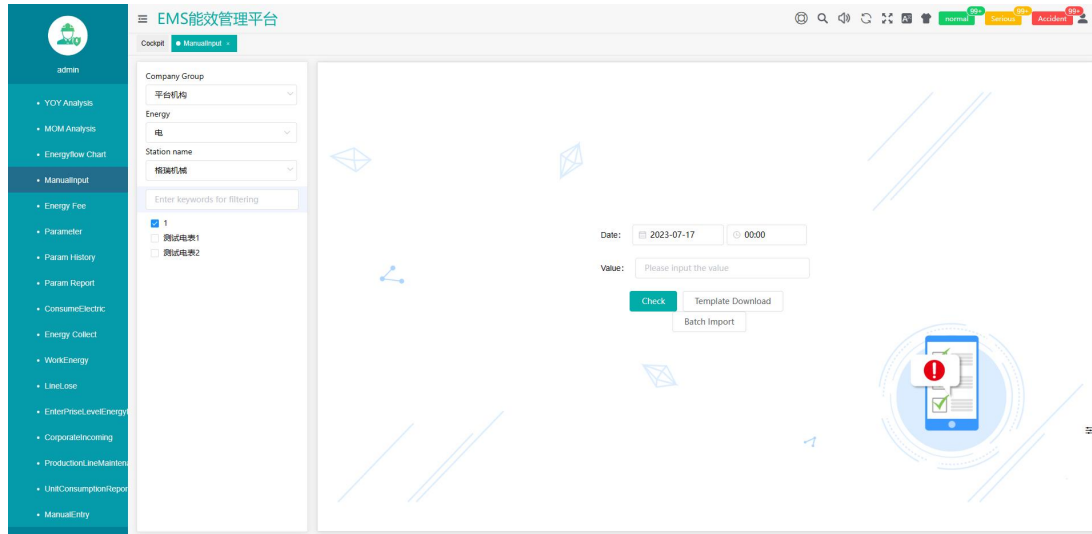
Statistics of energy consumption data according to time, area, equipment, energy consumption category and other dimensions, combined with year-on-year analysis, month-on-month analysis, day/night energy consumption analysis, workday / holiday energy consumption analysis and other means of analysis, to assist users in tapping energy saving potential;



## Energy Consumption Alarm

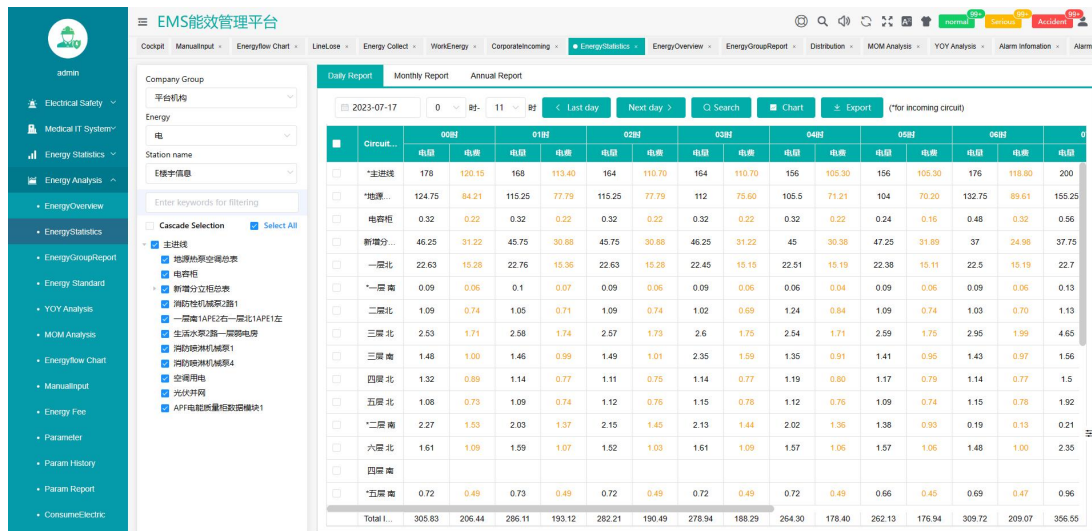
Real-time monitoring of energy consumption of a certain equipment or area, alarming abnormal energy consumption according to preset alarm conditions, alarm information can be timely pushed to the administrator through SMS, E-mail or mobile client software (APP);

# System Function



## Manual Input

Provide manual input function for energy consumption data that does not facilitate automatic collection;

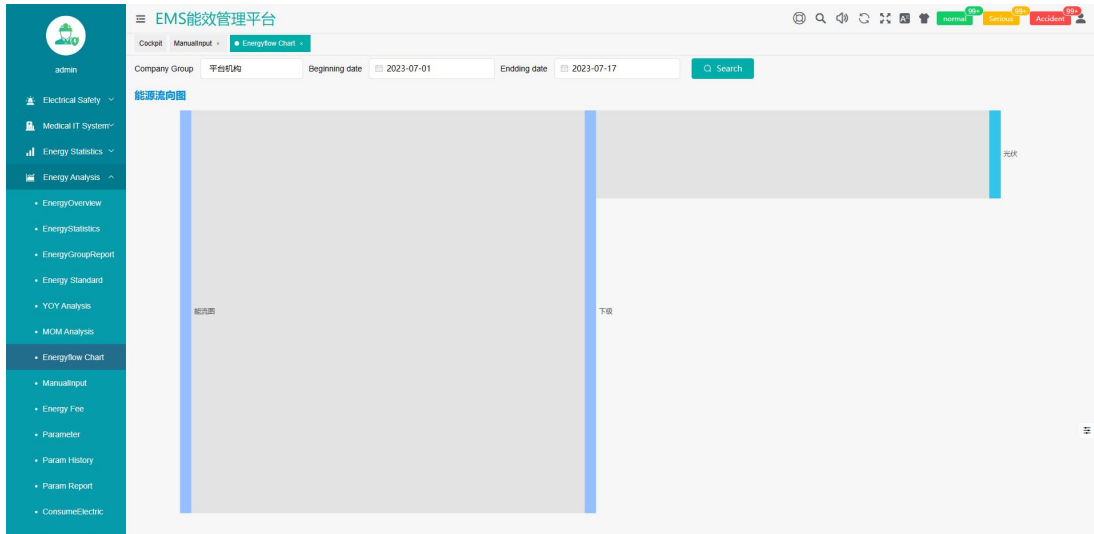


## Energy Billing

Provide statistical reports on energy costs, support the statistics of electricity cost according to unitary electricity price or multiple rates;

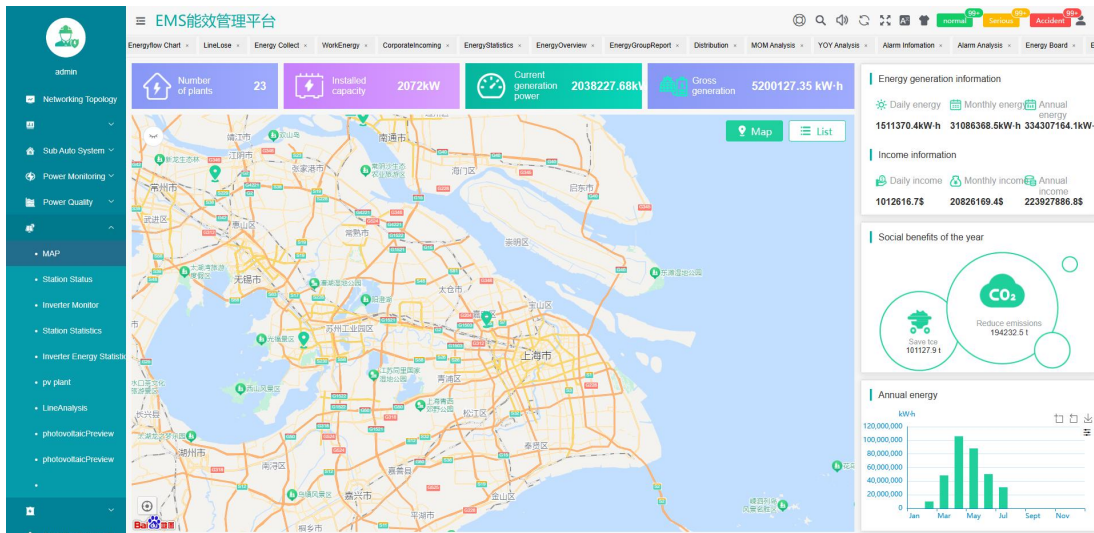


# System Function



## Energy Flow Diagram

Visually display the classification, composition, and proportion of energy consumption in the form of a Sankey diagram, reflecting the balance relationship between energy input and distribution and transportation;



## Renewable Energy Statistics

Statistics on the power generation of renewable energy such as distributed photovoltaics and wind power;

# System Function



## Carbon Emission Monitoring

Statistics on the carbon emissions generated by systems such as HVAC, domestic hot water, lighting, and elevators during the operational phase of buildings;

The table displays energy consumption data for various circuit branches. The columns are: Circuit Name, Current Branch Energy Consumption(kW h), Total Energy Consumption of Lower Branches(kW h), the Difference(kW h), and Percenta... (Percentage).

Circuit Name	Current Branch Energy Consumption(kW h)	Total Energy Consumption of Lower Branches(kW h)	the Difference(kW h)	Percenta...
主进线	2412	10150.13	-7738.13	-320.82%
地源热泵空冷总表	1800	0	0	0
电焊机	5.2	0	0	0
新增分压柜总表	546.25	578.49	-32.24	-5.90%
一层北	269.54	0	0	0
一层南	3.56	0	0	0
二层北	21.84	0	0	0
三层北	66.81	0	0	0
三层南	47.68	0	0	0
四层北	24.08	0	0	0
五层北	31.72	0	0	0
二层南	14.67	0	0	0
六层北	23.74	0	0	0
四层南		0	0	0
五层南	8.07	0	0	0
六层南	62.8	0	0	0
一层研发室	3.98	0	0	0
二层北-AEW	0	0	0	0

## Data Review

Review the collected data, review whether the data itself or changes in the data are in line with reality, and ensure that the increase/decrease, and high/low changes in the data are within a reasonable range and are logical;



# PART FIVE

## System Features

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## Easy Access

Browser and mobile APP access;

## Convenient Networking

Supports wired and Lora wireless data collection, supports Ethernet wired upload, 4G wireless upload;

## Fully Compatible

The collector also provides RS-485, M-bus, and Ethernet interfaces, supporting the collection of data from various water, electricity, gas, and cold (heat) meters through protocols such as Modbus, DL/T 645, CJ/T 188, Q/GDW 376.1, DL/T698.45, etc;

## Safe and Reliable

Energy consumption data is encrypted during transmission in case of network failure, the data can be saved in the on-site intelligent gateway, and the data can be transmitted after network recovery;



# PART SIX

## Typical Hardware

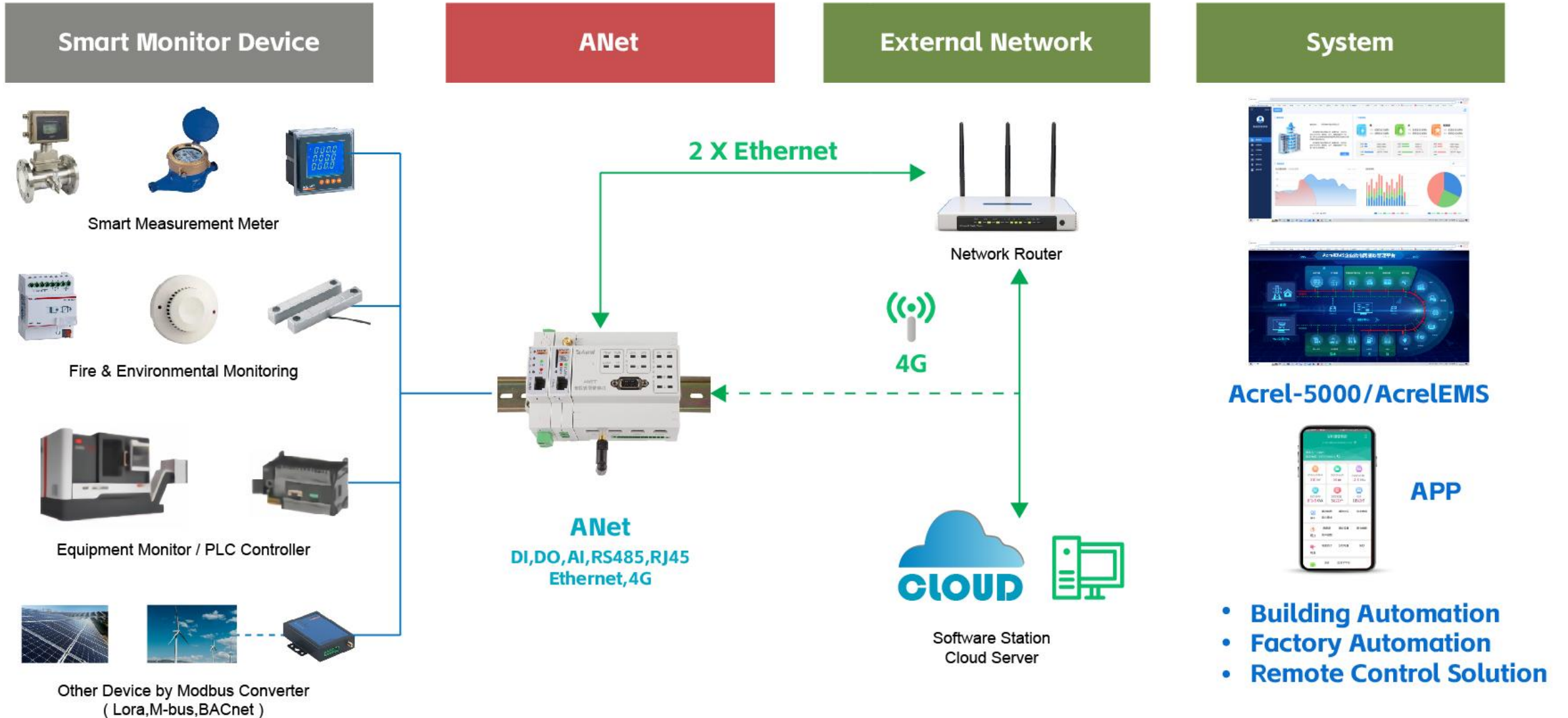
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# Typical Hardware



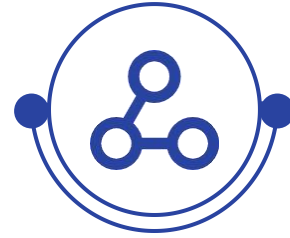
## ANet Series Smart Gateway





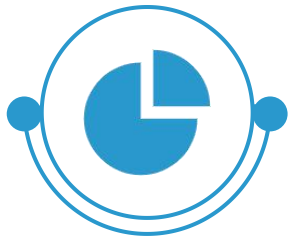
## Data Collection

Support Modbus-Rtu、Modbus-TCP、IEC 103、IEC 104、CJ/T 188、OPC UA、BACNet IP protocols;



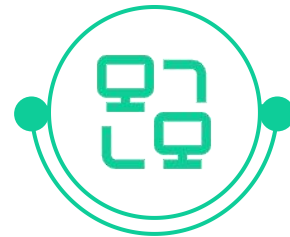
## Data Storage

Maximum support for 32G data storage;



## Data Transmission

Support Modbus-TCP、IEC 104、MQTT、HTTP、XML/JSON protocols;



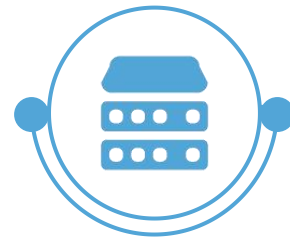
## Remote Management

- Remote configuration;
- On-line monitoring;



## Data Processing

- Hierarchical alarms;
- Data encryption;
- Data compression;
- Mathematical operation;
- Logical operation;



## Hardware Performance

- ARM processor;
- Embedded Linux operation system;
- Support up to 16 RS-485;
- Support up to 2 network ports;
- Support Lora wireless interface;
- Support 4G;



# PART SEVEN

## Typical Cases

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Typical  
Cases



AMOREPACIFIC



Inventec



Panasonic

B|BRAUN

SHARP

EAT•N

DENSO







THANK YOU