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Company Profile



Acrel Electric Co., Ltd. (stock code: 300286) was established in 2003. It integrates R&D, production, sales and service. It is a high-tech joint-stock enterprise that provides energy efficiency management and electricity safety solutions for enterprises.

The company has a product ecosystem ranging from cloud platform software to terminal components. At present, there are more than 10,000 sets of system solutions running all over the country, escorting users' efficient and safe energy use. The company deploys sales and technical support teams in major cities across the country to respond quickly to customer needs and provide users with a good service experience.

Business Background

Since industrialization, the global surface temperature has been on an upward trend, which has had a serious impact on the global ecosystem, socioeconomic environment and human living environment. In this context, it is imperative to achieve the "dual carbon" goal.



Many provinces and cities have carried out electricity price reforms, and enterprises in many regions have been directly affected by power outages and shut down production, and public facilities in some areas have been shut down. Master the electricity usage

Understand the electricity consumption of floors, areas, and terminal equipment in each period Improve power supply structure

Solutions

Access to new energy power supply to cut peaks and fill valleys

Which areas, which devices, and which time periods can be turned off

Create an energy saving plan

Screen out equipment with lower energy efficiency levels for upgrade and replacement

Eliminate outdated equipment

System Meaning



Digital Visualization

The system can collect various data of protection devices such as power distribution cabinets and switch cabinets and measurement monitoring devices, and can display the operating status, instantaneous value and historical value of any circuit on the platform interface, so that electricity can be seen.



Statistical Analysis of Data

Count the electricity consumption of each circuit and each time period, analyze and predict the trend of each power parameter curve, and automatically generate a comparison and analysis report of the day, month, and year cycle.



Develop an implementation plan

Organized and targeted management and control of electricity consumption, eliminate outdated and outdated equipment, connect to new energy power generation, and reasonably improve the power supply structure.

System Advantage

Beautiful interface

- ✓ Overall design
- ✓ Unified style
- ✓ Modern aesthetics

Alarm classification

- ✓ Filter out important information
- ✓ Select a subscription
- ✓ Artificial confirmation

Convenient and extensible networking

- ✓ 485 interface
- ✓ Lora interface
- ✓ Extension module

Prefabricated report

Reports

✓ Export EXCEL

✓ Prefabricated Standard

Easy and flexible deployment

- ✓ One-click deployment
- ✓ Cross-platform
- ✓ Windows
- ✓ Linux

Easy access

Stable and reliable data

Open source free

- ✓ Browser access
- ✓ Mobile App access
- ✓ Pad access

- ✓ Breakpoint continuingly
- ✓ Continuous data
- ✓ Power outage alarm

- ✓ Operating system free
- ✓ Database free
- ✓ Other tools are free

System Introduction



Acrel-3000WEB power management system can collect all kinds of power parameters in the middle and low voltage switch cabinet, floor distribution box, comprehensive protection device installed in the end power cabinet, embedded multi-functional instrument, guideway multi-functional instrument, wireless Internet of things instrument. The system provides real-time online monitoring of power consumption data, fault alarm, remote control, energy consumption statistics, energy efficiency analysis and other functions. It is stable and reliable, easy to access, friendly interface and so on. It can meet the needs of comprehensive power management in various application scenarios of enterprises, hospitals, universities, large public buildings and so on.

System Structure





Function Overview

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Acrel-3000WEB power management system



1. Interface configuration

Various real-time monitoring interfaces (such as power transformer and distribution main wiring diagram) can be prepared according to site conditions. Data on the interfaces can be updated in real time to respond to telemetry out-of-limit and telemetry shift.

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2. Real-time monitoring

The system can monitor the power consumption parameters of each power distribution loop, main power supply and distribution equipment, key power consumption equipment and main power consumption area in real time.





3. Remote control

The system can realize the remote opening and closing control of circuit breakers and switches, and the operation needs two levels of verification to avoid unauthorized or misoperation.

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4. Fault alarm

The system can realize the over-limit alarm of all kinds of telemetry values such as overvoltage, undervoltage and overcurrent, as well as the remote signal displacement alarm of switch, water immersion and smoke, and the alarm information can be classified and displayed.



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5. Data query

The system periodically stores all kinds of historical telemetry data such as voltage, current, power, electric energy and harmonics. The data can be queried on any day and displayed in charts and tables. The data can be exported.

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6. Statistical analysis

It can perform extreme statistics on telemetry data, and calculate the maximum, minimum, average and occurrence time of voltage, current, power and other electrical parameters by day and month. The daily, monthly and annual electricity consumption of each distribution circuit, distribution area and electrical equipment are counted, and the same monthly analysis is made. According to the peak pinggu statistics of electricity and electricity.



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	二层市	2021-02-22	08:18		12:40	-3.25				-1.79	12:40		8.86	
	384	2021-02-22	08.47			4.86		11.55	09.29	-1.21	08:47	00:19	6.05	
	DE 1	8 2021-02-22	18:48		07-17	1.55		08:46	18:39	-0.47	18:48	09:57	2.04	

7. Access control

Batch grant menu permissions based on roles, which can allocate accessible substations according to users, so that users can only access the data of specified substations.

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8. Data forwarding

Data can be forwarded to third-party systems through modbus-TCP, 104, MQTT and other protocols.



9. Video monitoring

Support fluorite cloud, Le Orange Cloud video access (through the Internet)



Hikvision camera can be directly connected to the platform (through the Intranet)

Both can be connected to the camera or hard disk video recorder, camera live broadcast, playback and control.



APP Function



APP Function



Typical Hardware





ANet Communication Management Machine

- Facilitate later expansion
- Strong performance, reduce server pressure
- Support protocol enrichment
- Multi-platform forwarding
- Linkage control
- Breakpoint continuingly



Typical Hardware

APM810 intelligent monitoring meter



Harmonic analysis up to 63 times, electric energy measurement accuracy up to 0.5s, support for voltage deviation, voltage swell and sag, and wave recording. Installed in the twoway 10kV mains incoming line of the energy center, it monitors the voltage harmonic distortion rate and the current harmonic content rate of each station online to meet the user's harmonic monitoring and static power quality assessment.

Main Feature:

Real-time monitoring: current, voltage, frequency, power factor, active power, reactive power, apparent power

Electric energy metering: four-quadrant active energy, reactive energy, apparent energy

Pulse output: active and reactive energy pulse output

Demand monitoring: real-time demand, maximum demand for active, reactive, and apparent power

Power quality: voltage, current unbalance, harmonic distortion rate, 2~63 harmonic content rate

Data recording: voltage, current, power maximum, minimum statistics, sequential event recording

Open in and open out: Standard 2-way digital input (optional 8-way), 2-way digital output

Communication: RS485 interface, MODBUS-RTU communication protocol, Ethernet port optional

Display: LCD

Installation method: embedded

Installation location: switch cabinet, power distribution cabinet

Usage: power quality, power metering

Typical Hardware



DTSD1352 Rail type meter

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This series of products is small in size and can be installed on rails. It can measure electric energy and other electric parameters, and can set parameters such as clock and tariff period. High precision, good reliability, and performance indicators meet the technical requirements of the national standard GB/T17215-2002, GB/T17883-1999 and the power industry standard DL/T614-2007 for electric energy meters.

Tesh	nicel Decemptor		Model							
Tech	mical Parameter	DDS1352	DDSD1352	DTSD1352						
Voltage Input	Rated voltage	22	DV	3×57.7/100V 3×220/380V 3×100V 3×380V						
	Reference frequency	50Hz								
	Power consumption									
	Input current	10 (60) A	10(60)A , 20 (100) A (-CT)	3×1 (6) A、3×1 (6) A (-CT)、3×10 (80 3×10 (100) A (-CT)						
Current	Starting current	0. 0	direct access: 0.004lb Access via transformer: 0.001							
	Power consumption	<4VA (Sing	le circuit rated current)	<1VA(Single circuit rated curren						
Measuring performance	Standards compliant	GB/T 1721	GB/T 17215. 322-2008							
measuring performance	Active energy accuracy	1	0.5S class							
Dulas	Pulse Width		80±20ms							
Pulse	Pulse constant	3200imp/kWh	1600 imp/kWh 800 imp/kWh	400imp/kWh 6400imp/kWh						
Infrared communication		on None 1200 baud rate, even parity								
communication	Interface									
			Model							
Technic	al Parameter	DDS1352	DDSD1352	DTSD1352						
Communication	Medium		Shielded twisted pair							
communication	Protocol		MODBUS-RTU和DL/T645							
Shape size	Length* Width* Height (mm)	18×88×70	36×88×70	127×88×70						
	Temperature	Operating temperature: -25°C ~55°C Storage temperature: -40°C ~70°C								
Environment	Humidity	≤95% (no condensation)								
	Altitude	<2000m								



Henan XX Lithium Battery Co., Ltd. specializes in the research and development, production, sales and application of lithium-ion power batteries. The division has 8 distribution cabinets with more than 100 points. The problems encountered are as follows:

 The device status cannot be monitored in real time, nor can the power data be obtained in real time.

2. At present, the manual meter reading method is used, and there are many switch cabinets. It takes at least half a day to read the meter once, which is labor-intensive and timeconsuming, and is prone to errors, and the accuracy of the data cannot be guaranteed. Project Background 3. The meter reading time is 0:00 every day, and the meter reading time of the power distribution room and the local cabinet is 9:00. There is a time difference, and it is impossible to accurately grasp the operation of the equipment.

4. Data management is not centralized, and it is impossible to statistically analyze the energy consumption of each workshop, so that energy saving and consumption reduction cannot be better. A set of power background monitoring and metering fee control system is urgently needed.

Typical Case

Client

Demand

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1. Monitor each switch signal, the voltage fluctuation needs to be alarmed, the alarm occurs after the remote signal is displaced, and the alarm can be manually eliminated after recovery.

2. Monitor the voltage and current of each circuit breaker, calculate the power information in real time, and obtain the power related data of time, day, month and year.

3. Data persistent storage for more than 3 years.

generous, highlighting key points, and viewing different permission pages according to levels and positions.

> 5. The page has electrical distribution diagrams, real-time data of electric meters, details of electric energy data, statistics and historical data, alarm information, switch status and other pictures.

4. The software is concise and

Typical Case

Construction

Plan



1. Hardware Installation

Adopt our ANet-2E4S1 gateway and ADW400 instrument.

2. Power Monitoring

Dynamic real-time monitoring of various power parameters and switch states on the primary power distribution diagram.

3. Data set copy

Collect and copy the various power parameters of each point regularly.

4. Customize the electricity
consumption classification report
The electric energy is integrated and
calculated according to the workshop
and the points and processes.

5. Fault alarm

The abnormality or failure can be responded in time, and the alarm can be eliminated manually.

6. Energy Efficiency Analysis The power data is analyzed year-onyear and chain-on-month to achieve the effect of energy saving and efficiency improvement.

Typical Case

Project Value



1. Centralized and orderly power management, more convenient

2. Intelligent automatic meter reading to reduce labor costs

3. Real-time monitoring of equipment operation status, quicker understanding of on-site situation changes 4. Know the equipment abnormality and failure in time, and reduce the electrical failure rate

5. Analysis of energy consumption data, knowing the energy consumption distribution of each time period and each module, so as to effectively manage and achieve the purpose of energy saving and efficiency improvement

Guangxi Duba Expressway

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The project is 120 kilometers long, with 32 tunnels, 4 service areas, 5 toll stations, a total of 59 power distribution rooms, 2,814 devices, and more than 100,000 data points. It adopts ANet communication management meter to collect data and upload to Acrel-3000WEB power management system.



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System Structure

A set of platform software is deployed in the monitoring center, and the data of 59 stations are uploaded to the platform in a centralized manner. In multiple tunnel management stations, the browser can be used to directly access the platform by entering the access address.



Project scale

Acquisition 2900+ equipments Distribution 467 charts Parameter types 300+Alarm types 1000+Data points 10W+

Platform scale

60 ANet-2E8S1 Communication management meters 154 Integrated protective devices AM4-I 17 AM5-B 92 Reactive power compensation controllers ARC-8 92 Multifunction meters PZ96L-E4/HKC амс721-е4/кс 2311 EPS 59 UPS 59 92 Transformer temperature controllers 59 Generator controllers

Field scale

Scenes







Debugging







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Platforms



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Acrel-	3000WEB电能管理系								a C ;;	•
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	发电 UBC	:0.00V	默计	运行次费	文:	欠压报警停机	•	充电失败警告		
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	B 相电流	:0.00A				油压低报警停	ก 📀	系统在手动模式		
	C相电流	:0.00A				水温高警告报		系统在停机模式		
	水温温度值	:30.00°C								
	油量	:85.00								
	车在30 0	:0.00								
	有功功率	:0.00kW								
	无功功率	:0.00kVar								
	视在功率	:0.00kVA								



Training delivery









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The highway is long and narrow, The distribution distance of substation is very far;

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There are many types and quantities of monitoring devices, including high and low voltage power distribution equipment, generators, transformers, UPS, EPS, lighting and so on.

There are many transformer and distribution stations, including tunnels, toll stations, service areas and box transformer substations along the line.

Large Projects

Project value





Unattended, automatic management

Real-time distributed monitoring and centralized management of substations and equipment to realize unattended operation, improve automation management level, and reduce operation and maintenance costs of electromechanical equipment.

Understand operation, energy saving and emission reduction

Timely access to the operation of on-site equipment, statistical analysis of energy consumption, so as to effectively manage and formulate energy saving plans and measures.



Reduce hidden trouble, stable operation

The potential electrical hazards and anomalies can feed back alarms in real time, and the inspection personnel can know and deal with them in time, so as to reduce the electrical failure rate, ensure the stable operation of power supply and distribution system, and ensure the stable operation of expressway communication, toll collection and monitoring system.

Other Cases



- Shanghai Fusuke • Industry
 - Machinery Industry Sixth Design Institute
- Suzhou Huayan Aerospace Electric
- Vitality Forest Drink

ි Buildings

- Shanghai Compulsory Medical Center

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- Yichang Real Estate **Investment Building**
- Jincang Wenhua Building

ි Large public buildings

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- Liunan •
 - Expressway
- Guizhou Jade • Expressway
- Chongqing • Banan to Qijiang
- highway

୰ୖ Data center

- Guizhou GUI • 'an China Mobile phase ٠
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1. Can it be embedded or connected to other third party platforms?

Answer : Yes, it is acceptable to provide technical documentation for the unified login authentication interface.

2. Can it be connect to other third-party devices?

Answer : Yes, any standard protocol (Modbus) can be accessed, but in addition to the basic parameters maintained by the platform, other additional parameters of third-party devices only support one-time graph display and alarm, and there is no historical data query function.

3. What factors affect the real-time change rate of data?

Answer : It is related to the amount of meter access and parameter collection. The more the number, the slower the change.



Answer : Yes, the server needs to fix the intranet IP, then the mobile terminal device is connected to the local area network WIFI, open the APP, enter the server intranet IP and account password, and then it can be used. However, the APP alarm function is affected by the network environment. If the server network can access the external network, the APP alarm can be supported, otherwise it is not supported.

5、 Can SMS notification be used in localized deployments?

Answer : If the server network can access the external network, you can use the Jiguang, Alibaba Cloud, and Tencent Cloud SMS solutions; if you can only access the internal network, you can only use the SMS cat solution.

Access Method





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Website: http://ems.acrelcloud.cn

Account: guest

Password: 123456





