Aulanbel Energy Co., Ltd.
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Aulanbel is a enterprise specializing in the R&D and system construction of the full industry chain of electrochemical energy storage, the R&D, production and sales of EV chargers, the construction and operation of charging stations, the construction of battery-swap electric heavy-duty truck stations, the R&D and sales of energy storage core control system (BMS) and comprehensive energy big data business.

After years of exploration and pursuit, Aulanbel has formed a R&D and production-pattern of "one center and three bases". We have two wholly-owned subsidiaries and two holding subsidiaries. Aulanbel is headquartered in Hefei High-tech Zone Huoqiu Modern Industrial Park, has a strong comprehensive strength in R&D of storage and charging technology and system engineering construction.

Aulanbel has a professional core technology research and development team, signed a long-term industry-university-research agreement with universities,and has a high-tech and solid talent reserve. Successively applied for and authorized 6 national invention patents, 52 utility model patents, and obtainedmore than 10 relevant qualifications and awards. Many achievements are leading in the country and industry.

Based on the two core businesses of "storage and charging technology R&D" and "storage and charging system engineering construction", Aulanbel has the domestic first-class core technology in the field of storage and charging and the general contracting qualification of power construction. We are a leader in domestic system suppliers in the fields of energy storage, EV charging station, and BS electric heavy-duty trucks.

TECHNICAL QUALIFICATIONS

HISTORY

2020

Obtained the qualification for power construction in 2020. The 13MWh solar-storage- charging micro-grid project of Anhui Suixi Bus Station undertaken by the company was selected for the "Smart Photovoltaic Demonstration Project" by the Ministry of Industry and Information Technology of the People's Republic of China.

2020

Obtained ISO9001 Quality Management System, ISO14001 Environmental Management System, and ISO450001 Occupational Health and Safety Management System certification in 2022.

2020

In 2020, Aulanbel developed and constructed comprehensive energy applications for coal mining enterprises, completed products such as mobile charging trucks and emergency power supplies, and built the first shared energy storage demonstration project in Lu'an City and the Shandong mine emergency power supply demenstration project.

2021

In 2021, the Lithium Battery Management System (BMS) passed the testing and certification of GB/T 34131-2017" technical standard for battery management system of electrochemical ennergy storage station " of Shanghai Testing & Inspection Institute for Electrical Equipment Co. Ltd (STIEE).

2021

In 2021, 10 patents applied by Aulanbel were successfully issued。

2021

In 2021, Aulanbel 160 kW DC double-gun charging station became one of the first batch of standardized products of the State-Grid's "six unifications".

2022

In August 2022, a joint laboratory was established with Hefei University of Technology.

2022

The Huoqiu base has officially been put into operation in August 2022.

2022

Recognized as a national high-tech enterprise in 2022.

2023

In April 2023,the Jinchang Base in Gansu Province was officially put into operation.

2023

Liquid cooling products officially went offline in March 2023.

PRODUCT OVERVIEW

Energy Storage System

System Model: XINGXI-5000- (1086-1460)

Product Type: 45ft 5MWh Battery Energy Storage System Container

System Features: Peak valley regulation, photovoltaic absorption, distribution power reduction, demand side response, and various grid auxiliary services.

Product Features:

1.Supports 1500V DC voltage, with a comprehensive efficiency of over 86%

2.High-density, large-capacity ESS; high-safety LFP energy storage cells with up to 8000 cycles and a service life of over 15 years; reliable BMS, patented software algorithm to ensure reliable operation of equipment; modular design, easy installation and maintenance.

3. Intelligent human-machine interface, real-time monitoring, easy to operate.

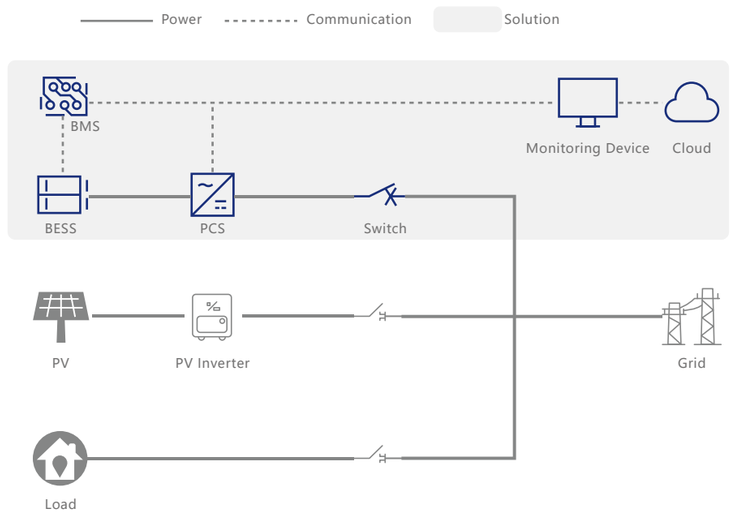
4. Intelligent temperature control system, which is not affected by the external environment.

5. Automatic security system, perfluorohexanone fire extinguishing, fully submerged, safe and reliable, quick response.

6. Multi-functional local EMS, comprehensive energy complementary scheduling.

7. Multi-terminal remote cloud server monitoring.

Topology Diagram:



Model	XINGXI-5000- (1080-1460)
Rack Configuration	2 groups, 7 racks per group
Cell Type	LFP
Cell Capacity	280Ah
Cell Max. Continuous Charge & Discharge	0.5C
Cell Configuration	400S7P*2
Nominal Capacity	2508kWh*2
Nominal Voltage	1280V
Voltage Range	1080V~1460V
Operating Temperature Range	-30℃~50℃
Storage Temperature Range	-30℃~55℃
Max. Working Altitude	4000m
Battery Temperature Control Method	Industrial grade air conditioning
Fire Fighting System	FM-200 Fire Fighting System
Communication Interface	Ethernet
Communication Protocol	ModbusRTU/Modbus TCP/IEC104
IP Level	IP55
Dimensions (W × D × H)	13716×2438×2896 mm
Weight	≈55T

PRODUCT OVERVIEW

Energy Storage System

System Model: XINGHUI-3096- (1080-1460)

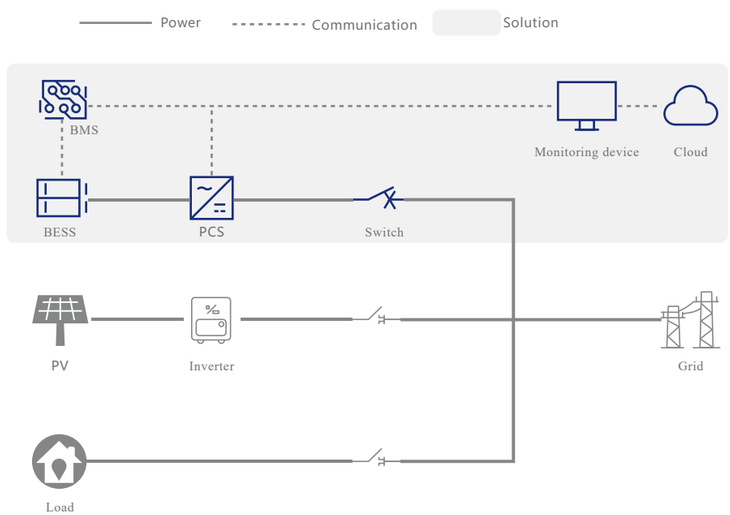
Product Type: 20ft 3MWh Liquid Cooling Energy Storage System

System Features: Peak valley regulation, photovoltaic absorption, distribution power reduction, demand side response, and various grid auxiliary services.

Product Features:

1. High-safety LFP energy storage cells with up to 8000 cycles and a service life of over 15 years.
2. Reliable BMS, patented software algorithm to ensure reliable operation of equipment.
3. Air conditioner + liquid cooling temperature control system is adopted. The air conditioner is used for the temperature and humidity control and management of the cabin environment, and the liquid cooling temperature control system is used for battery temperature control; equipped with multiple fire safety protection systems, which realize the temperature monitoring of the battery level to the PACK level automatic fire extinguishing function.
4. The whole cabin is equipped with a triple protection system of PACK level immersion fire extinguishing, full immersion heptafluoropropane fire extinguishing system, and fire sprinkler system.

Topology Diagram:



Model	LFP-1228.8V-3096.576kWh
Rack Configuration	9 racks
Cell Max. Continuous Charge & Discharge	0.5C
Nominal Energy	3096.576kWh
Nominal Voltage	1228.8V
Voltage Range	1080V ~ 1460V
Operating Temperature Range	-30°C ~ 50°C
Relative Humidity	0 ~ 95% (non-condensing))
Max. Working Altitude	4000m
Battery Temperature Control Method	Intelligent liquid cooling temperature control system
Communication Interface	Ethernet
Communication Protocol	ModbusRTU/Modbus TCP/IEC104
IP Level	IP55
Dimensions (W × D × H)	6058mm×2638mm×2896mm
Weight	≈32T

PRODUCT OVERVIEW

Commercial & Industry Energy Storage System

System Model: XINGXI-100/215-380

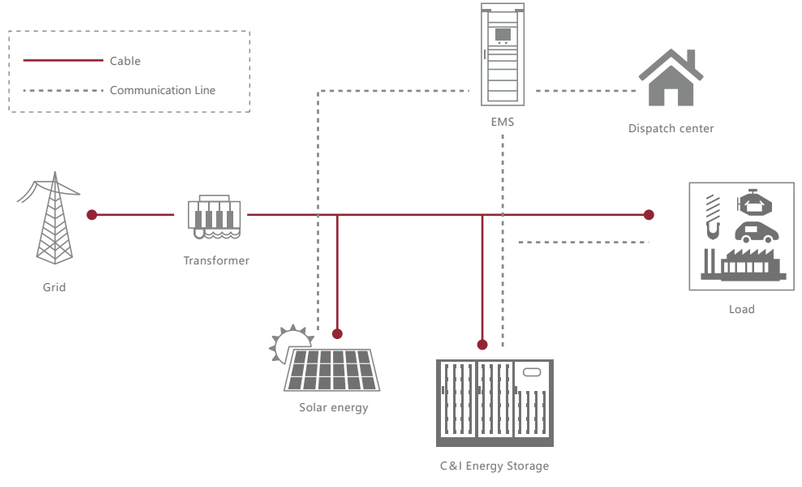
Product Type: 100kW/215kWh All-in-One Battery Energy Storage System

Usage scenario: Outdoor cabinet energy storage system serves small industrial and commercial users, mainly suitable for various occasions such as power storage, backup power supply, peak load shifting,

Product Features:

1. Integrated with PCS, battery, BMS, EMS, thermal management, power distribution, and fire protection.
2. Adopting a single string design to achieve parallel zero capacity loss.
3. Integrated harmonic control, reactive power compensation, and three-phase imbalance control.
4. Supports direct parallel connection of multiple cabinets to realize energy storage system expansion and plug-and-play.
5. Adopting high-power air conditioning for heat dissipation.

Topology Diagram:



Model	XINGXI-100/215-380
Max. System Power	100kW
Nominal Output Voltage	400Vac,3W/N+PE
Max Continuous Output Current	145A
Nominal Frequency	50Hz/60Hz±2.5Hz
Noise	≤75dB
Cooling	50Hz/60Hz±2.5Hz
Charge and Discharge Efficiency	>88%
Communication Interface	LAN/CAN/RS485/4G
Fire Suppression System	Perfluorohexacone/Heptafluoropropane fire extinguishing system
Enclosure Protection	IP55
Operating Temperature	-30°C~60°C
Dimensions (W × D × H)	1704mm×1204mm×2632mm
Storage temperature range	-30°C~55°C
Weight	2.8T

PRODUCT OVERVIEW

Commercial & Industry Energy Storage System

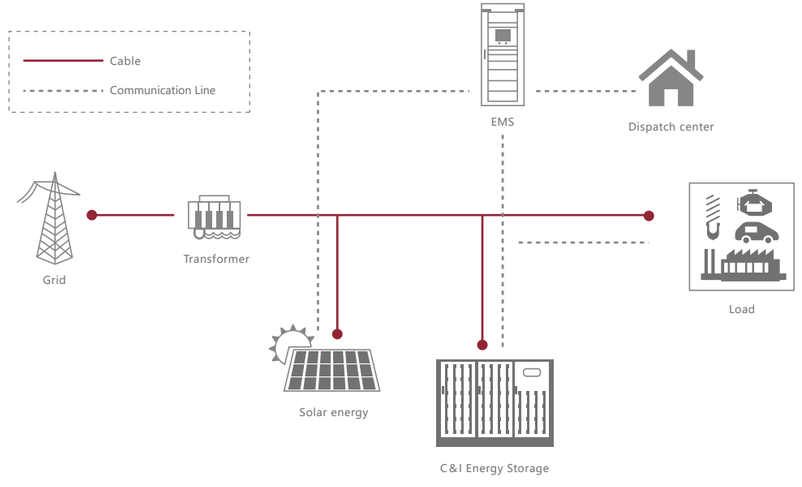
System Model: XINGHUI-100/215-380

Product Type: 100kW/215kWh Liquid Cooling Commerical Energy Storage System

Usage scenario: Outdoor cabinet energy storage system serves small industrial and commercial users, mainly suitable for various occasions such as power storage, backup power supply, peak load shifting, peak shaving, frequency regulation, and microgrids.

Product Features:
1.Integrated with PCS, battery, BMS, EMS, thermal management, power distribution, and fire protection.
2.Adopting a single string design to achieve parallel zero capacity loss.
3.Integrated harmonic control, reactive power compensation, and three-phase imbalance control.
4.Supports direct parallel connection of multiple cabinets to realize energy storage system expansion and plug-and-play.
5.Adopting high-reliability liquid cooling for heat dissipation and improving the protection level in a closed operating environment.

Topology Diagram:



Model	XINGHUI-100/215-380
Max. System Power	100kW
Nominal Output Voltage	400Vac,3W/N+PE
Max Continuous Output Current	145A
Nominal Frequency	50Hz/60Hz±2.5Hz
Noise	≤75dB
Cooling	Liquid cooling
Charge and Discharge Efficiency	>88%
Communication Interfacef	LAN/CAN/RS485/4G
Fire Suppression System	Perfluorohexacone/Heptafluoropropane fire extinguishing system
Enclosure Protection	IP55
Operating Temperature	-20°C~60°C

PRODUCT OVERVIEW

Residential Energy Storage System

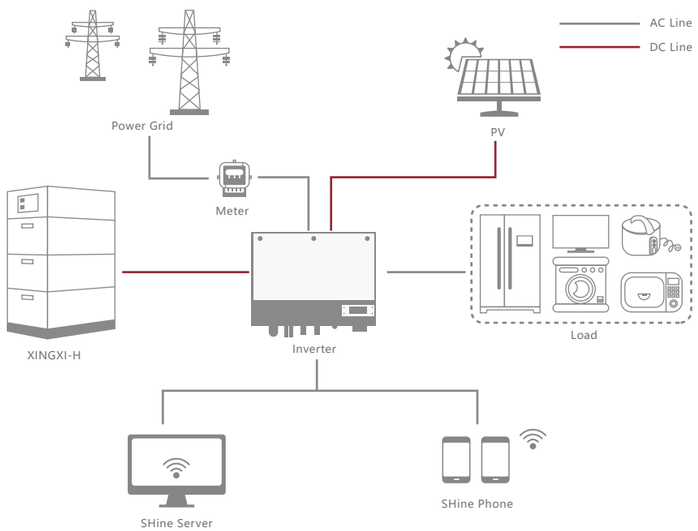
System Model: XINGXI-5-H

Product Type: High voltage home energy storage battery

System Feature: The XINGXI-H series works with the inverter to support the self-generation and self-use of PV energy, and greatly reduces the output of electricity charges through peak-to-valley power conversion. When the power grid is cut off, the off-grid mode is automatically switched, and the family realizes energy independence.

Product Features:
1. Consists of independent stackable battery boxes and a high voltage box.
2. High conversion efficiency, seamless switching between grid-connected and off-grid mode within 100ms.
3. Wide range battery voltage input, supporting large capacity grouping.
4. Supports stacking of 2-5 battery boxes for convenient expansion.
5. Module automatic recognition, real-time data monitoring, undervoltage automatic restart.

Topology Diagram:



Single battery pack parameters (excluding high-voltage box)

Technical Parameter	XINGXI-5-H
Usable Energy(kWh)	5.3
Battery Module	XINGXI - 5-H: 102.4V 5.3kWh
Number of Modules	1
Battery Type	LFP
Cell Configuration	32S1P
Nominal Voltage(V)	102.4V
Operating Voltage(V)	91.2-115.2V
Continuous Discharge Current(A)	25A
Rated Discharge Power(kW)	5
Weight(Kg)	52
Dimensions (W×D×H)	666mm×354mm×282 mm
Communication	CAN
Operating Temperature	Charge: 0 ℃ < T ≤ 50 ℃ Discharge: -20 ℃ <T ≤ 50 ℃
Storage Temperature	-20 ~ 45 ℃ (≤ one month) / 0 ~ 35 ℃ (≤ one year)
Humidity	≤95%
Max. Working Altitude	2000m
Degree of Protection	IP54 (outdoor / indoor)
Mounting Method	Floor stand
Nominal Energy	Test conditions: battery voltage 2.5V ~ 3.65V, 0.5C charge & discharge at 25℃ ± 3℃.
DC Usable Energy	Test conditions: 90% DOD, 0.5C charge & discharge at 25℃ ± 3℃. System Usable Energy may vary due to system configuration parameters.

PRODUCT OVERVIEW

Residential Energy Storage System

System Model: XINGXI-5-L

Product Type: Low voltage home energy storage battery

System Feature: XINGXI-5-L works with the inverter to support the self-generation and self-use of PV energy, and greatly reduces the output of electricity, charges through peak-to-valley power conversion. When the power grid is cut off, the off-grid mode is automatically switched, and the family realizes energy independence.

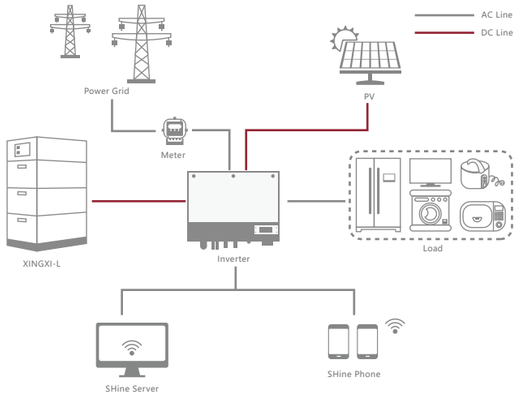
Product Features: 1.High conversion efficiency, seamless switching between grid-connected and off-grid mode within 100ms.

2.Wide range battery voltage input, supporting large capacity grouping.

3.Supports stacking of 2-5 battery boxes for convenient expansion.

4.Module automatic recognition, real-time data monitoring, undervoltage automatic restart.

Topology Diagram:



Single battery pack parameters

Technical Parameter	XINGXI-5-L
Usable Energy(kWh)	5.12
Battery Type	LFP（LiFePO4）100Ah
Cell Configuration	16S1P
Nominal Voltag	51.2V
Operating Voltage	48~57.6V
Rated Charging / Discharging Current	66A
Rated Charging / Discharging Power	3kW(It can be adjusted between 3~5 kW according to the inverter configuration)
Communication	CAN/RS485
Operating Temperature	Charge: 0 ℃ < T ≤ 50℃ Discharge: -10 ℃ < T ≤ 50 ℃
Relative Humidity（%）	0~95%
Max. operating altitude	2000m
Weight（kg）	44kg
Dimensions (W×D×H)	700mm×460mm×381mm
Degree of Protection	IP54
Mounting Method	Floor stand
Nominal Energy	Test conditions: battery voltage 2.5V ~ 3.65V, 0.5C charge & discharge at 25℃ ± 2℃
DC Usable Energy	Test conditions: 90% DOD, 0.5C charge & discharge at 25℃ ± 2℃. System Usable Energy may vary due to system configuration parameters.
Rated Discharging Current / Power	3 kW (It can be adjusted between 3~5 kW according to the inverter configuration)

PRODUCT OVERVIEW

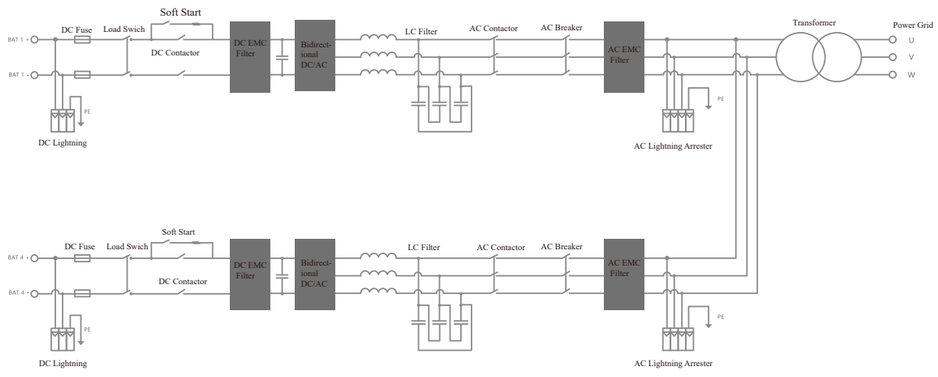
Power Conversion System

System Model: XINGXI-2500-35000(800-1500)

Product Type: Power Conversion System

Product Features:
1. Inverter and boost integrated, compact structure.
2. Standardized design, perfectly matching user power supply system.
3. Multiple protection functions, integrated high-precision temperature and humidity monitoring system, safe and reliable.
4. High-level protection, suitable for harsh outdoor environments.
5. Preinstalled structure, convenient for transportation and installation.

Topology Diagram:



Specification	Model	XINGXI-2500-35000/(800-1500)
Appearance structure	Product Name	2.5MW power conversion system
	Dimensions (W × D × H)	7000×3000×2896mm
	Inlet-outlet Line Mode	Down in and down out
	Estimated Weight	17T
	Maintenance Method	External maintenance
Electrical Specifications (Rated)	AC Side Grid-connected Voltage	37KV
	Rated Power	2500KVA
	DC Voltage	DC 1000~1500V
	DC Current	DC 2380A
	Input Frequency	50±5Hz
	Standby Power Consumption	≈Transformer no-load power consumption + PCS standby powerconsumption + auxiliary power supply
Environmental Indicators	Applicable Environment	Outdoor
	Operating Temperature	-20~45℃
	Operating Humidity	0%~95% (non-condensing)
	Working Altitude	3000m
	Degree of Protection	IP54
	Cooling Method	AN/AF
	Special Protection	Anti-wind and sand, dust-proof customization
Functional Design	Protection Design	Short-circuit protection, transformer high temperature alarm, transformer over-temperature trip, high-voltage live locking function, fire shutdown protection, backup power supply, manhole, emergency escape door, etc.

PRODUCT OVERVIEW

Battery Module

Features: 1. Simple structure, relatively low investment cost.
2. The heat dissipation efficiency is higher, which can meet the heat dissipation requirements of high-power charging and discharging. At the same time, the liquid cooling heat dissipation is more uniform, and the temperature difference between the cells is small, which is greatly helpful for enhancing the stability of the battery system and improving its lifespan.
3. Widely applicable, suitable for harsh environments such as high humidity, low temperature, and high altitude.
4. Good safety, all-steel hard shell mechanism, including fire detection and fire extinguishing equipment, safe and reliable.

Model	HX-M430Y
Pack Model	LFP- 153.6V-43.008kWh
Multiplying Power	0.5C
Cell Type	LFP
Cell Capacity	280Ah
Cell Configuration	1P48S/1P52S
Nominal Capacity	280Ah
Nominal Energy	43.008kWh/46.592kWh
Nominal Voltage	153.6V/166.4V
Dimensions (W × D × H)	1128×830×248mm
Weight	≈336kg

Battery Rack

Features: 1. Simple structure, relatively low investment cost.
2. Good temperature consistency of battery cells and high energy utilization efficiency.
3. The cycle life of the battery cell is long, and liquid cooling reduces the range of temperature changes in the battery, extending its service life.
4. Widely applicable, suitable for harsh environments such as high humidity, low temperature, and high altitude.
5. Good safety, all-steel hard shell mechanism, including fire detection and fire extinguishing equipment, safe and reliable.

Model	HX-C344Y
Rack Model	LFP-1228.8V-344.064kWh
Assembled Module Configuration	Single row 9 layers
Cell Capacity	280Ah
Cell Configuration	1P384S
Key Components per Rack	8 Modules & 1 HV Module
Multiplying Power	0.5C
Nominal Capacity	280Ah
Nominal Energy	344.064kWh
Nominal Voltage	1228.8V
Voltage Range	1036.8V~1401.6V
Dimensions (W × D × H)	1120×946×2450mm
Weight	≈3.6T

PRODUCT OVERVIEW

BMS

Product Features:
1. Monitor the battery voltage to avoid abnormal situations such as overcharge and overdischarge.
2. Balance battery voltage, improve power utilization, and prolong battery life.
3. Monitor battery temperature, extend battery life and protect battery safety.
4. When an abnormality occurs, cut off the connection between the battery pack and the load to ensure safety.

Model	XINGXI-BMS-3-1500	
Voltage Level	1500VDC	
Supply Voltage	24V±10% or self-powered	
Isolation Voltage	3000VDC	
Balanced Approach	Passive Equilibrium	
SOE/SOC Accuracy	< 3%FS	
Voltage Acquisition Accuracy	0.1% FS+0.1% RD	
Current Acquisition Accuracy	< 0.5% FS	
Communication Interface	External communication	Internal communication
	Modbus	CAN/LAN
Operating Temperature(℃)	-20℃ ~ 60℃	
Storage Temperature(℃)	-30℃ ~ 70℃	
Operating/Storage Humidity	10%~90%	Frost free
Voltage Detection Channel	16	
Temperature Detection Channel	8	

EMS

Smart

With functions such as intelligent scheduling, data analysis, and risk warning, it can automatically select the optimal charging and discharging strategy to improve the utilization efficiency of the energy storage system.

High reliability

Equipped with real-time monitoring and fault detection functions, timely handling of faults in the energy storage system to ensure stable operation of the system.

Strong flexibility

It can be flexibly adjusted according to various factors such as grid load, weather conditions, and user needs to improve the response capability of the energy storage system.

Easy to scalable

It can be expanded according to the expansion requirements of the energy storage system, and supports multiple interfaces and protocols, making it easy to integrate with other systems.

Function

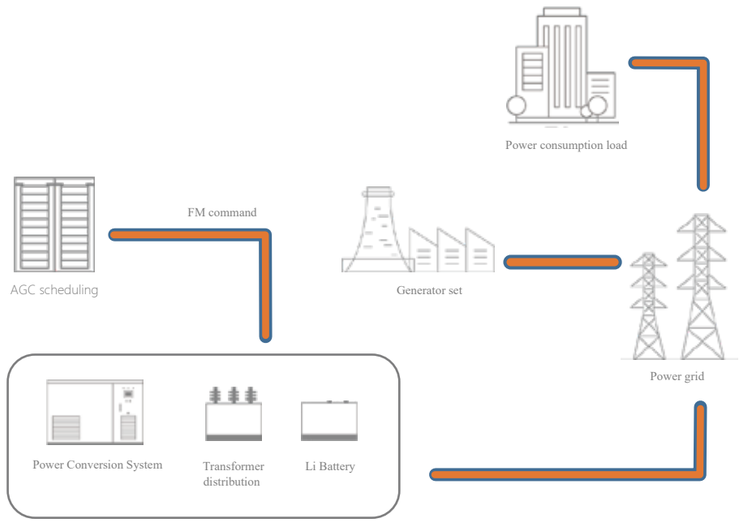
The energy management system (EMS) uniformly coordinates and controls each equipment in the complete set of energy storage projects, manages and counts the charging and discharging power of the ESS and the components of the ESS at the same time, and performs adjustment control and collection of related operating parameters. It can support power grid dispatching and provide active and reactive power support according to dispatching instructions.

The EMS consists of four parts: energy storage monitoring system, coordinated control system, energy management system.

- Dual machine switching function: The host and backup states support remote setting, manual switching and automatic switching.
- Active power control: Supports primary frequency control and constant active power control.
- Reactive power control: Supports dynamic voltage regulation control, constant power factor control, and constant reactive power control.
- AGC/AVC command forwarding: According to the AGC/AVC command, the target value of active power and reactive power is sent to each PCS through MMS and energy storage coordination controller

SOLUTION

Energy storage participating in peak shaving and frequency regulation



Peak Shaving and Frequency Regulation Solution on Power Generation:

Scenario Description

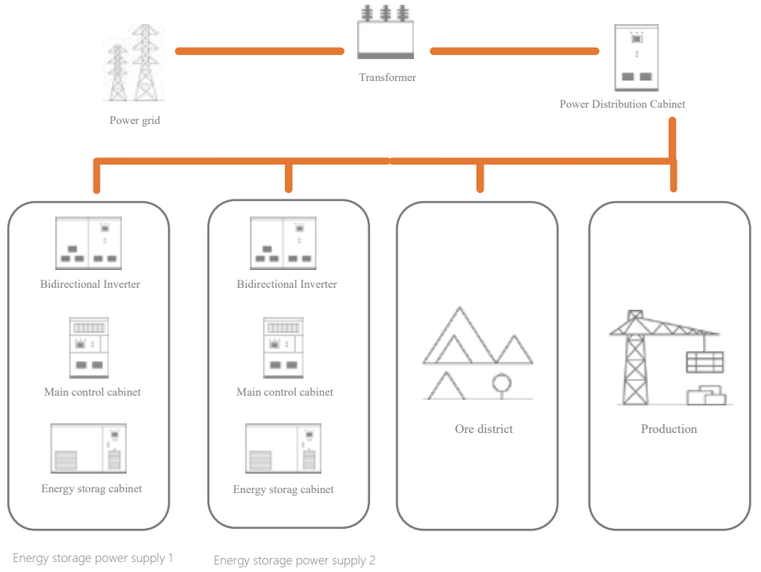
Realize optimal response strategy, optimal power distribution and unit self-balancing through self-learning intelligent algorithm, and realize high real-time and high-precision response to AGC frequency regulation command, which can greatly improve the frequency regulation response capability of thermal power generation units, and help power plant users obtain optimal power generation ancillary service income.

Solution Features

Intelligent algorithm realizes optimal response strategy
Optimal distribution of power and unit self-balancing
Realize high real-time and high-precision response to AGC frequency modulation commands

SOLUTION

Energy storage participating in peak shaving and frequency regulation



Emergency Security Power Supply Solution on Mine:

Scenario Description

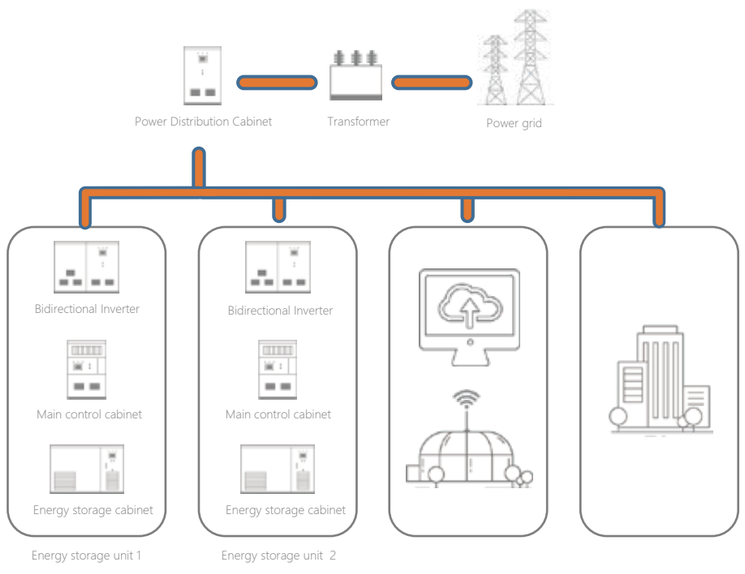
Distinguish the types of loads according to the power consumption characteristics of mining enterprises,carry out power distribution transformation for important loads, and provide energy storage system security emergency power solutions. In the event of a sudden power outage in the power grid or a malfunction in the mine power supply system, the energy storage system switches to emergency mode in milliseconds, achieving uninterrupted power supply and building a solid barrier for safe production in the mining area.

Solution Features

Effective use of various energy sources to save electricity costs.
Power quality control can be realized as a backup power supply.
The power configuration of photovoltaic-energy storage-charging station is flexible.

SOLUTION

Commercial & Industrial Energy Storage Solution



Commercial & Industrial Energy Storage Solution:

Scenario Description

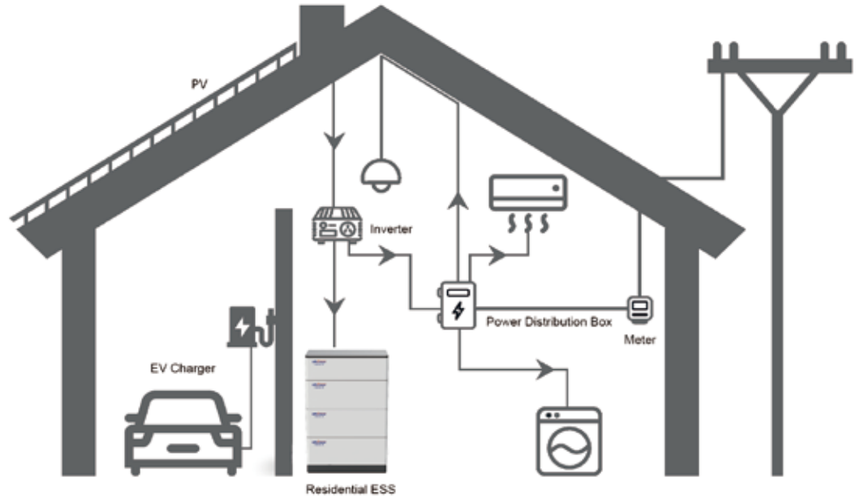
Since the power distribution capacity transformation of the commercial complex is restricted by the power distribution capacity of the superior, it is difficult to expand the capacity, and the power expansion investment is large, the cycle is long, and the comprehensive benefit is poor. How to find the optimal solution to solve the problems of insufficient power distribution capacity, large peak-to-valley difference in power consumption, and power quality degradation in large commercial complexes has become the focus of attention.

Solution Features

Intelligent optimization of electricity consumption and optimization of distribution capacity.
Effectively improving electricity efficiency and power quality.
High system integration and small footprint.
Modular design for convenient expansion.

SOLUTION

Residential Energy Storage Solution



Schematic Diagram of Residential Energy Storage System

Residential Energy Storage Solution:

Scenario Description

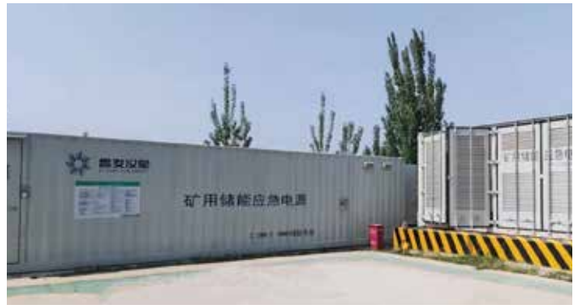
PV power is used to supply power to household appliances during the day, and ESS is used to supply power appliances at night,which effectively reduces the user's dependence on the grid and reduces electricity expenditures.In addition, it can be used as a backup power source for households to deal with grid failures and power outages.

Solution Features

Reduce electricity costs and improve electricity reliability.
Effectively reduce dependence on power companies.
Intelligent charging and discharging management module and high-efficiency inverter unit.

PROJECT

20MW/40MWh Energy Storage Power Plant



2.5MW/2.5MWh Energy Emergency Power Supply For Anju Coal Mine

5MW/10MWh User-side Energy Storage for Haier Refrigerator Factory

2MW/3MWh Energy Storage Emergency Power Supply for Hongqi Coal Mine

13MWh All-in-One Optical Storage and Charging Project

Henghe Coal Mine 2MW/4MWh Mining Smart Security Power Supply Project

50kW/100kWh User-side Energy Storage for Power Training Center

13MWh All-in-One Optical Storage and Charging Project

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University of Science and Technology of China

安徽大學
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