



Official Public Account



Greener Energy, Better Future

## ZONERGY CORPORATION

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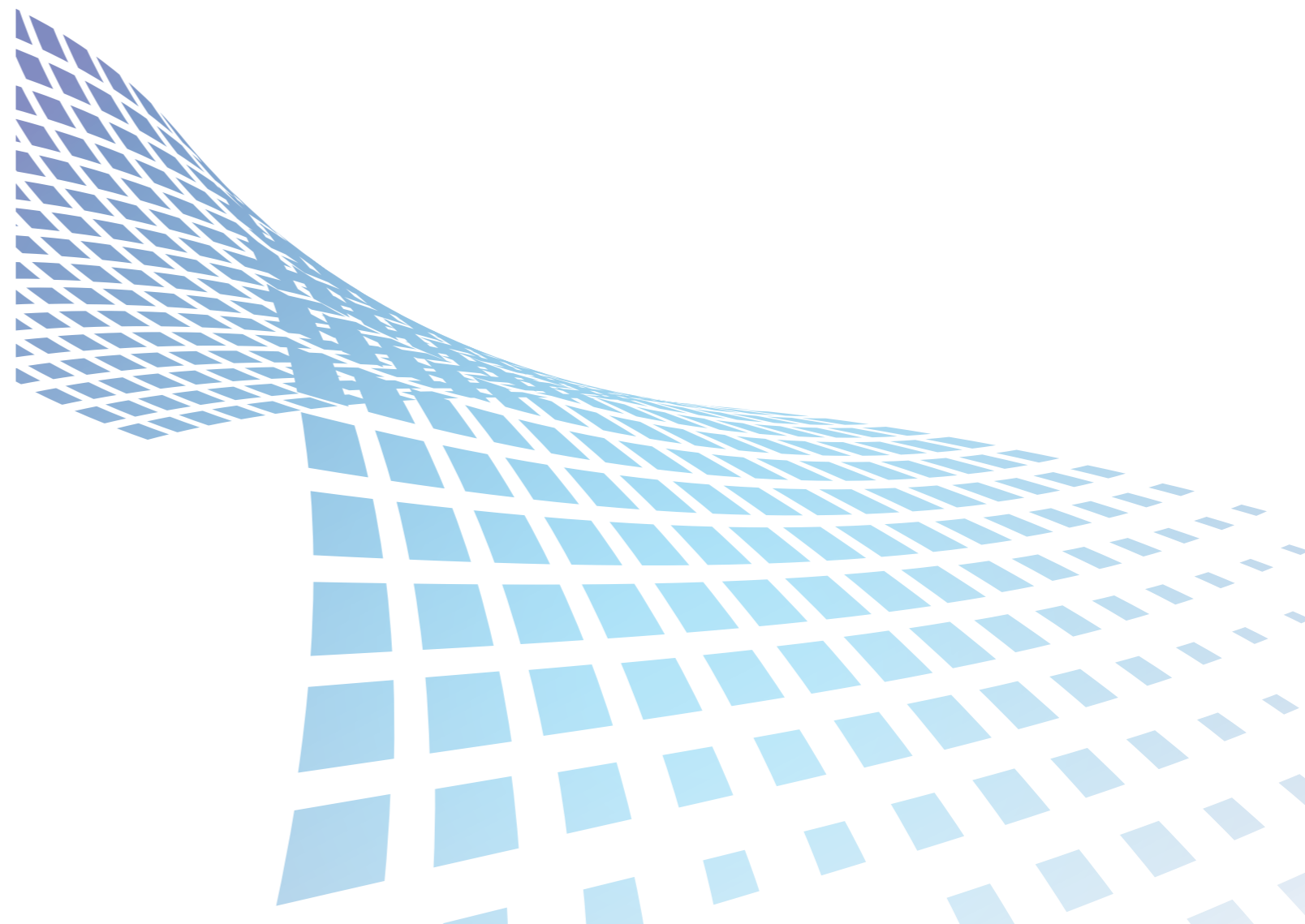
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# ZONERGY CORPORATION

Comprehensive Solution Provider for Smart Micro-grid







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# Company Profile

Established in the year 2007, Zonergy took the initiative to move cohesively with the global community towards a greener future for our planet and started its venture in the field of renewable energy products and solutions.

After years of research-based development, Zonergy has successfully developed strong capabilities for product and market development in the photovoltaic and energy storage market. With a solid background in new product development, we assist our global customers with high-quality products and comprehensive solutions associated with top-of-the-line services.

Zonergy has emerged as a world-renowned solution provider. Our product series covers portable and stationary battery energy storage, fulfilling the needs of all segments in the energy storage market including residential, commercial and industrial applications.

All our products are designed and engineered to adhere to strict domestic and international quality standards. Consequently, these products have been certified by international and domestic organizations such as CQC, UN/MSDS, CE/CB, IEC, EN, VDE, CEI, etc. and received World Bank's Lighting Global Equipment Partner certification as well.

In 2021, we undertook significant research and development on sodium-ion battery technology and its key materials. In 2023, we received certification from TÜV SÜD, making Zonergy the industry's first to receive such accreditation. Subsequently, the Sodium-ion Industrial Park was officially launched in Zigong City, with an initial capacity of 1 GWh/year.

Leveraging our complete industrial chain, continuous innovation ability, and established global marketing channels, Zonergy will deeply delve into the field of smart microgrid solutions. Our objective is to be the market leader in green energy technology and products. We aim to serve our global partners with state-of-the-art products and solutions, supported by dedicated services. We strive to facilitate the transformation of the global community towards green energy, ensuring a greener future for generations to come.



Global Leader in Off-grid Energy Project Construction and Operation



Approved as Sichuan Province Photovoltaic Energy Storage Smart Microgrid Engineering and Technology Research Center in 2021



In 2022, the CNAS Laboratory of Shenzhen Research Institute was Authorized Witness Certification by TÜV SÜD



Approved to Establish a National Postdoctoral Research Station in 2023



Approved as Sichuan Provincial Enterprise Technology Center in 2023



National Intellectual Property Advantage Enterprise



Winner of Luban Award for China Construction Engineering



Largest Photovoltaic Power Producer Under the China-Pakistan Economic Corridor (CPEC)



Pakistan's No. 1 Energy-independent Power Producer in Photovoltaic Power Generation



UNHCR, World Bank Project Partner



# Honors and Qualifications

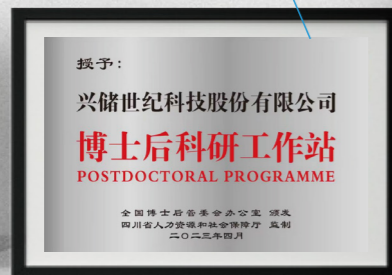
Enterprise qualification	Qualification subject	Qualification level
01 National Technology-based Small and Medium-sized Enterprise	Zigong Xingchuan Energy Storage Technology Co., Ltd.	National level
02 Smart Photovoltaic Pilot Demonstration Project	Sichuan Zhongxing Energy Co., Ltd.	National level
03 National Intellectual Property Advantage Enterprise	ZONERGY CORPORATION	National level
04 Postdoctoral Programme	ZONERGY CORPORATION	National level
05 Advanced Unit in Ensuring Power Access for People Without Electricity	ZONERGY CORPORATION	National level
06 Engineering and Technology Research Centre for Smart Micro-grid with Photovoltaic Energy Storage, Sichuan	ZONERGY CORPORATION	Provincial level
07 Enterprise Technology Centre, Sichuan	ZONERGY CORPORATION	Provincial level
08 Major Projects Under Sichuan-Chongqing Cooperation in 2021	ZONERGY CORPORATION	Provincial level

Ranked **8th** in terms of energy storage system integrators in domestic shipments in 2021  
 Ranked **2nd** in terms of energy storage system shipments in the domestic user side in 2022  
 2023 Golden Energy-Storage Prize for Advanced Technology of Sodium-ion Battery,  
 The Third Batch of Sodium-ion Battery Evaluation Approval Units,  
 The First TÜV SÜD International Certification for Prismatic Sodium-ion Battery

Ranked among the top 10 in terms of energy storage system shipments in the domestic user side market in 2022

2022 Most Influential Enterprise of China's Energy Storage Industry

POSTDOCTORAL PROGRAMME



Excellent Solution Award



Luban Award



2015 Photovoltaic Poverty Alleviation Award

Photovoltaic Poverty Alleviation Award

Utility model patent

Invention patent

Invention patent

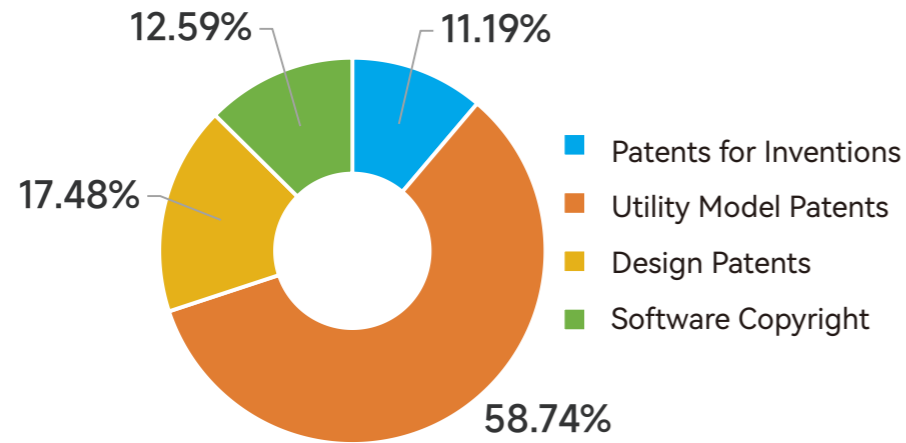
Utility model patent

Invention patent

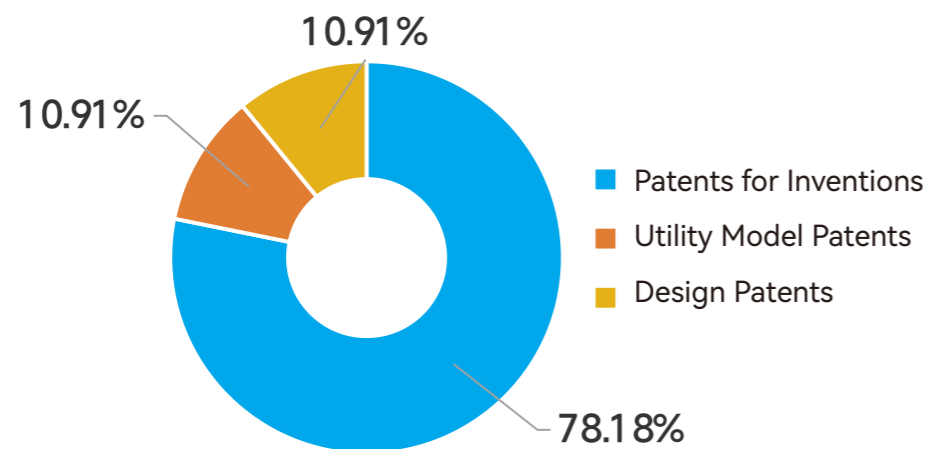
Invention patent



# Intellectual Property Rights



As of March 2024, the Company has 143 validly authorized intellectual property rights, including 16 invention patents, 84 utility model patents, 25 design patents, and 18 software works.



We have 56 intellectual property rights under approval, including 44 invention patents, 6 utility model patents, and 6 design patents.

# Technical Advantages

## 01

### Leading sodium-ion battery + 3S full-stack self-developed capability

Mastering the comprehensive strength of sodium-ion battery + 3S (PCS + BMS + EMS) R&D, production, and solution integration.

## 02

### Multi-machine parallel connection technology, capable of direct parallel connection on the AC side with up to 5 PCS

Modular design, simple wiring, high reliability, fast response, long service life, more efficient, safe and easy to expand.

## 03

### Safer and more reliable BMS

Our multi-level modular technology platform allows us to refine battery management down to the single-cell level, resulting in industry-leading battery consistency management. This platform also supports the mixed use of new and old batteries, as well as the mixed-use of lithium and sodium batteries. Our goal is to provide the most efficient and effective battery management solutions possible.

## 04

### Commercial and industrial energy storage system based on polyanionic sodium-ion battery

More than 20 patents applied, including 17 invention patents; NaESS+PV+Charger project achieved on-grid operation as the lead in Sichuan Province.

## 05

### Enabling a distributed resource planning and management portfolio through EMS

System simulation design, station-level edge controllers, and station-level intelligent optimized regulation.

## 06

### Excellent system integration capabilities

Flexible, efficient, reliable, scalable, networking. Possessing a leading industrial and commercial energy storage product with an energy efficiency of 88%.







# |Advanced Sodium-ion Battery Technology

## 01

Safer  
No fire, no explosion

## 02

Ultra-wide operating temperature range  
-60°C~60°C

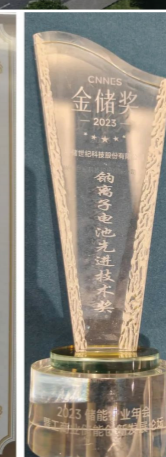
## 03

Faster charging  
Charging from 20% to 80% in 15 minutes

## 04

Lower cost  
Rich Resource Reserves  
Cost advantage over lithium battery when the industry chain matures

- The first generation of sodium-ion batteries has been converted to mass production and successfully commercialized, with an energy density of 100-160Wh/Kg and more than 3,000 cycles;
- Prismatic sodium-ion cell passed TÜV SÜD international certification in 2023.This milestone made Zonergy the industry's first to receive such accreditation;
- Awarded the Golden Energy-Storage Prize for advanced technology of sodium-ion battery;
- Awarded "The Third Batch of Sodium-ion Battery Evaluation Approval Units" by Zhongguancun Energy Storage Industry and Technology Alliance in 2023;
- NaESS+PV+Charger integration solution project achieved on-grid operation as the lead in Sichuan Province;
- Phase I (1GWh/year) of 5GWh/year Sodium-ion Battery Industry Park completed construction.





# Comprehensive Product Series

Products cover residential energy storage, industrial and commercial energy storage, portable energy storage, sodium-ion energy storage, etc.

**Off-grid Energy Storage Inverter Granite Series**



**Residential Single-phase On-grid PV Inverter Mercury Series**



**Residential Three-phase Energy Storage System Panda Series**



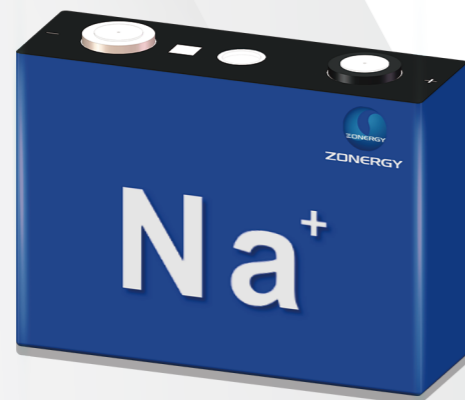
**Residential Single-phase Energy Storage System Panda Series**



**Portable DC Power Supply Baldr Series**



**Residential Three-phase On-grid PV Inverter Apollo Series**



**Prismatic Sodium-ion Cell**

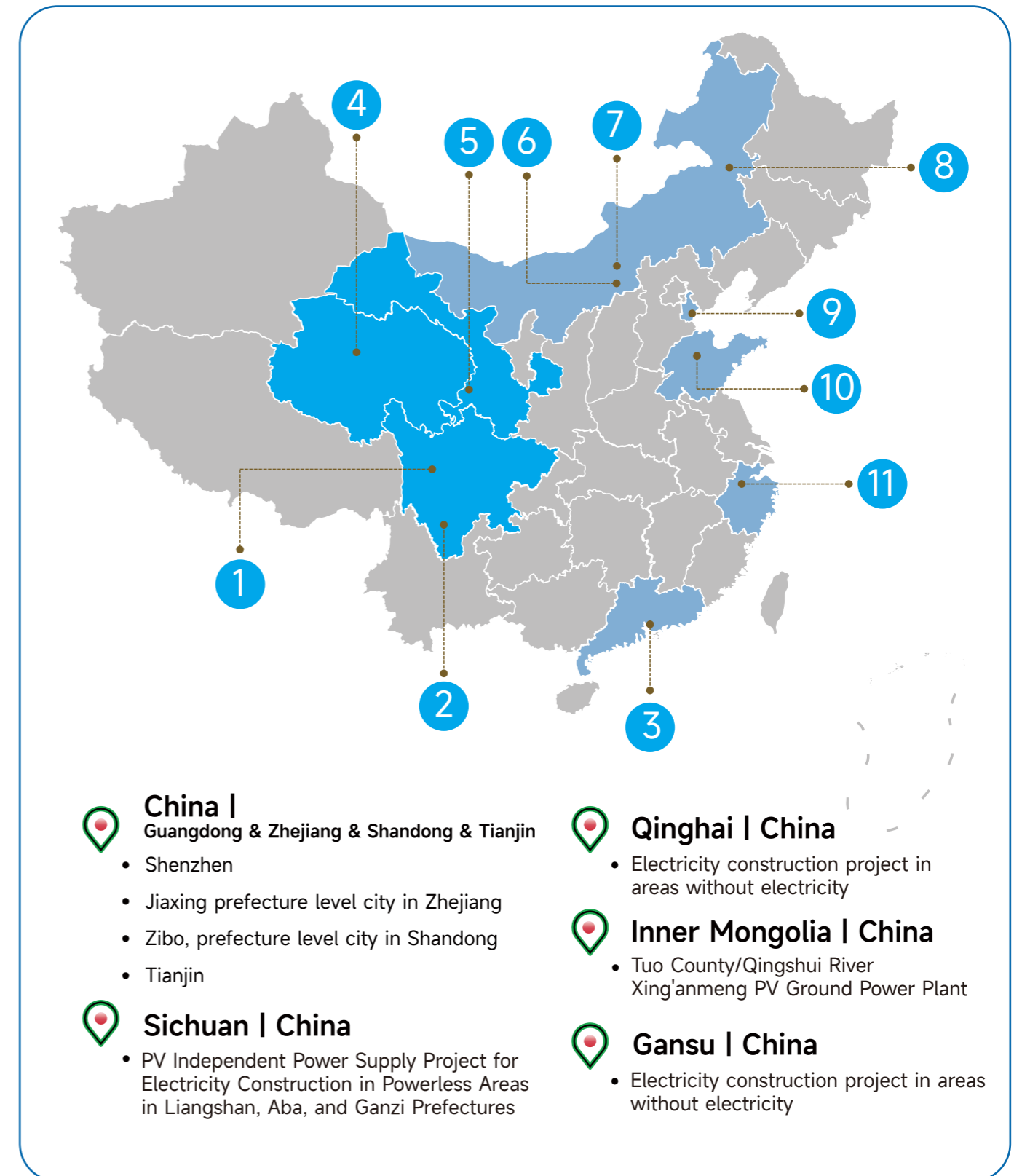


**Modular Commercial And Industrial Energy Storage Systems Powercube Series**



# | Domestic Market

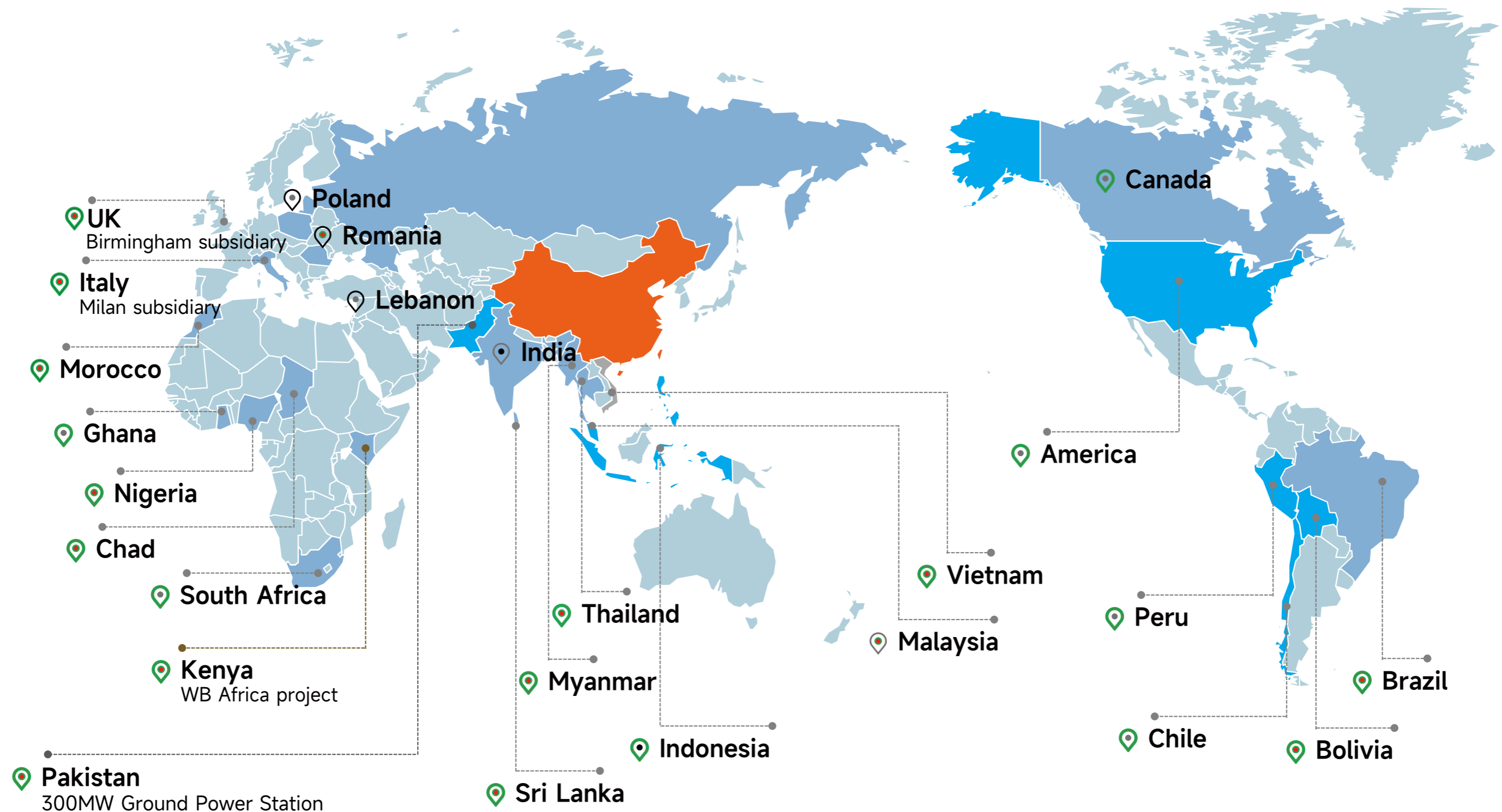
- Construction of large-scale photovoltaic power plants in western provinces;
- Construction of industrial and commercial distributed photovoltaic storage projects in Guangdong and other regions;
- Shandong Zibo photovoltaic power generation project included in the first batch of national "National Distributed Photovoltaic Power Generation Scale Application Demonstration Area";
- Shenzhen Science and Technology Park rooftop photovoltaic power generation project approved as a national "Solar Photovoltaic Power Generation Centralized Application Demonstration Area";
- Participation in the Three-Year Action Plan for Comprehensively Solving the Problem of Access to Electricity for Population without Electricity promoted by National Energy Administration;
- Address the power supply issues for 453,000 people in the most challenging conditions in provinces and autonomous regions such as Sichuan, Gansu, and Qinghai;
- Awarded the title of "Advanced Unit for Comprehensively Solving the Problem of Electricity Access for the Population without Electricity" by the National Energy Administration;
- "PV Independent Power Supply Project for Electricity Construction in Unelectrified Areas" in Sichuan has been selected for the list of "Pilot Demonstration List of Intelligent Photovoltaic" by six ministries in 2020.





# International Market

Market coverage in 30+ countries



- European headquarter established in 2022;
- The Largest Independent Power Producer in Pakistan's Photovoltaic Power Generation Sector.

- The first phase of the 9×100MW PV project in Pakistan(the 3×100MW project), was fully connected to the grid for power generation in July 2016, with an annual power output of over 500 million kWh.



# Residential Energy Storage

The residential energy storage system addresses stable power demand and offers functions such as leveraging price differentials between peak and off-peak hours to reduce electricity costs and enhance the self-consumption rate of photovoltaic power generation. It serves as an integrated solution tailored for household scenarios.

The core of the residential energy storage system is the battery pack, BMS, and energy storage inverter, which is paired with household PV to form a residential photovoltaic energy storage system, mainly including the battery pack, BMS, hybrid PCS, and PV modules.

Residential energy storage is developing rapidly in the European market. Europe's higher level of electricity prices combined with peak and valley price differentials, as well as the incentive policy and declining energy storage cell prices, contribute to the favorable economic viability of residential energy storage.

# Residential Energy Storage Application Scenarios: Energy Storage + X



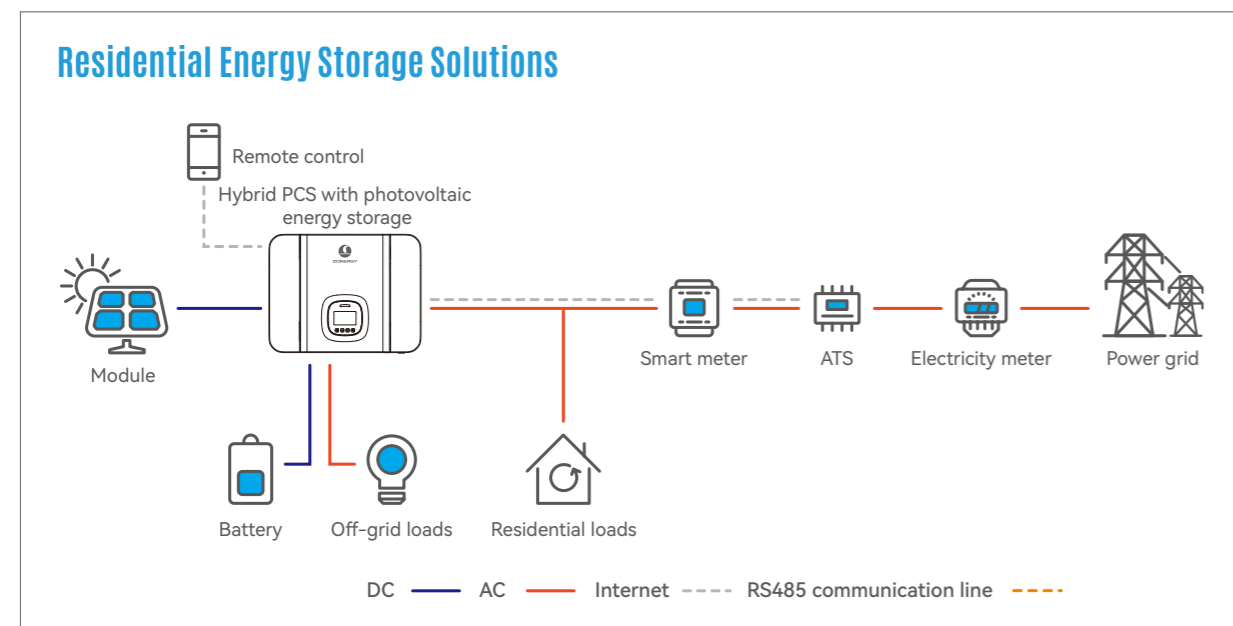
Residential Energy Storage



Residential Photovoltaic Energy Storage



Residential Photovoltaic Energy Storage and Charging



Residential Photovoltaic Energy Savings



Residential Photovoltaic Energy Storage Heat Pump



## Residential Energy Storage Solutions

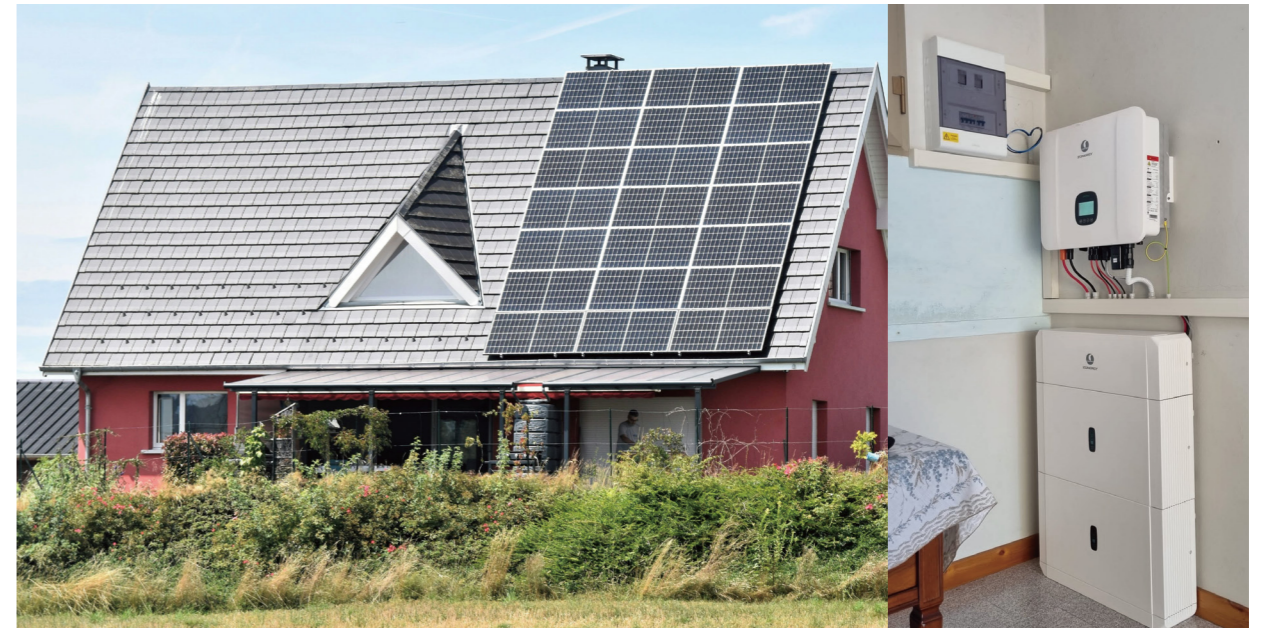


Residential energy storage is suitable for areas with high peak-to-valley spreads or weak grids;

The main application modes include:

1. Shaving peaks and filling valleys to reduce users' electricity bills;
2. Backup power supply to replace the traditional UPS power supply function

## Residential Photovoltaic Energy Storage Solutions

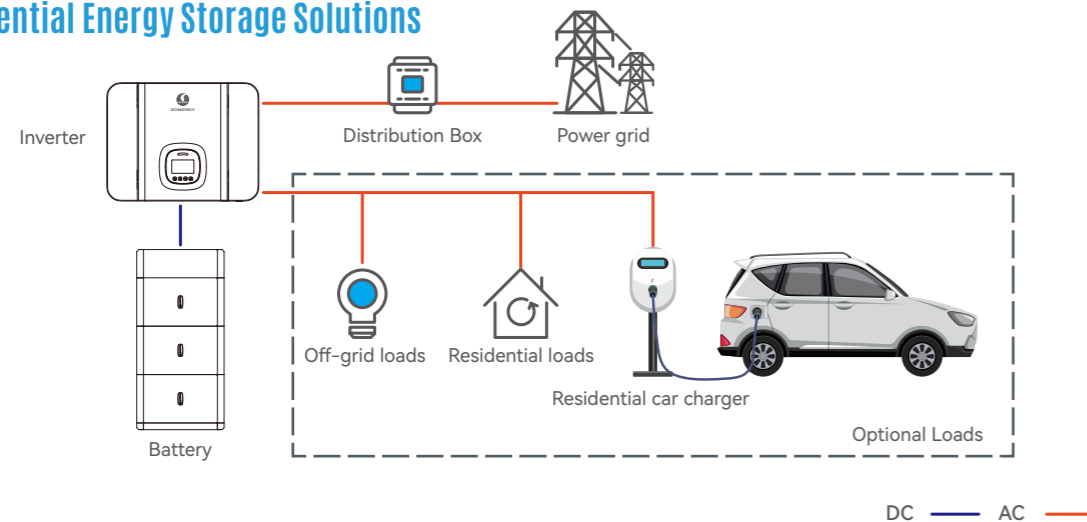


Residential photovoltaic energy storage is suitable for areas with high electricity prices, high peak-to-valley price differentials, or weak grids;

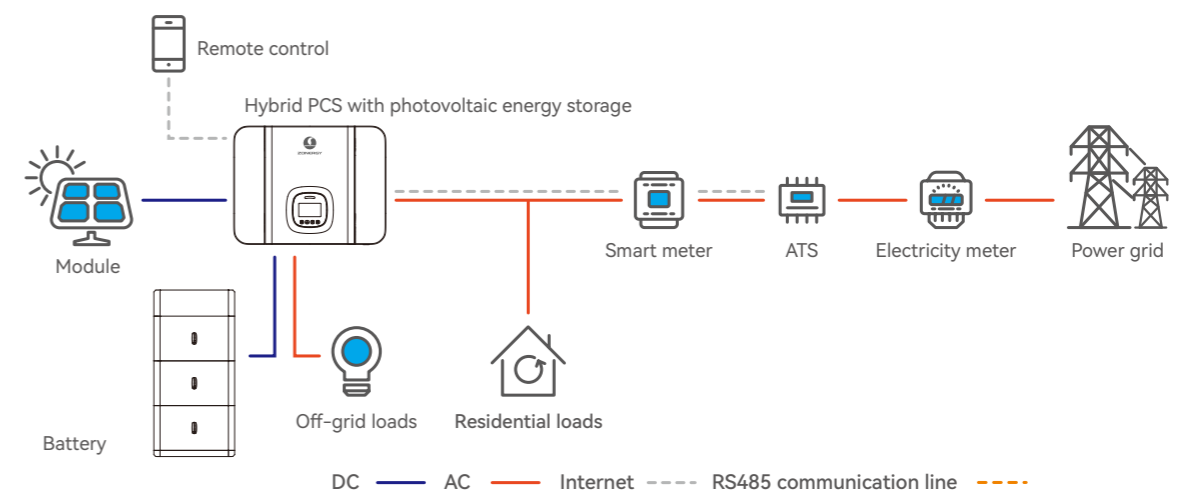
The main application modes are as follows:

1. Self-generation and self-consumption, feeding excess power back into the grid, maximize the PV self-generation and self-consumption rate;
2. Cutting peaks and filling valleys to reduce the price of electricity for users;
3. Off-grid application to ensure reliable power supply for critical loads.

### Residential Energy Storage Solutions



### Residential Photovoltaic Energy Storage



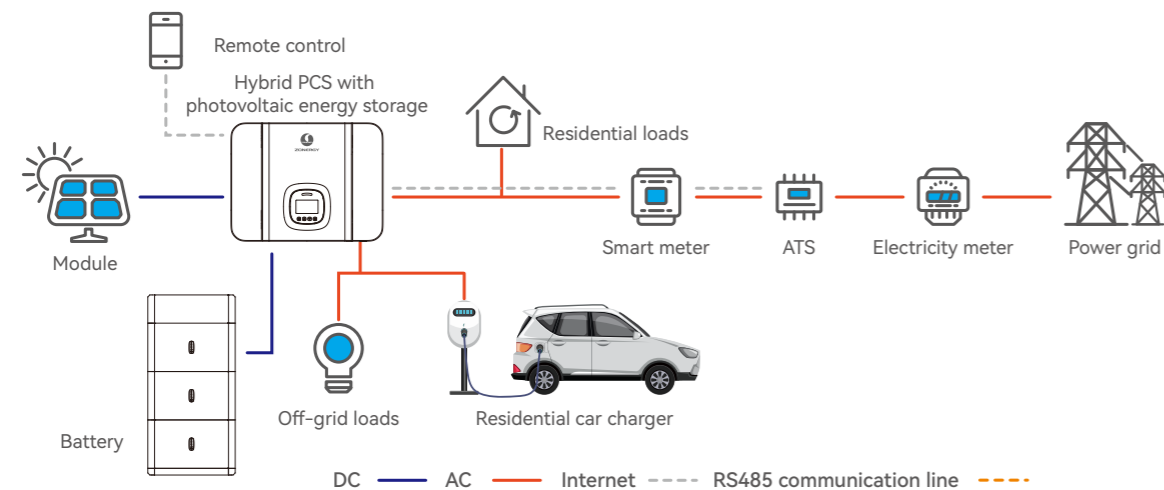


## Residential Photovoltaic Energy Storage and Charging Solutions



Solar energy is converted to electricity through photovoltaic power generation and stored in an energy storage system to charge electric vehicles through home vehicle charging piles; When the power generation is greater than the consumption, the excess power can also be incorporated into the power grid, realizing the mutual complement between the power grid and energy storage, and achieving synergetic photovoltaic energy storage and charging.

### Residential Photovoltaic Energy Storage and Charging Solutions



## Residential Photovoltaic Energy Savings Solutions



Photovoltaic energy storage systems power thermal storage heaters for places with weak power grids, long cold seasons, and abundant light supply;

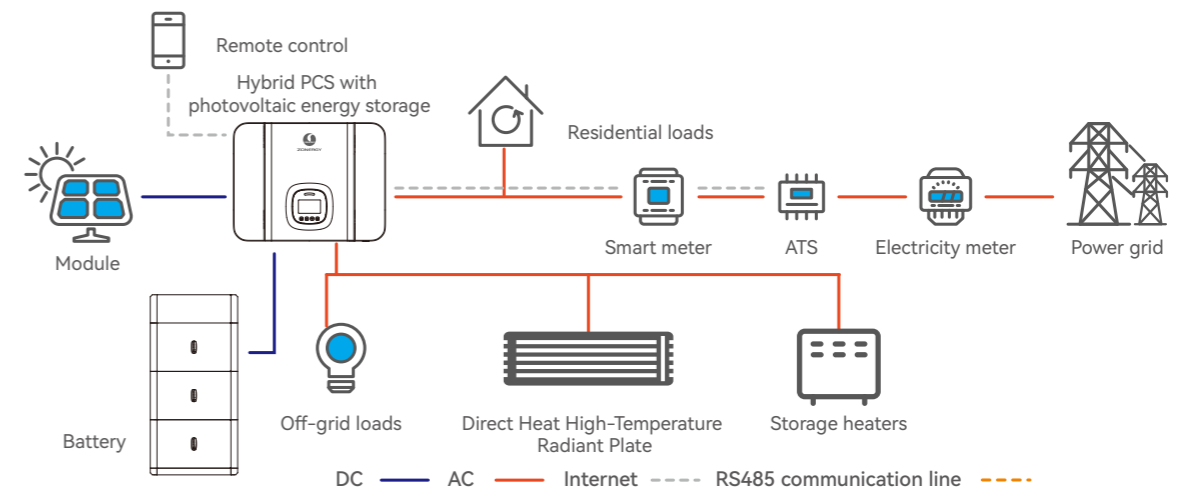
Residential photovoltaic energy saving systems heat during the heating season and supply power during the non-heating season;

Heating season: photovoltaic and energy storage-based, grid synergistic power supply to thermal storage electric heaters, grid direct supply to far-infrared high-temperature radiation electric heaters;

Non-heating season: off-grid mode self-generation and self-consumption.

Grid-connected mode for self-generation and self-consumption, with surplus power going back to the grid.

### Residential Photovoltaic Energy Savings Solutions



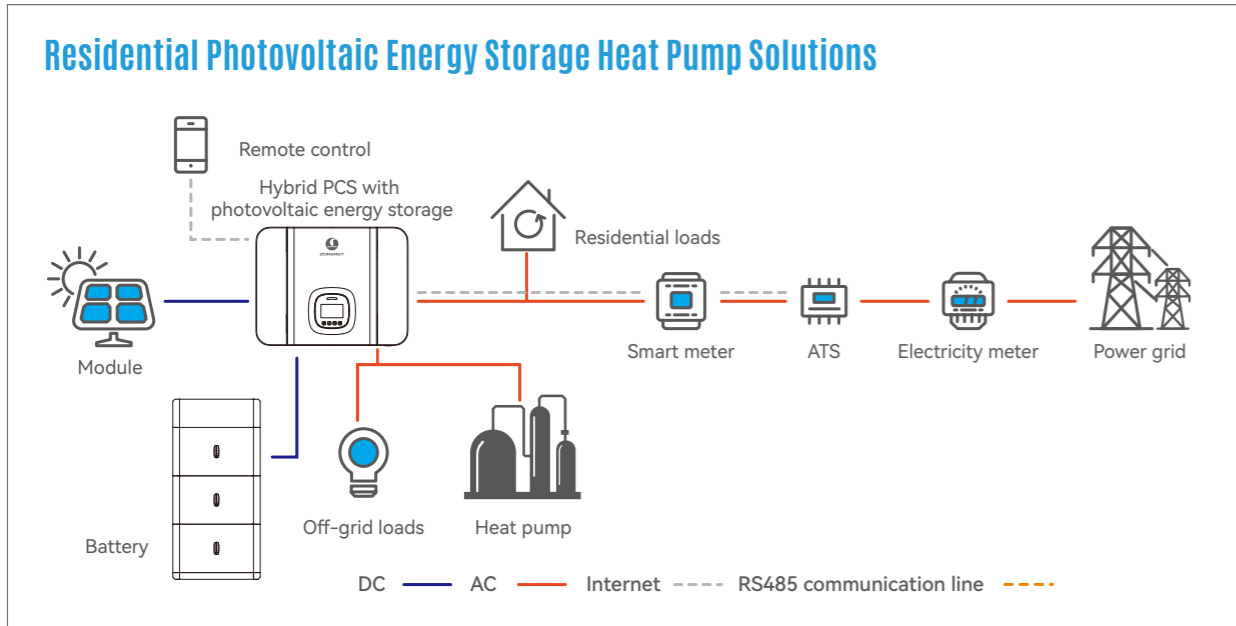


# Residential Photovoltaic Energy Storage Heat Pump Solutions



Photovoltaic storage integration products are gradually becoming popular in the market, which can effectively help families reduce their dependence on natural gas, coal, and other energy sources, and the converted and stored electricity can greatly satisfy their daily needs;

"Photovoltaic + storage + X" model for the heat pump demand to create conditions. For the majority of European regions, winter heating is a necessity of life. The rapid increase in the installed capacity of photovoltaic energy storage products in Europe has created excellent market conditions for the penetration rate of heat pump products.



# Residential Product Case





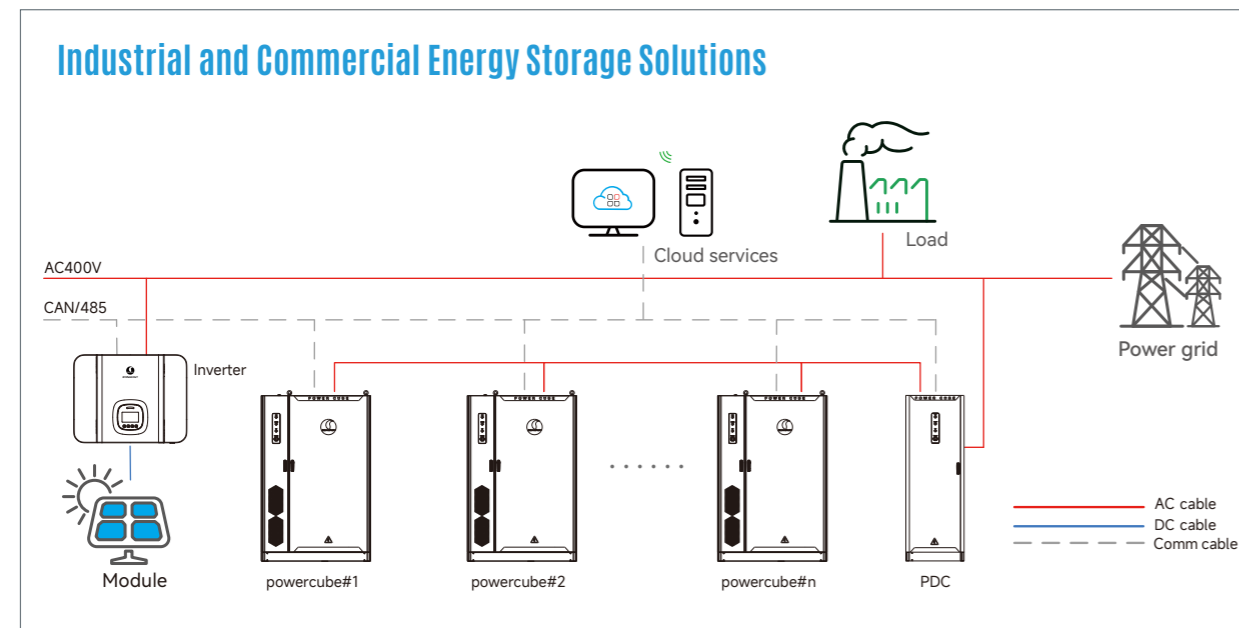
# Industrial and Commercial Energy Storage

Industrial and commercial energy storage is a typical application of distributed energy storage system on the user side, mainly composed of photovoltaic modules, hybrid PCS, battery packs, loads, etc., mostly modular scalable design;

The main application scenarios include factories and shopping malls, photovoltaic energy storage charging stations, and microgrid+ energy storage, and new application scenarios have appeared in data centers, 5G base stations, heavy trucks switching, port shore power, and so on;

The main application modes include grid-connected mode, pure off-grid mode, and integrated grid-connected and off-grid mode;

The main electrical system architectures are AC-coupled and DC-coupled.



# Industrial and Commercial Energy Storage Application Scenarios



Industrial and Commercial Application



Micro-grid

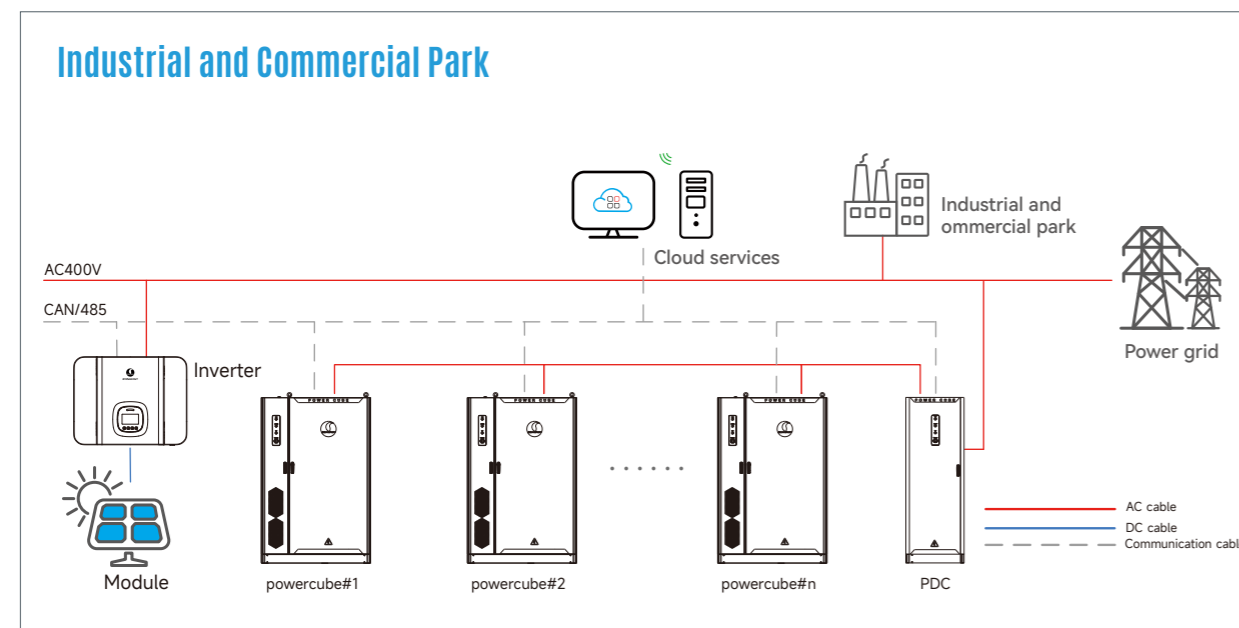


Photovoltaic Energy Storage and Charging Station



## Industrial and Commercial Energy Storage Solutions Industrial and Commercial Park

Energy storage cabinet Powercube can use a lithium battery as an energy storage device to complete the balance and optimization of power supply and power demand among grid, energy storage, and load, and can easily access new energy equipment such as photovoltaic, which brings application value in the areas of peak and valley power consumption, distribution network capacity increase, and power security.

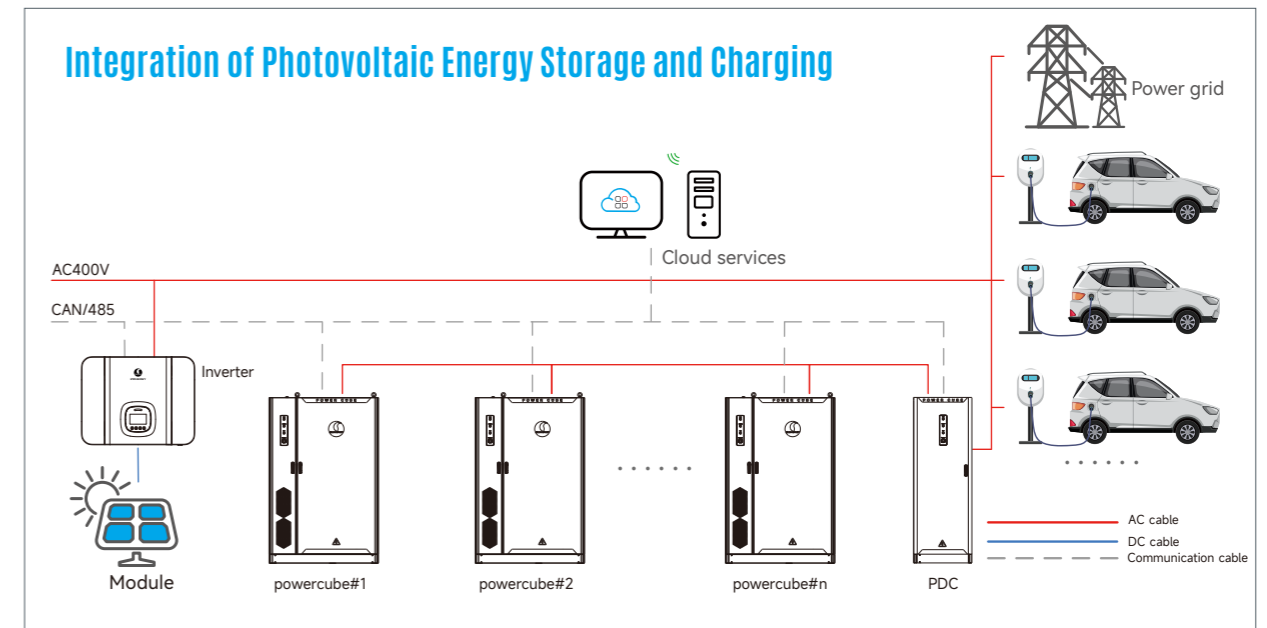


## Industrial and Commercial Energy Storage Solutions Integration of Photovoltaic Energy Storage and Charging

Electric vehicle charging has a significant impact on the power grid due to its high charging power, but the overall power consumption is not large;

The system adopts a distributed design, consisting of photovoltaic, industrial, and commercial energy storage and charging terminals, allowing flexible deployment of charging power and energy storage capacity;

This solution is widely used in charging scenarios with insufficient distribution capacity and large peak-to-valley price difference, bringing customers dynamic capacity increase and peak-to-valley profitability.



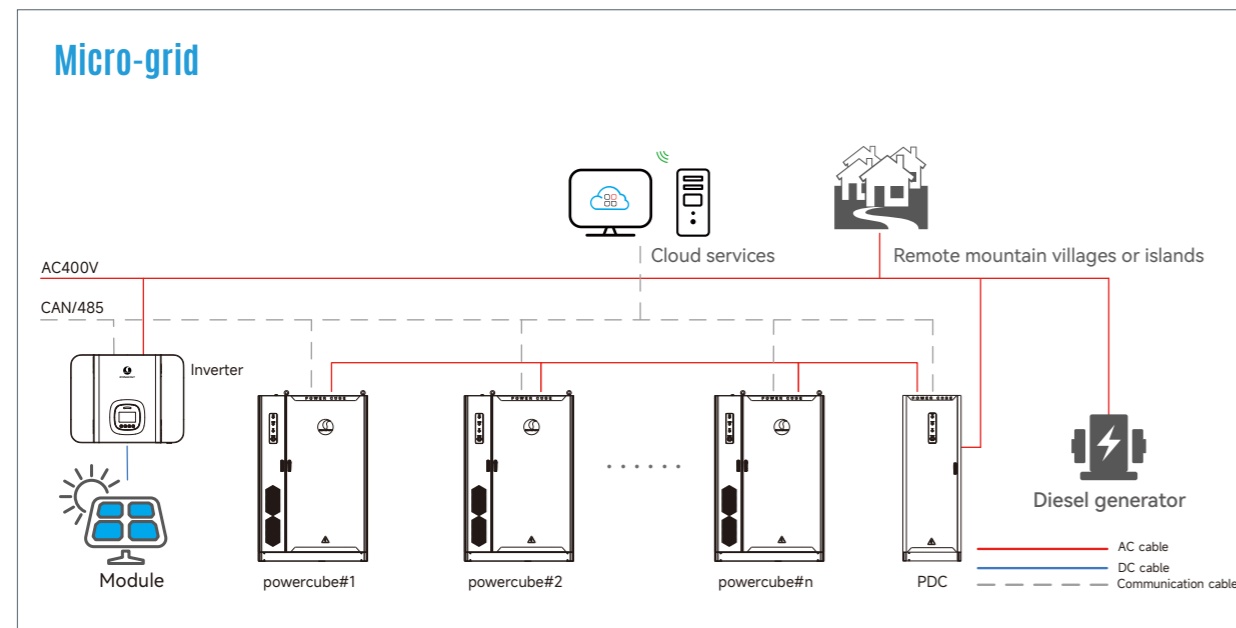


# Commercial & Industrial Energy Storage Solutions

## Micro-grid

In remote and non-grid areas, where the population is sparse and far from the main network, self-built power grids are needed;

Utilizing new energy generation and microgrid technology presents a superior solution. Microgrids must generate electricity in diverse forms, such as solar energy and diesel generators, based on local environmental conditions. Energy storage systems are utilized to regulate electricity generation and consumption, ensuring a consistent flow of power.



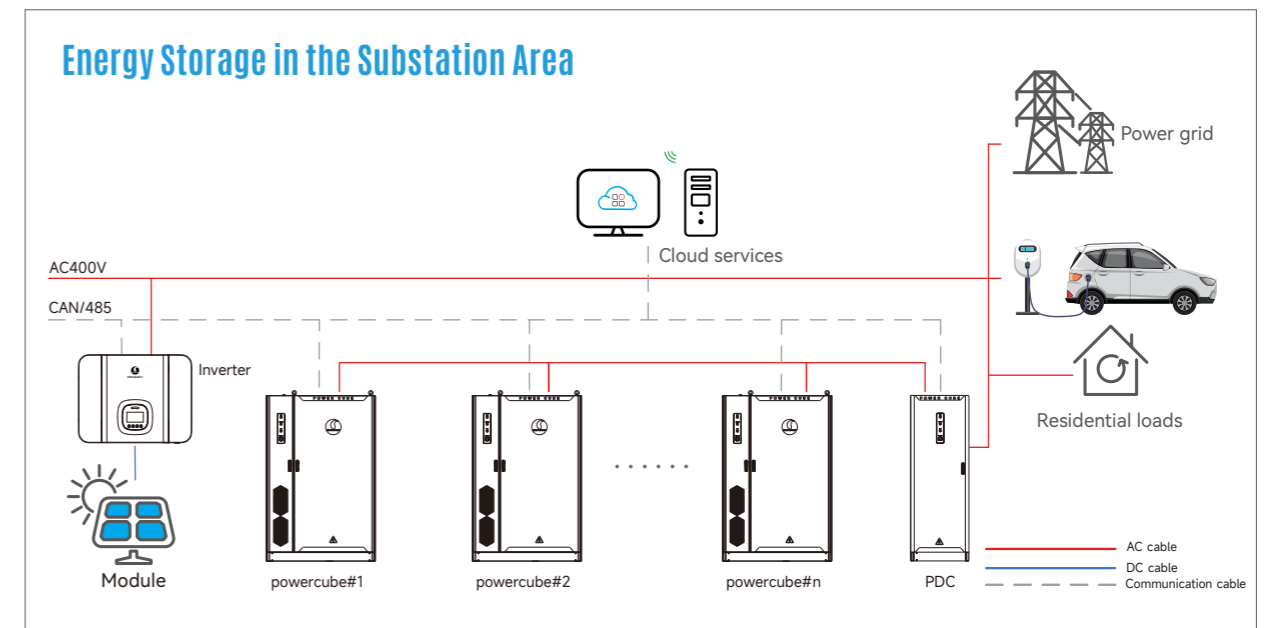
# Commercial & Industrial Energy Storage Solutions

## Energy Storage in the Substation Area

Power distribution network loads are on the rise, and issues such as end-stage low voltage and heavy overloading of individual stages are becoming increasingly apparent;

With the access of a large number of distributed new energy generation devices, the power structure of the grid has changed significantly, and fluctuations, in regional power quality are facing severe tests;

The integrated energy storage cabinet Powercube system can participate in power demand response according to the power grid operation plan, play a role in absorbing new energy, peak shaving, and valley filling, and improve the power supply range of the transformer or the power supply capacity of the region, and ensure reliable power consumption for residents.



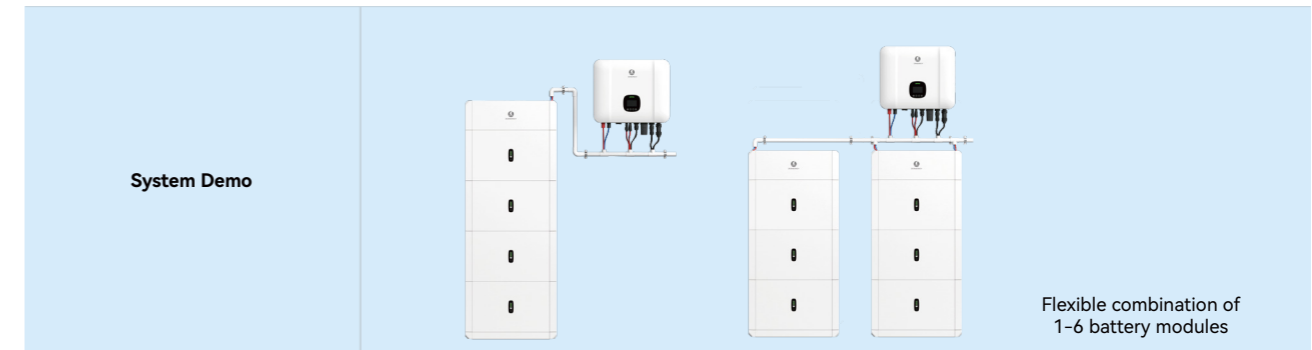


# Panda

Residential Single-phase Energy Storage System Panda Series

Panda 3680S~6000S-5HP~30HP

Panda 3680S~6000S-5HP~30HP  
Technical parameters



System Specification							
Nominal Output Power	3680 W	4000 W	4600 W	5000 W	6000 W	3680 W	4000 W
Capacity Range	5.12~30.72 kWh						
Usable Capacity Range	4.6~27.65 kWh						
Battery Chemistry	LFP (LiFePO4)						
IP Protection	IP66 (Outdoor)						

Inverter Technical Specification							
Model	Venus 3680-S1	Venus 4000-S1	Venus 4600-S1	Venus 5000-S1	Venus 6000-S1	Venus 3680-S2	Venus 4000-S2
Phase	Single Phase						
Max. PV Input Voltage	600 V						
MPPT Voltage Range	100 V~550 V						
Max. PV Input Current			16 A / 16 A			16A	
Max. PV Input Power	8000 W	9000 W	9000 W	9000 W	9000 W	4500 W	4500 W
Max. MPPT Short-circuit Current	20 A / 20 A						
Number of Independent MPPT	2					1	
Start-up Voltage Range	120 V						
Max. Charging/Discharging Current	100 A						
Max. Charging/Discharging Power	5000 W						
Nominal Output Voltage on Grid	220 V,230 V,240 V (comply with local regulations)						
Output Voltage Range on Grid	180 ~ 276 V						
Rated Grid Output Frequency on Grid	50 Hz/60 Hz						
Max. AC output Power	3680 W	4000 W	4600 W	5000 W	6000 W	3680 W	4000 W
Nominal AC Output Voltage	230 V						
Communication	CAN2.0/RS485, WIFI/4G(optional)						
Display	LCD & APP						
Dimension(W*H*D) mm	540 x 450 x185						
Certification	EN IEC62109-1, EN IEC62109-2, IEC61683, IEC61727, IEC62116, IEC60068, EN IEC61000-6-1, EN IEC61000-6-3, IEC60529 IP66, EN50549-1, EN50530, Italy CEI 0-21, Germany VDE4105, UK G98, G99, Spain UNE217001, UNE217002, NTS 2.1, RoHS(2011/65/EU+2015/863), WEEE(2012/19/EU), ISTA, UKCA						

Battery Technical Specification						
Module Model	Limestone 5H-P	Limestone 10H-P	Limestone 15H-P	Limestone 20H-P	Limestone 25H-P	Limestone 30H-P
Module Capacity	5.12 kWh	10.24 kWh	15.35 kWh	20.48 kWh	25.64 kWh	30.72 kWh
Usable Capacity	4.6 kWh	9.21 kWh	13.81 kWh	18.43 kWh	23.04 kWh	27.65 kWh
Nominal Voltage	51.2 V					
Max. Charging/Discharging Power	2.5 kW	5 kW	5 kW	5 kW	5 kW	5 kW
Operating Temperature Range	-20 ~ +50 °C					
Dimension(W*H*D) mm	650 x 620 x 180	650 x 980 x 180	650 x 1340 x 180	650 x 1700 x 180	650 x 1340 x 180 650 x 980 x 180	650 x 1340 x 180 650 x 1340 x 180
Certification	IEC62619, IEC63056, EN IEC61000-6-1, IEC61000-6-3, EN IEC62040-1, EN IEC62477-1, IEC60730-1 Annex H, IEC60529 IP66, UN38.3, MSDS, RoHS(2011/65/EU+2015/863), WEEE(2012/19/EU), ISTA					



The 5 kWh module adopted enables variable capacity range of 5-30 kWh.



The switching time between on-off grid less than 10 ms secures Uninterruptable Power Supply for the load.



The Lithium Iron Phosphate (LFP) cell secures safe and reliable operation.



The automatic isolation of the faulty battery module secures smooth system operation.



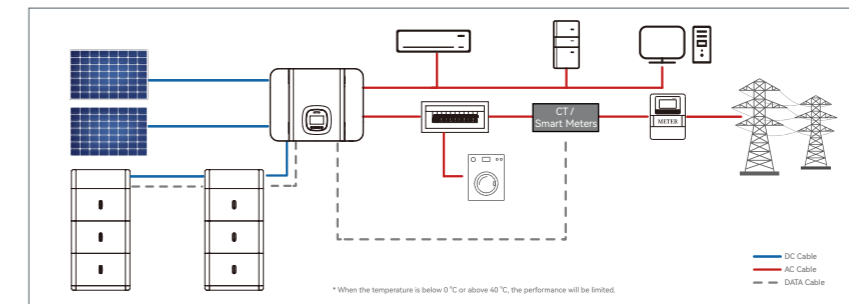
The APP-based remote monitoring offers easy maintenance and unlimited function expansion.



The built-in Smart Grid Management module enables power grid dispatching.



The Degree of Protection at IP66 makes it suitable for various harsh environments for application.





# Panda

Residential Three-phase Energy Storage System Panda Series

Panda 8000T~15kT-10HS~60HS

Panda 8000T~15kT-10HS~60HS  
Technical parameters



Inverter

Battery



The module adopted enables variable capacity range of 10~60 kWh.



The switching time between on-off grid less than 10 ms secures Uninterruptable Power Supply for the load.



The Lithium Iron Phosphate (LFP) cell secures safe and reliable operation.



The automatic isolation of the faulty battery module secures smooth system operation.



The APP-based remote monitoring offers easy maintenance and unlimited function expansion.

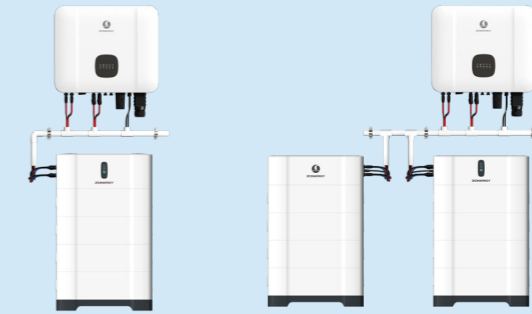


The built-in Smart Grid Management module enables power grid dispatching.



The Degree of Protection at IP66 makes it suitable for various harsh environments for application.

## System Demo



Flexible combination of 4-12 battery modules

### System Specification

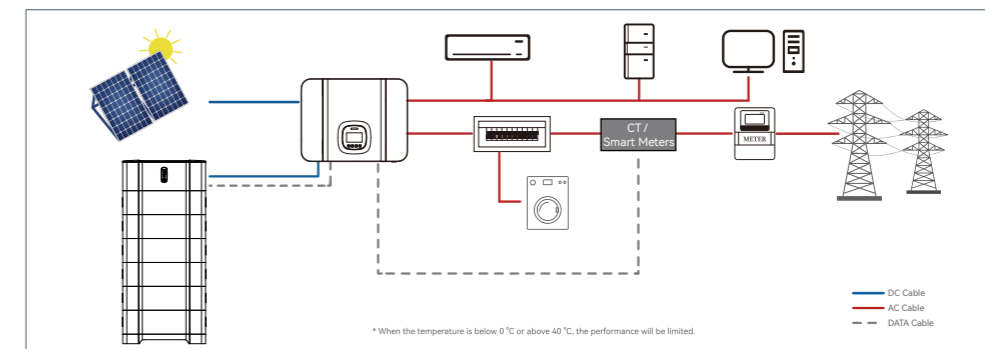
	8000 W	10 kW	12 kW	15 kW
Nominal Output Power	8000 W	10 kW	12 kW	15 kW
Capacity Range	10~60 kWh			
Usable Capacity Range	9~54 kWh			
Battery Chemistry	LFP (LiFePO4)			
IP Protection	IP66 (Outdoor)			

### Inverter Technical Specification

Model	Venus 8000-T1	Venus 10K-T1	Venus 12K-T1	Venus 15K-T1
Phase	Three Phase			
Max. PV Input Voltage	1000 V			
MPPT Voltage Range	160 V ~ 1000 V			
Max. PV Input Current	16 A		20 A	
Max. PV Input Power	12 kW	15 kW	26 kW	
Number of Independent MPPT	2			
Start-up Voltage Range	180 V			
Battery Voltage Range	180 V ~ 710 V			
Max. Charging/Discharging Current	30 A			
Max. Charging/Discharging Power	8 kW	10 kW	12 kW	
Nominal Output Voltage on Grid	400V			
Output Voltage Range on Grid	320 V ~ 480 V			
Nominal Output Frequency on Grid	50 Hz / 60 Hz			
Rated Grid Output Frequency on Grid	45~55Hz / 55~65Hz (comply with local regulations)			
Max. AC output Power	8.8 kW	11 kW	13.2 kW	16.5 kW
Communication	RS485/WIFI/4G(optional)			
Display	LED+bluetooth+APP			
Dimension(W*H*D) mm	420 x 520 x226			
Certification	NBT32004, IEC62109, IEC61727, IEC61683, IEC62116, Italy CEI 0-21, Germany VDE4105, EN62109-1/-2, EN62920, EN61000-6-1/-3, EN50549-1, VDE4105, UK G99/G100			

### Battery Technical Specification

Module Model	Limestone 10HS~Limestone 60HS
Number of modules	4~12
Module Capacity	10 kWh~60 kWh
Nominal Voltage	204.8 V~614.4 V
Max. Operating Current	25 A
Operating Temperature Range	-20 ~ +50 °C
Certification	IEC62619, IEC63056, EN IEC61000-6-1, IEC61000-6-3, EN IEC62040-1, EN IEC62477-1, IEC60529 IP66, UN38.3, MSDS, RoHS(2011/65/EU+2015/863), WEEE(2012/19/EU), ISTA



Note: Technical parameters listed hereunder are for reference only. Actual parameters shall be subject to products shipped.



# Mercury

Residential Single-phase On-grid PV Inverter Mercury Series

## Mercury 3680-S1~6000-S1

Mercury 3680-S1~6000-S1  
Technical parameters



Smart adaptive weak current network serves to avoid frequent grid-connection failures of the product.



Independent dual MPPT tracking adaptable to different installation scenarios.



Wide DC voltage range and longer power generation duration.



This product supports remote parameter setting, fault diagnosis and software upgrade.



This product with a variety of monitoring modes supports RS485, Wi-Fi/Ethernet/GPRS.



IP66 degrees of protection makes the product suitable for various harsh application environments.

Technical parameters:	Mercury 3680-S1	Mercury 4000-S1	Mercury 4600-S1	Mercury 5000-S1	Mercury 6000-S1
<b>Input (DC)</b>					
Maximum panel input power recommended	5520 Wp	6000 Wp	6900 Wp	7500 Wp	9000 Wp
Maximum input voltage	600 V				
Start-up input voltage	120 V				
Rated input voltage	360 V				
MPPT voltage range	100 V-550 V				
Full load DC voltage range	250 V-520 V				
Number of independent MPPT Strings	2 1/1				
Maximum Input current	16 A/16 A				
Maximum short circuit current	20 A/20 A				
<b>Output (AC)</b>					
Rated output power	3680 W	4000 W	4600 W	5000 W	6000 W
Maximum output current	16 A	17.4 A	20 A	21.7 A	26 A
Nominal grid voltage	L/N/PE, 220Vac, 230Vac, 240Vac				
Nominal AC voltage range	180 VAC-276 VAC (according to local standard)				
Rated grid frequency	50 Hz/ 60 Hz				
Grid frequency range	45 Hz-55 Hz/54 Hz-66 Hz (according to local standard)				
Active power adjustable range	0~100%				
Total harmonic component (current)	<3%				
Power Factor	1 (adjustable range: 0.8 leading ~ 0.8 lagging)				
<b>Efficiency</b>					
Maximum efficiency	97.60%		97.70%		97.80%
European weighted efficiency	97.10%		97.20%		97.30%
MPPT efficiency	>99.9%				
<b>Protection</b>					
Insulation impedance detection	yes				
DC reverse connection protection	yes				
Ground fault monitoring	yes				
Over-current protection	yes				
DC switch	yes				
AFCl protection	optional				
<b>General parameters</b>					
Ambient temperature range	-25 ~ + 60 °C (Rating reduction occurs when the ambient temperate rises above 45 °C.)				
Stand-by loss	<10 W				
Topology	no transformer				
Degrees of protection	IP66				
Relative Humidity range allowed	0~100%				
Communication	RS485, WIFI / 4G (optional)				
Protection level	Class I				
Maximum altitude for product operation	3000m(>2000m Rating reduction occurs)				
Connection mode of current sensor	external				
Noise	<29 dB				
Weight	11 kg				
Cooling mode	natural cooling				
Dimension (mm)	350*350*155				
Display	LED indicator light, Bluetooth / WIFI + APP				
<b>Other</b>					
Certification	EN IEC62109-1, EN IEC62109-2, IEC61683, IEC61727, IEC62116, IEC60068, EN IEC61000-6-1, EN IEC61000-6-3, EN50530, IEC60529 IP66, RoHS(2011/65/EU+2015/863), WEEE(2012/19/EU), ISTA, CQC NB/T32004, GB/T37408				
Warranty	5 Years				



# Apollo

Residential Three-phase On-grid PV Inverter Apollo Series  
Apollo 8000-T1~15K-T1

Apollo 8000-T1~15K-T1  
Technical parameters



The DC capacitance ratio can reach as high as 1.5 times, which is perfectly suitable for high current and double-sided solar panels.



DC arcing detection function can be selected to eliminate potential fire hazards.



The adaptive control algorithm adopted ensures the product fit for unstable grid.



Flexible monitoring modes support RS485, Wi-Fi and GPRS.



The Degree of Protection at IP66 makes it suitable for various harsh environments for application.



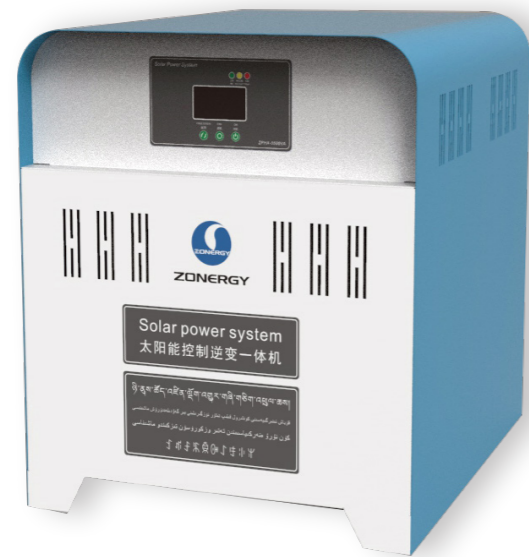
The product supports output of 1.1 times overload. This effectively increases power generation.

Technical parameters:	Apollo 8000-T1	Apollo 10K-T1	Apollo 12K-T1	Apollo 15K-T1
<b>Input parameters (DC)</b>				
Max. panel input power recommend (kW)	12	15	18	22.5
Max. DC input voltage (V)	1100			
Max. input current of each MPPT (A)	16			20
Short circuit current of each MPPT (A)	25			30
No. of MPPT	2			2
Strings	1+1			2+2
Start-up voltage (V)	180			
MPPT Voltage range (V)	160V~1000			
Full-load MPPT Voltage range (V)	550~850			
Rated Input Voltage (V)	600			
<b>Output parameters (AC)</b>				
Rated output power (kW)	8.8kW@40°C 8kW@45°C	11kW@40°C 10kW@45°C	13.2kW@40°C 12kW@45°C	16.5kW@40°C 15kW@45°C
Max. output power (kW)	8.8	11	13.2	16.5
Output connection type	3W+PE or 3W+N+PE			
Rated voltage/Voltage range (V)	400/320~480			
Rated grid frequency	45~55Hz / 55~ 65Hz (According to local grid standards)			
Rated output current (A)	12.2	15.2	18.2	22.8
Maximum output current (A)	13.4	16.7	20.1	25.1
Power Factor (settable)	> 0.99 @ full power (adjustable range: 0.8 leading ~ 0.8 lagging)			
Total Harmonic Distortion THDi (full load)	< 3% (full load)			
<b>Efficiency</b>				
MPPT efficiency	99.9%			
Maximum efficiency	98.4%			
Euro. efficiency	97.8%			98.5%
China efficiency	97.5%			98.0%
<b>Protection function</b>				
DC switch	yes			
Output short circuit protection	yes			
Power grid fault monitoring	yes			
DC reverse connection detection	yes			
String monitoring	yes			
DC lightning protection	type II			
AC lightning protection	type II			
DC insulation impedance detection	yes			
AC leakage current detection	yes			
Over-temperature protection	yes			
DC component monitoring	yes			
Islanding detection	yes			
Smart IV diagnosis	yes			
Arc fault detection	optional			
Bus voltage monitoring	yes			
PID repair and protection	optional			
Arc fault detection	optional			
Remote upgrade and setup	yes			
anti-counterflow meter	optional			
Fault recorded	yes			
<b>Display and communication</b>				
Display mode	LED indicator light, Bluetooth / WIFI + APP			
Communication mode	RS485, WIFI / 4G (optional)			
<b>General parameters</b>				
Dimension (mm) (W×H×D)	518×422×208.5			
Weight (kg)	20			
Operating temperature range	-25°C ~ +60°C			
Cooling mode	Air colling without fan			
Maximum altitude for product operation	3000m (> 2000m Rating reduction occurs)			
Relative Humidity	0~100%			
Input terminal	MC4			
Output terminal	OT/DT terminal (Max. 50mm <sup>2</sup> cable section)			
Degree of protection	IP66			
Self power consumption at night	<1W			
Noise (dB)	<35			
Topology	no transformer			
<b>Other</b>				
Certification	EN IEC62109-1, EN IEC62109-2, IEC61683, IEC61727, IEC62116, IEC60068, EN IEC61000-6-2, EN IEC61000-6-4, EN50530, IEC60529 IP66, RoHS(2011/65/EU+2015/863), WEEE(2012/19/EU), ISTA, CQC NB/T32004, GB/T37408			
Warranty	5 Years			



# Granite

Residential Off-grid Energy Storage System Granite Series  
Granite 0500-PWM~001K-MPPT



Intelligent charging management effectively protects batteries.



The inverter output is standard 220 V / 50 Hz AC.



LED + LCD display enables real-time display of operation, fault and battery status.

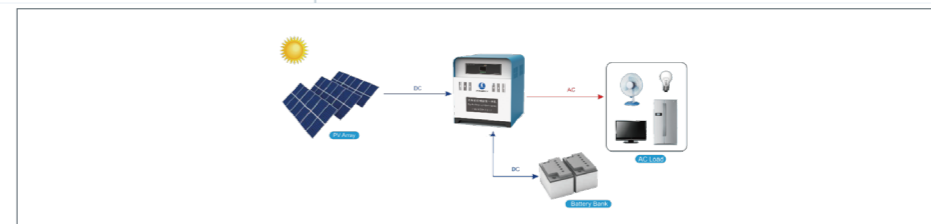


Complete protection functions of the product secure a high system stability.

Granite 0500-PWM~001K-MPPT

Technical parameters

Technical parameters:	ZPHA0500-PWM	ZPHA001K-PWM	ZPHA0500-MPPT	ZPHA001K-MPPT
<b>Solar controller</b>				
Input voltage allowed	24 ~ 60			
Maximum input current allowed	20	30	60	60
<b>Battery</b>				
Battery type	lead acid or colloid			
Battery under-voltage protection point	21.6			
Battery under-voltage protection recovery point	26			
Battery over-voltage protection point	32			
Battery over-voltage protection recovery point	30			
Battery floating charge voltage	28			
Battery overcharge protection point	29			
Battery overcharge protection recovery point	26.8			
<b>AC output</b>				
Output power	500/400 W	1000/800 W	500/400 W	1000/800 W
Output waveform	sine wave			
Rated AC output voltage	220±3%			
Rated AC output frequency	50±0.1			
Inverter efficiency	>85%			
Dynamic response time	<60			
Overload protection	100 ~ 125% (600), 125 ~ 150% (60), 150 ~ 200% (10)			
Short circuit protection	<0.1			
Stand-by power consumption	<12	<18	<12	<18
<b>Display function</b>				
Status	inverter indication, over voltage and under voltage indication, fault indication			
Numerical display LCD	output voltage frequency display, battery voltage and percentage display, load voltage and current display, solar energy input voltage display, and charging current display			
<b>Other parameters</b>				
Protection function	battery over-voltage protection, under-voltage protection, over-temperature protection, output over-load protection, load short circuit protection, etc.			
Noise	≤35			
Working environment	-20~50 °C			
Relative Humidity allowed	≤95% non condensing			
Altitude	≤3000			
Cooling mode	Smart air cooling			
Degree of protection	IP20 (indoor)			
Dimension	560*442*501			
Package	620*500*560			
Weight (kg)	23 (battery excluded)	25 (battery excluded)	23 (battery excluded)	25 (battery excluded)
Certification	CQC			





# Granite

## Off-grid Energy Storage Inverter Granite Series Granite 3000L-M1

Granite 3000L-M1  
Technical parameters



Fully digital control design  
Integrating MPPT solar  
controller and inverter



Pure sine wave output  
Super strong impact resistance



LED+LCD Real-time monitoring  
of inverter operation status and  
various operating parameters

Technical parameters:	Granite 3000L-M1
<b>Basic parameters</b>	
Rated power	3000 W
System voltage	48 V
Output voltage	220 V $\pm$ 5%
Output frequency	50/60 Hz $\pm$ 1%
Conversion efficiency	$\geq$ 85%
Overload capacity	100~120% 10min; 120%~150% 1min; >150% 10s
Output waveform	Pure Sine Wave
<b>Solar energy control</b>	
Charging mode	MPPT
Maximum power	3360 W
Maximum charging current	60 A
Photovoltaic input voltage range	70~150 VDC
Maximum input voltage of photovoltaic system	170 VDC
<b>Other parameters</b>	
Display method	LCD + LED
Display contents	Indication of PV input voltage, PV charging current, battery voltage, inverter output voltage, load capacity, working status, etc.
Cooling mode	Fan cooling
Communication mode	RS485
Noise level	<60 (1 m)
Sea level for use	$\leq$ 3000 m When exceeding 3,000 meters, it needs to be derated according to the standard for use
Working temperature	-20~55 $^{\circ}$ C
Storage temperature	-15~70 $^{\circ}$ C
Humidity range	0~90%RH Non-condensing
Authentication	CQC Golden Sun Certificate
Weight	26 kg
Dimension (W*H*D)	500*330*198 mm
<b>Battery parameters</b>	
Modules Model	Limestone 7.5H-P
Battery Chemistry	LFP (LiFePO <sub>4</sub> )
Modules capacity	7.68 kWh
Nominal voltage	51.2 V
Operating voltage range	43.2~58.4 V
Standard Charging/discharging Power	100 A
Weight	67.5 kg
Dimension (W*H*D)	600*430*270 mm



# Power Cube

## Modular Industrial and Commercial ESS Power Cube Series

### Power Cube EC215-100K-M01

Power Cube EC215-100K-M01  
Technical parameters



Technical parameters:	Power Cube EC215-100K-M01
<b>Battery configuration</b>	
Battery type	LFP 280 Ah
PACK configuration	14.336 kWh / 1P16S
Battery system configuration	215 kWh / 1P240S
Voltage Range	672-864 Vdc
<b>AC parameters (on-grid )</b>	
Rated power	100 kW
Maximum charge and discharge power	110 kW
Rated grid voltage	400, 3W+N+PE
Grid voltage range	360-440 Vac
rated current	150 A
Maximum Current	160 A
Rated grid frequency	50 Hz
Allowable grid frequency fluctuations	±5 Hz
Power Factor Range	-1 ~ +1
iTHD	< 3% (Rated power)
<b>System parameters</b>	
Size of battery cabinet	1600*1080*2270 mm (W*D*H)
Weight of battery cabinet	~2400 kg
Protection level	IP55
Operating temperature range	-30~+50°C (>45°CReduction)
Operating humidity range	0~95% (No condensation)
Max. working altitude	3000 m
Cooling mode	Intelligent air-cooled
Isolation mode	No transformer
Communication interface	Ethernet
Communication protocol	Modbus TCP
System certification	EN IEC62477-1, EN IEC62619, IEC60730 Annex H, EN IEC61000-6-2, EN IEC61000-6-4, UN38.3
PCS certification	GB/T34120, EN/IEC62477-1, IEC61000-6-2/-4, VDE 4105, EN50549-1, UK G99, Italy CEI 0-21



System efficiency is 5-8% higher than the industry average. Significantly improve system investment ROI.



Industry leading in battery temperature consistency. Effectively extending battery life by more than 10%.



Real-time data monitoring and fault recording, early warning, fault location.



Pack-level air duct design ensures system temperature consistency.



Integrated design, convenient transportation, reduce installation costs.



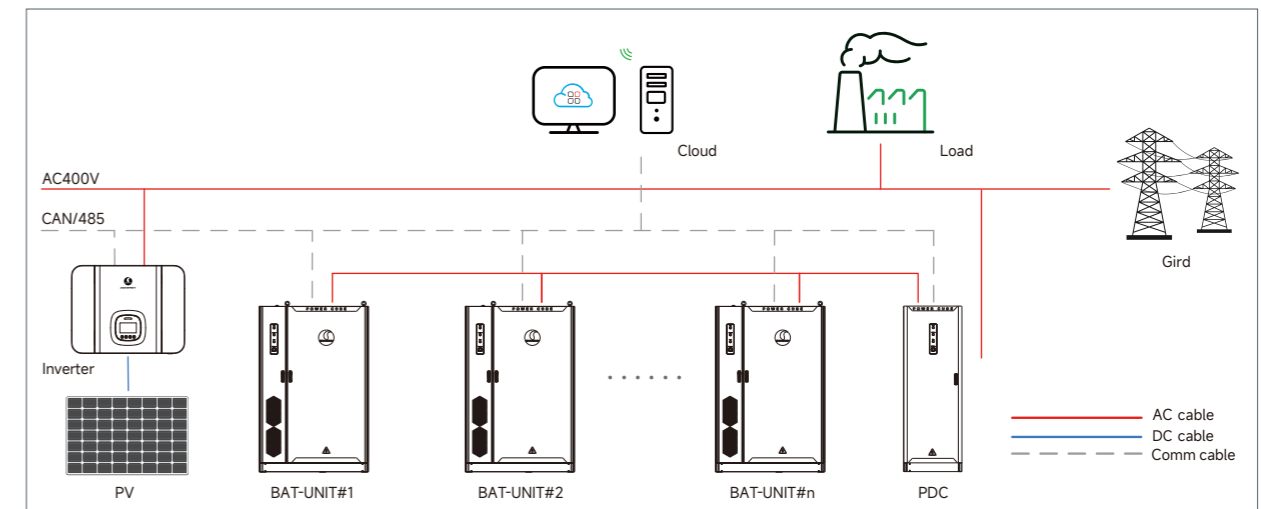
The large capacity cell reduces the system series-parallel connection.



Support for parallel, flexible capacity expansion.



Support grid-connected and off-grid operation.





# Baldr

Portable DC Power Supply Baldr Series (10-20 W)  
ZSPD-LFP0010B04~LFP0020B06

ZSPD-LFP0010B04~LFP0020B06  
Technical parameters



Technical parameters:	ZSPD-LFP0010B04	ZSPD-LFP0020B06
	Conventional parameters	
Solar photovoltaic panel	18V/10W*1PCS	18V/20W*1PCS
Battery capacity	4Ah/12.8VDC, LFP*1PCS	6Ah/12.8VDC, LFP*1PCS
Accessories in detail	8 m photovoltaic panel cable * 1, LED bulb 2.2 w /210 lm * 3, LED bulb cable 5 m * 3, five in one USB charging cable * 1	
Output port	5 VDC/ 1 A USB output * 2, 12.8 VDC/0.5 A output * 4	
LED indicator	solar charging indicator, battery power indicator, load status indicator	
Protection functions	over charging protection, over-discharging protection, over-current protection, short circuit protection, PV polarity reverse connection protection	
Rated voltage of the battery (VDC)	12.8	12.8
Maximum charging current for the controller (A)	3	3
Load current (A)	2.5	2.5
Dimension (mm)	198*93*70	198*93*70
Net weight (kg)	0.8	1.1
Gross weight (kg)	1.6	1.8
Working duration	LED bulb 2 W * 3 8 hours	LED bulb 2 W * 3 12 hours
Certification	CQC, MSDS UN38.3, CE, RoHS, Lighting Global	



The integration design makes this product portable, appealing and useful.



The smart circuit design with multiple protection built-in enables stable operation.



Solar power is provided at the charge for electricity of 0.



The power supply is equipped with 5 V USB standard output ports providing continuous charging for mobile phones.



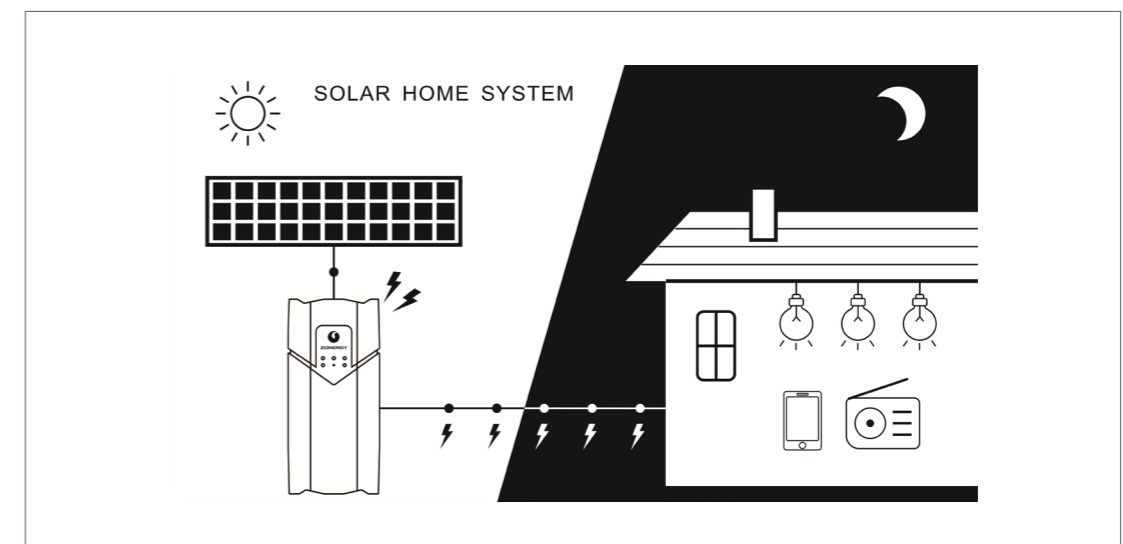
12 V output ports provided are suitable for most DC appliances.



Automatic protection can be activated for over-charging, over-discharging, short circuiting and reverse connecting with no need to replace the fuse.



With multiple output ports, one set of this product can adequately meet various demand from the user.





# Baldr

Portable DC Power Supply Baldr Series (30-60 W)  
ZSPD-LFP0030B12~LFP0060B20

ZSPD-LFP0030B12~LFP0060B20  
Technical parameters



Technical parameters:	ZSPD-LFP0030B12	ZSPD-LFP0050B18	ZSPD-LFP0060B20
	Conventional parameters		
Solar photovoltaic panel	18V/30W*1PCS	18 V/50 W*1PCS	18V/60W*1PCS
Battery capacity	12Ah/12.8VDC, LFP*1PCS	18Ah/12.8VDC, LFP*1PCS	20Ah/12.8VDC, LFP*1PCS
Accessories in detail	8 m photovoltaic panel cable * 1, LED bulb 3 w /310 lm * 3, LED bulb cable 5m * 3, five in one USB charging cable * 1		
Output port	5 VDC / 1 A USB output * 2, 12.8 VDC/2.5 A output * 6		
LED indicator	solar charging indicator, battery power indicator, load status indicator		
Protection functions	over charging protection, over-discharging protection, over-current protection, short circuit protection, PV polarity reverse connection protection		
Rated voltage of the battery (VDC)	12.8	12.8	12.8
Maximum charging current for the controller (A)	10	10	10
Load current (A)	5	5	5
Dimension (mm)	217*170*163	217*170*163	217*170*163
Net weight (kg)	2.1	2.7	2.9
Gross weight (kg)	3.3	3.8	4
Working duration	LED bulb 3 W * 3 17 hours	LED bulb 3 W * 3 25 hours	LED bulb 3 W * 3 28 hours
Certification	CQC, MSDS UN38.3, CE, RoHS, Lighting Global		



The integration design makes this product portable, appealing and useful.



The smart circuit design with multiple protection built-in enables stable operation.



Solar power is provided at the charge for electricity of 0.



The power supply is equipped with 5 V USB standard output ports providing continuous charging for mobile phones.



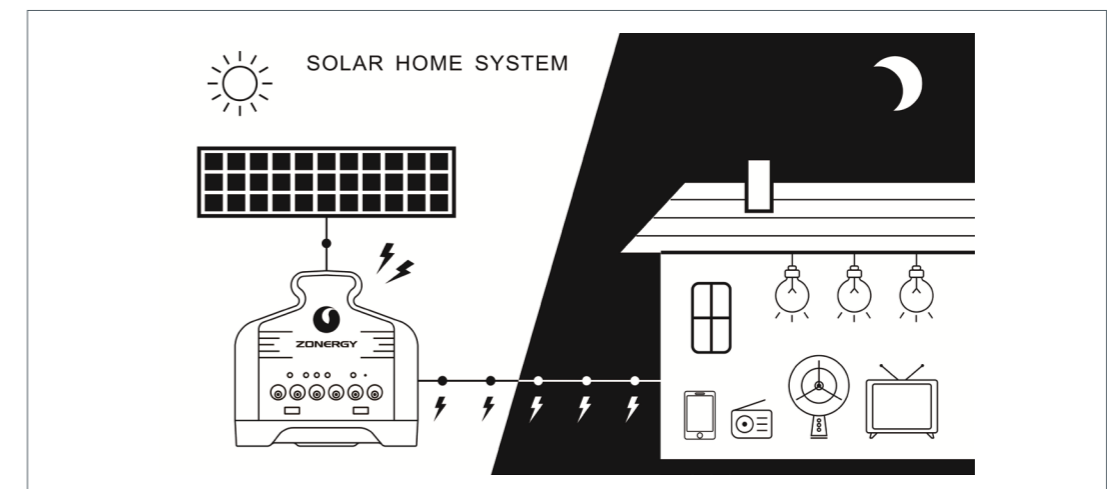
12 V output ports provided are suitable for most DC appliances.



Automatic protection can be activated for over-charging, over-discharging, short circuiting and reverse connecting with no need to replace the fuse.



With multiple output ports, one set of this product can adequately meet various demand from the user.





# Baldr

Portable DC Power Supply Baldr Series (80-100 W)

ZSPD-LFP0080B28~LFP0100B40

ZSPD-LFP0080B28~LFP0100B40

Technical parameters



Technical parameters:	ZSPD-LFP0080B28	ZSPD-LFP0100B40
	Conventional parameters	
Solar photovoltaic panel	18V/80W*1PCS	18V/100W*1PCS
Battery capacity	28 Ah/12.8 VDC, LFP*1 PCS	40 Ah/12.8 VDC, LFP*1 PCS
Accessories in detail	15 m photovoltaic panel cable * 1, LED bulb 3 w /480 lm * 3, LED bulb cable 5m * 3, five in one USB charging cable * 1	
Output port	5 VDC/ 1 A USB output * 2, 12.8 VDC/2.5 A output * 6, 12.8 VDC/5 A * 2, 12.8 VDC/8 A cigarette lighter outlet	
LED indicator	solar charging indicator, battery power indicator, load status indicator	
Protection functions	over charging protection, over-discharging protection, over-current protection, short circuit protection, PV polarity reverse connection protection.	
Rated voltage of the battery (VDC)	12.8	12.8
Maximum charging current for the controller (A)	10	10
Load current (A)	10	10
Dimension (mm)	283*170*189	283*170*189
Net weight (kg)	4.1	5.3
Gross weight (kg)	5.6	6.8
Working duration	LED bulb 5 W * 4 18 hours	LED bulb 5 W * 4 25 hours
Certification	CQC, MSDS UN38.3, CE, RoHS, Lighting Global	



The integration design makes this product portable, appealing and useful.



The smart circuit design with multiple protection built-in enables stable operation.



Solar power is provided at the charge for electricity of 0.



The power supply is equipped with 5 V USB standard output ports providing continuous charging for mobile phones.



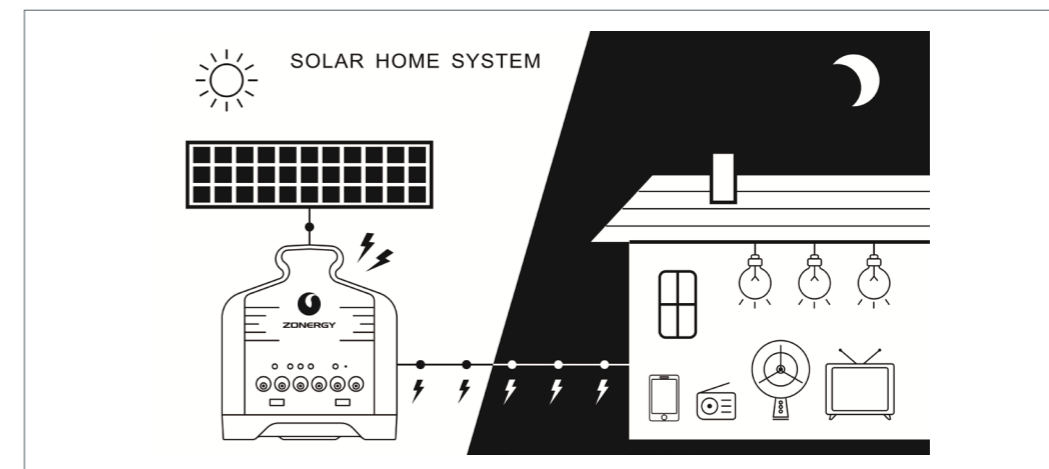
12 V output ports provided are suitable for most DC appliances.



Automatic protection can be activated for over-charging, over-discharging, short circuiting and reverse connecting with no need to replace the fuse.



With multiple output ports, one set of this product can adequately meet various demand from the user.



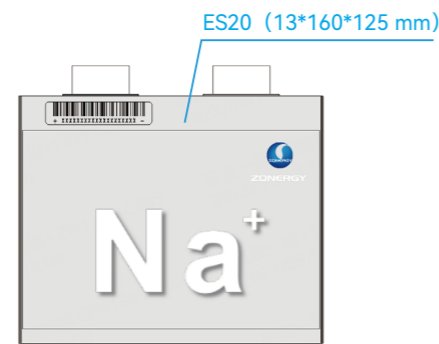


# Na

## Sodium-ion Battery Cell

NaNFM13160125-ES20\NaNFM50160118-EA75\NFPP72174207-EA160

NaNFM13160125-ES20\NaNFM50160118-EA75\NFPP72174207-EA160  
Technical Parameters



EA75 (50\*160\*118 mm)



EA160 (72\*174\*207 mm)



Technical Parameter:	NaNFM13160125-ES20	NaNFM50160118-EA75	NFPP72174207-EA160
Rated capacity	20 Ah	75 Ah	160Ah
Energy density	150 Wh/kg	132 Wh/kg	110 Wh/kg
Internal resistance of battery	ACR 1mΩ	ACR 0.5mΩ	ACR 0.3mΩ
Nominal voltage	3.0 V	3.0 V	3.0 V
Working voltage	1.5 - 3.95	1.5 - 3.95	1.5 - 3.4
Cycle Life	≥2500	≥2500	≥5000
Battery weight	0.4±0.02 kg	1.7±0.05 kg	4.4±0.1 kg
External dimension (T*W*H)	13*160*125 mm	50*160*118 mm	72*174*207 mm

### Application Fields:

The sodium-ion battery has more application potential in fields with less energy density requirements but is sensitive to safety and cost, such as the fields of distributed energy storage, low speed vehicles and backup power. **[Energy storage]** includes residential energy storage, industrial and commercial park energy storage, telecom base applicaiton, etc.; **[Low-speed vehicles]** mainly include the low speed electric vehicle, electric bicycles, electric boats, buses and coaches.

### Energy Storage Application:



Telecom base applicaiton



NaESS for C&I Park



Distributed NaESS in low-temperature region



**High safety:**  
Be kept and transported at zero voltage, with no transport safety risk.  
Less heat from spontaneous heating and few fire/explosion hazards in the event of overcharging/excessive discharge/short circuit/pressing.



**Excellent rate property:**  
Compared to the lithium ion, the sodium ion has smaller stokes diameter and better interface reaction kinetics, its desolvation ability is about 25% to 30% smaller, and the sodium ion cell has better rate and low temperature performance.



**Wide operating temperature range:**  
Good capacity retention ratio at high and low temperature (-60°C to 60°C).



**Good low-temperature characteristics:**  
①The capacity retention ratio is 90% at -20°C;  
②The capacity retention ratio is 87% at -30°C;  
③The capacity retention ratio is 85% at -40°C;



**Moderate energy density:**  
Similar weight and volume energy density to that of lithium iron phosphate liion cell.



NaESS+PV+Charger Integration Project



Residential NaESS

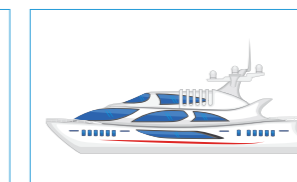
### Low-speed vehicle application:



Electric bicycle



Electric tricycle



Electric boat



Electric bus



## Project cases - Centralized solar power station projects



### Togtoh Photovoltaic Power Station, Hohhot, Inner Mongolia

Togtoh Photovoltaic Power Station in Togtoh County, Hohhot, Inner Mongolia was completed with a total installed capacity of 20 MW and connected to the grid in 2016. The project is a combination of photovoltaic and animal husbandry. After completion, the project has in local economic development a positive role providing not only new clean power supply but also a good environment and support for the development of animal husbandry. As a result, the social, economic and environmental benefits are prominent. It is estimated that the total power generation is about 690 million kWh during the project life (25 years), equivalent to saving some 241000 tons of standard coal and reducing 687000 tons of carbon dioxide emission.



### Photovoltaic Power Station 9\*100 MW in Pakistan

Zonergy gives full play to the rich experience of its international project management and implementation in comprehensive participation in project development for China Pakistan Economic Corridor. The Company's investment, construction and operation of the photovoltaic power station with the capacity of 9 \* 100 MW in Punjab, Pakistan turned out a successful on-grid project for Phase I of 3 \* 100 MW in July 2016. As one of the largest power stations invested and operated overseas by Chinese enterprises, the cumulative power generated by the power station has exceeded 3.7 billion kWh by 2023. Calculated according to the total population of Pakistan, the per capita benefit from the power station is 12 kWh, making a great contribution to Pakistan's green energy transformation.



### Shengda Photovoltaic Power Station in Qingshuihe County, Hohhot, Inner Mongolia

Shengda Photovoltaic Power Station in Qingshuihe County, Hohhot, Inner Mongolia was completed with a total installed capacity of 10 MW and connected to the grid in 2016. After the project completion, the mode of "decentralized inverter and step up transformer distribution, and centralized grid connection" was adopted to connect with the local grid. The supply of clean energy into the local grid has been optimizing the system power supply structure, reducing the pressure for environmental protection, promoting the sustainable development of regional economy, and contributing to energy conservation and emission reduction in the region. It is estimated that the total power generation is about 360 million kWh during the project life (25 years), equivalent to saving some 126000 tons of standard coal and reducing 35892 tons of carbon dioxide emission.

## Project cases - Centralized solar power station projects



### Hinggan League Photovoltaic Power Station, Inner Mongolia

Hinggan League Photovoltaic Power Station is located in Arilinyihe Village, Debosi Town, Horqin Right Front Banner, Inner Mongolia. The project was started in April 2016. In June 2016 Phase I of the Project with a generation capacity of 10 MW was completed for grid connection. In September 2016, phase II of the Project with a generation capacity of 10 MW was also completed for grid connection. The project therefore has a total of 20 MW installed capacity with grid connection. This project transforms the local abundant solar resources into green energy output, provides the locals with employment opportunities through project construction, operation and maintenance, optimizes regional power construction, promotes the utilization of green resources, and facilitates sustainable economic development. With an area of more than 1700 mu, the Project by June 2023 has generated 219540000 kWh power in total and achieved 191.42 million kg carbon dioxide emission reduction.



### Desert Photovoltaic Power Station in Alxa League

Located in Alxa League Economic Development Zone, Inner Mongolia, the power station has a total installed capacity of 30 MW from the development and utilization of desert wasteland of 2600 mu. Geographical conditions for the project construction were extremely complex. The Company overcame many difficulties and completed the project with a smooth grid-connection within a construction period as less as 108 days. This clearly reflected the project management and project roll-out capability of the Company in project construction.



## Project cases - Distributed power station projects



### Distributed photovoltaic power station project in telecom industry

Zonergy is the first domestic enterprise approved as the "National Golden Sun Demonstration Project in the Telecommunications Industry", and has assumed a leading position in the new energy field of the global telecommunications industry. There are more than 10000 communication base stations powered with new energy supply built by Zonergy globally. The Company established cooperative relations with China Tower and installed photovoltaic storage equipment on the tower site in an effort to help China Tower to reduce operating cost and ensure a safe, stable and sustainable operation of base station equipment.



### The 1.27 MW solar photovoltaic power station installed in Hi-tech Park in Nanshan, Shenzhen

The 1.27 MW solar photovoltaic power station installed in Hi-tech Park in Nanshan, Shenzhen is a National Golden Sun Demonstration project invested and constructed by Zonergy. The project has an effective installation area of 16263 square meters and an annual average power generation of 1453400 kWh. Within the valid working period of the power station (25 years), it can save 12700 tons of standard coal and reduce 31000 tons of carbon dioxide emission.



### Photovoltaic power project in Jiaxing, Zhejiang

Located in Xiuzhou Industrial Park, Jiaxing, Zhejiang Province, the project has a total installed capacity of 0.75 MW. The on-grid power generation was successfully launched in 2014. So far, the project has been in safe and smooth operation with an annual power generation of about 750000 kWh. Not only does the project contribute to the development of local green economy, but also reduces operating cost such as electricity charges for the owner to achieve win-win results.

## Project cases - Distributed power station projects



### Solar Power Generation Project of Training Centre, Pakistan International Airlines (PIA)

The installed capacity of the Solar Power Generation Project of Training Centre of Pakistan International Airlines (PIA) is 351 kW. Zonergy participated in the project construction as the main contractor. After overcoming difficulties arising from the pandemic and other aspects, the Company completed the project as quickly as possible. The project is expected to generate 494000 kWh of electricity every year. Within a design service life of 25 years, it will reduce a total of 4920 tons of carbon emission, making a positive contribution to Pakistan's energy transformation.



### Projects from the World Bank

According to the World Bank report, compared with the main grid and off-grid solar home system, micro-grid is a more feasible solution for areas with high population density for medium power demand. Globally, there are at least 19000 micro grids installed providing electricity to about 47 million people in 134 countries with a total investment of US \$28 billion. Zonergy is a global project equipment partner of the World Bank. It contracted five World Bank projects as BADIN, JPMC, NICH, UJAWAL, and TMK in Sindh and Baluchistan in Pakistan with a total capacity of 5 MW.



### Distributed photovoltaic power project in Wal Nobel Group, Pakistan

The project is located in the plant area of Wah Nobel Group, 45 km away from Islamabad, Pakistan. The scale of the project is 1.25 MW with the annual power generation of 2 million kWh. Since the successful grid connection, it secures not only a stable power supply for both production and household for the whole plant, but also a much lower power cost for the enterprise, which has been highly praised and recognized by the owner.



## Project cases - Off-grid solar power storage projects



### Off-grid solar energy storage projects in Sichuan Province

Zonergy solved the problem of electricity unavailability for 211.2 thousand people living in 275 towns from 33 counties with photovoltaic power stations constructed in three prefectures as Ganzi, Aba and Liangshan in Sichuan Province. The total installed capacity of off-grid energy storage project amounts to 24.97 MW, which made a great contribution to the local clean power supply. Zonergy assumes the responsibility of operation and maintenance for the whole project during operation period, carries out regular training, and strengthens patrol inspection and maintenance to ensure the long-term stable operation of the power station.



### Off-grid solar energy storage projects in Gansu Province

Zonergy solved the problem of electricity unavailability for people living in 589 villages in 178 towns from 31 districts or counties with photovoltaic power stations constructed in 8 prefectures and cities as Gannan, Zhangye, Wuwei, Jiuquan, Longnan, Qingyang, Pingliang, and Lanzhou. The total installed capacity of off-grid energy storage project amounts to 11.29 MW. This includes 60 centralized power stations and 19320 sets of household power solution systems. Practically, they solved the problem of electricity unavailability in life, medical care, and education for 88 thousand people. During the operation period, timely patrol inspection and maintenance ensures smooth operation of these power stations.



### Off-grid solar energy storage projects in Qinghai Province

Zonergy solved the problem of electricity unavailability for telecom base stations, areas without Mains Electricity, and disaster recovery in remote areas with off-grid photovoltaic power stations constructed in Yushu and Golog Tibetan Autonomous Prefecture. The total construction capacity of off-grid energy storage project amounts to 2.93 MW. The total power generation during the service life of the system will exceed 120 million kWh, bringing stable and green power to people living in remote areas.

## Project cases - Off-grid solar power storage projects



### Overseas Off-grid solar energy storage projects

Zonergy constructed many overseas off-grid systems such as the off-grid energy storage system with complementary mechanism for wind energy and solar energy for the ADB in Pakistan, the power supply system with complementary mechanism for wind energy and solar energy in Nepal, 6180 sets of household off-grid storage systems in Chad financed by National Development and Reform Commission of the P. R. China, 600 sets of mobile solar equipment in Namibia as an aid from the P. R. China. Zonergy has clearly targeted solutions to please customers in Pakistan, Nepal, Bangladesh, Chad, Namibia, Republic of the Congo and other countries.





CCTV "Hotline 12" Column Focusing On Zenergy's Project Construction



CCTV12 "Hotline 12" column published on January 26 titled "Technological Innovation in Green Energy to Aid Rural Revitalization Construction" focused on Sichuan Photovoltaic Independent Power Supply Capacity Expansion Project construction. One of the projects executed by Zenergy Corporation.



In 2023, the company completed the construction of the "2023 Sichuan Province Photovoltaic Independent Power Supply Capacity Expansion Project", with a total of 19 off-grid energy storage station projects. Among them, 10 were in Liangshan Prefecture, and 9 were in Ganzi Prefecture, addressing the power issues for over 15,000 people, and upgrading PV services for more than 2,000 households.

Sodium-ion Battery Commercial Application cases—Phase I of 500kW/1MWh Sodium-ion Battery Energy Storage Project



At the end of 2023, the first phase of the Zenergy's 500kW/1MWh photovoltaic energy storage and charging integration demonstration project (50kW/105kWh) was officially put into operation in Zigong city. It is the first sodium-ion battery storage demonstration project successfully put into operation in Sichuan Province.