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COSPOWERS

HANDBOOK OF SODIUM-ION
BATTERY ENERGY STORAGE
PRODUCT

Cospowers Technology Co., Ltd.



ABOUT COSPOWERS

Cospowers Technology Co., Ltd. is a high-tech enterprise specializing in the field of new energy storage. With a technical team boasting over 30 years of deep expertise in the energy storage battery industry, the company possesses comprehensive capabilities in R&D, manufacturing, sales, and service across materials, cells, battery management systems, energy management systems, and system integration. It has provided diversified products and systematic solutions for more than 70 countries and regions worldwide in sectors such as utility-scale energy storage, commercial and industrial energy storage, data center energy storage, telecommunications energy storage, residential energy storage, sodium-ion battery energy storage, and consumer batteries.

23GWh+

Global Cumulative Shipments

Tier1

BloombergNEF Energy Storage Manufacturer

860K m²

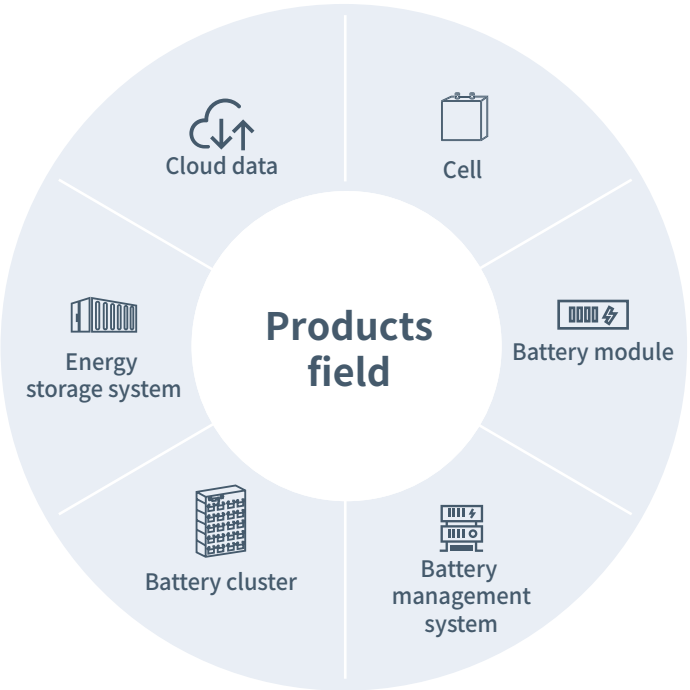
Factory area

530+

Patents and Software Copyrights

30+

Participation in Standard Formulation



GLOBAL LAYOUT

COSPOWERS has in-depth expertise in power and energy storage systems, has witnessed and chronicled the evolution of lithium-ion energy storage, and is driving the advancement of the industry.

70+

Service Coverage

29

Domestic and overseas subsidiaries and service outlets

3

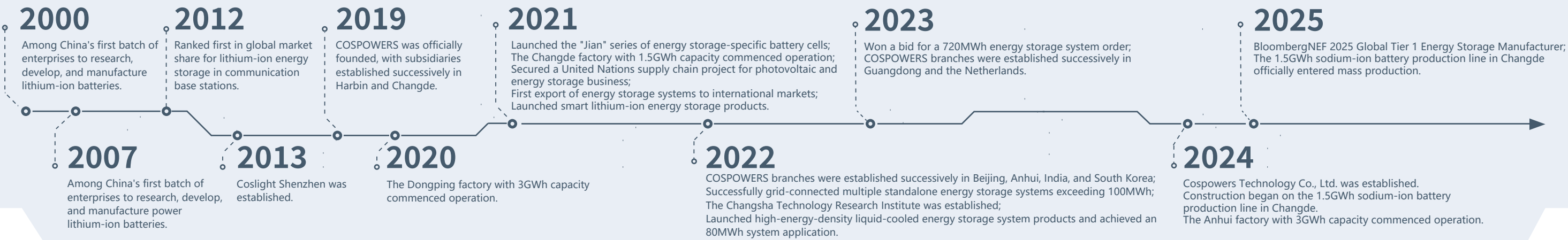
Production Base

4

R&D Centers



DEVELOPMENT HISTORY



Sodium-Ion Battery Cell

			
100Ah		170Ah	
Product Model	NA50160198A	Product Model	NA71173207A
Rated Capacity	100Ah	Rated Capacity	170Ah
Nominal Voltage	2.85V	Nominal Voltage	2.85V
Voltage Range	1.5~3.4V	Voltage Range	1.5~3.4V
Maximum Charge/Discharge Rate	1C/3C	Maximum Charge/Discharge Rate	0.5P/1P

No.	Model	Rated Capacity	Nominal Voltage	Voltage Range	Maximum Charge/Discharge Rate
Sodium-ion Battery Cells – Energy Series					
1	NA50160119A	50Ah	2.85V	1.5~3.4V	1C/3C
2	NA50160156A	75Ah	2.85V	1.5~3.4V	1C/3C
3	NA50160198A	100Ah	2.85V	1.5~3.4V	1C/3C
4	NA71173207A	170Ah	2.85V	1.5~3.4V	0.5P/1P
Sodium-ion Battery Cells – Power Series					
1	NA50160119A	50Ah	2.85V	1.5~3.4V	1C/10C
2	NA50160156A	75Ah	2.85V	1.5~3.4V	1C/10C
3	NA50160198A	100Ah	2.85V	1.5~3.4V	1C/10C



SMART SODIUM-ION BATTERY SERIES-4U

CN4875T

Application Field:
Communication base stations, macro station retrofits, power supply for shelters/outdoor cabinets, grid peak shaving and valley filling, and other scenarios, compatible with various energy storage system requirements.





Excellent high and low temperature performance
At ambient temperatures below 50°C, natural cooling is employed to save energy, and select products support charging at -10°C.



Intelligent protection
Features smart voltage, current, and temperature protection functions.



Easy maintenance
Integrated BMS design supports battery self-management, remaining energy, battery health monitoring, and other functions.



Anti-theft functionality
Compatible with various optional anti-theft features.



Operating modes
Includes self-managed constant voltage discharge, power-managed constant voltage discharge, and battery-characteristic discharge modes such as constant power discharge, enabling hybrid use of different battery types.

BMS Introduction		Module Specification and Parameters	
	Introduction	Model	CN4875T
Communication interface	RS485/RS232/CAN	Connection Method	1P15S
Information sampling function	With each series-connected single cell voltage, external busbar voltage, total battery pack voltage, charging and discharging current, cell surface temperature, BMS single-board temperature sampling function	Rated Energy	3480Wh
Battery Cell equalization function	The battery has a passive equalization function, which can be activated when the cell pressure difference exceeds a certain value during charging.	Rated Capacity	75Ah
Charging current Limit function	With the function of automatically entering the current-limiting charging mode when detecting the battery cell:low voltage, high voltage, low temperature, high temperature, poor consistency, charging over-current protection	Rated Voltage	46.4V
Voltage acquisition accuracy	0~5V , Detection accuracys10mV; 0~60V Detection accuracys0.5%	Voltage Range	40~58V(22~58V)
Current acquisition accuracy	Detection accuracys1% (0.5C charging/discharging)	Charging Current	35A
Anti-theft function	Software anti-theft, communication anti-theft, gyroscope anti-theft and other functions	Discharging Current	75A
System component failure alarm	It has failure detection and alarm function for key components of BMS board. While it is detected with temperature sensor failure, voltage detection failures, charge and discharge MOS failure, an alarm will be generated and the charge and discharge loops will be disconnected (if the charge and discharge loop is damaged, it is not required to disconnect), the battery cannot recover automatically, and all the indicators flash to prompt.	Operating Temperature	Charging: -10~50°C; Discharging: -30~70°C; Storage: -30~45°C
History logs	500 historical records, 10000 historical records and life-cycle storage are optional; Independent storage space; BMS has power failure preservation capability; Historical data records include battery voltage, current, ambient temperature, SOC, SOH, cycle times, cumulative discharge capacity and other data	Self-Discharge Rate	≤3% (0~30°C / 3 months)
		Dimensions (W*D*H)	440*430*176mm
		Weight	55Kg
		Lifespan	> 4000 cycles @80% DOD, 0.5C/0.5C
		Certification	YD2344.1-2023、UN38.3

SMART SODIUM-ION BATTERY SERIES-5U

CN48100T

Application Field :
Communication base
stations, macro station
retrofits, power supply
for shelters/outdoor
cabinets, grid peak
shaving and valley filling,
and other scenarios,
compatible with various
energy storage system
requirements.





Excellent high and low temperature performance
At ambient temperatures below 50°C, natural cooling is employed to save energy, and select products support charging at -10°C.



Intelligent protection
Features smart voltage, current, and temperature protection functions.



Easy maintenance
Integrated BMS design supports battery self-management, remaining energy, battery health monitoring, and other functions.



Anti-theft functionality
Compatible with various optional anti-theft features.



Operating modes
Includes self-managed constant voltage discharge, power-managed constant voltage discharge, and battery-characteristic discharge modes such as constant power discharge, enabling hybrid use of different battery types.

BMS Introduction

	Introduction
Communication interface	RS485/RS232/CAN
Information sampling function	With each series-connected single cell voltage, external busbar voltage, total battery pack voltage, charging and discharging current, cell surface temperature, BMS single-board temperature sampling function
Battery Cell equalization function	The battery has a passive equalization function, which can be activated when the cell pressure difference exceeds a certain value during charging.
Charging current Limit function	With the function of automatically entering the current-limiting charging mode when detecting the battery cell:low voltage, high voltage, low temperature, high temperature, poor consistency, charging over-current protection
Voltage acquisition accuracy	0~5V, Detection accuracys10mV; 0~60V Detection accuracys0.5%
Current acquisition accuracy	Detection accuracys1% (0.5C charging/discharging)
Anti-theft function	Software anti-theft, communication anti-theft, gyroscope anti-theft and other functions
System component failure alarm	It has failure detection and alarm function for key components of BMS board. Whileit is detected with temperature sensor failure, voltage detection failures,charge and discharge MOS failure, an alarm will be generated and the charge and discharge loops will be disconnected (If the charge and discharge loop is damaged, it is not required to disconnect), the battery cannot recover automatically, and all the indicators flash to prompt.
History logs	500 historical records, 10000 historical records and life-cycle storage are optional; Independent storage space; BMS has power failure preservation capability; Historical data records include battery voltage, current, ambient temperature, SOC, SOH, cycle times, cumulative discharge capacity and other data

Module Specification and Parameters

Model	CN48100T	
Connection Method	1P10S	1P16S
Rated Energy	4800Wh	4640Wh
Rated Capacity	100Ah	100Ah
Rated Voltage	48V	46.4V
Voltage Range	40~58V(22~58V)	40~58V(22~58V)
Charging Current	50A	50A
Discharging Current	50A	100A
Operating Temperature	Charging: -10~50°C; Discharging: -30~70°C; Storage: -30~45°C	
Self-Discharge Rate	≤3% (0~30°C / 3 months)	
Dimensions (W*D*H)	440*550*200mm	440*430*222mm
Weight	46Kg	76Kg
Lifespan	> 4000 cycles @80% DOD, 0.5C/0.5C	
Certification	YD2344.1-2023、UN38.3	

SMART SODIUM-ION BATTERY SERIES-5U

CN48170T NEW

Application Field :
Communication base
stations, macro station
retrofits, power supply
for shelters/outdoor
cabinets, grid peak
shaving and valley filling,
and other scenarios,
compatible with various
energy storage system
requirements.





Excellent high and low temperature performance
At ambient temperatures below 50°C, natural cooling is employed to save energy, and select products support charging at -10°C.



Intelligent protection
Features smart voltage, current, and temperature protection functions.



Easy maintenance
Integrated BMS design supports battery self-management, remaining energy, battery health monitoring, and other functions.



Anti-theft functionality
Compatible with various optional anti-theft features.



Operating modes
Includes self-managed constant voltage discharge, power-managed constant voltage discharge, and battery-characteristic discharge modes such as constant power discharge, enabling hybrid use of different battery types.

BMS Introduction

	Introduction
Communication interface	RS485/RS232/CAN
Information sampling function	With each series-connected single cell voltage, external busbar voltage, total battery pack voltage, charging and discharging current, cell surface temperature, BMS single-board temperature sampling function
Battery Cell equalization function	The battery has a passive equalization function, which can be activated when the cell pressure difference exceeds a certain value during charging.
Charging current Limit function	With the function of automatically entering the current-limiting charging mode when detecting the battery cell:low voltage, high voltage, low temperature, high temperature, poor consistency, charging over-current protection
Voltage acquisition accuracy	0~5V, Detection accuracys10mV; 0~60V Detection accuracys0.5%
Current acquisition accuracy	Detection accuracys1% (0.5C charging/discharging)
Anti-theft function	Software anti-theft, communication anti-theft, gyroscope anti-theft and other functions
System component failure alarm	It has failure detection and alarm function for key components of BMS board. Whileit is detected with temperature sensor failure, voltage detection failures,charge and discharge MOS failure, an alarm will be generated and the charge and discharge loops will be disconnected (If the charge and discharge loop is damaged, it is not required to disconnect), the battery cannot recover automatically, and all the indicators flash to prompt.
History logs	500 historical records, 10000 historical records and life-cycle storage are optional; Independent storage space; BMS has power failure preservation capability; Historical data records include battery voltage, current, ambient temperature, SOC, SOH, cycle times, cumulative discharge capacity and other data

Module Specification and Parameters

Model	CN48170T
Connection Method	1P16S
Rated Energy	7752Wh
Rated Capacity	170Ah
Rated Voltage	46.4V
Voltage Range	40~58V(22~58V)
Charging Current	50A
Discharging Current	100A
Operating Temperature	Charging: -10~50°C; Discharging: -30~70°C; Storage: -30~45°C
Self-Discharge Rate	≤3% (0~30°C / 3 months)
Dimensions (W*D*H)	440*580*222mm
Weight	105Kg
Lifespan	> 4000 cycles @80% DOD, 0.5C/0.5C
Certification	YD2344.1-2023、UN38.3

Data Center Short Duration Power Backup Series

CNS80050U

Immersion-Cooled Sodium Battery System

NEW HOT



- 1 High Safety:** Fully immersion technology completely isolates oxygen, providing protection against fire, explosion, and smoke.
- 2 Temperature Uniformity:** Immersion battery cells offer excellent temperature uniformity.
- 3 Cost-Effectiveness:** Precise temperature control with a temperature difference $\leq 2^{\circ}\text{C}$ ensures high consistency and ultra-long cycle life.
- 4 Flexibility:** Space-saving, modular design supports compact layouts, reducing the required footprint.
- 5 Compatibility:** The system is compatible with two/three-line configurations, meeting the requirements of various UPS models.
- 6 Efficient Thermal Management:** Full-time, full-area immersion of battery cells enables efficient thermal management, increasing system efficiency by 3%.

Product parameters

Product model		CNS80050U	
Cell Material	Na ⁺		
Nominal Voltage	741Vdc		
Rated Charging Voltage	910Vdc		
Nominal Capacity	50Ah/37.05kWh		
Self-Discharge Rate	≤3% (0~30°C/3 months)		
Standard Discharge Current	50A Continuous discharge(1C)		
Maximum Discharge Current	300A Continuous discharge(6C)		
Standard Charging Current	25A(0.5C)		
Maximum Charging Current	50A(1C)		
Cycle Life	4000 cycles @80%DOD, 0.5C/0.5C		
Communication Interface	CAN; RS485; Dry contact		
Protection Functions	Over-temperature, over-current, short circuit, over-charging, over-discharging, etc.		
Dimensions (W*D*H)	1200*1000*2000mm		
Environment			
Storage Temperature	-40~60°C		
Transportation Temperature	-40~60°C		
Operating Ambient Temperature	-20~60°C		
Relative Humidity	5~95%		
Altitude	≤2000m		
Single Rack Performance Data			
Time	10-minute	15-minute	20-minute
Power	182kW	121kW	91kW
Energy	300A	150A	100A

PowerEco-100kW/200kWh-Na

Application Field
Microgrid, Industrial Park,
Industrial Estate



flexible expansion, one machine multi-effect matching a variety of application scenarios



Utilizes sodium-ion batteries with excellent high and low temperature performance



highly integrated design AC and DC integrated



fingertip monitoring cloud maintenance

Parameters/ Model		PowerEco-100kW/200kWh
DC Side Parameters	DC Bus Maximum Voltage	1500V
	DC Side Maximum Current	212A
	DC Voltage Operating Range	600~1500V
AC Grid-tied Parameters	Maximum Input Apparent Power	115kVA
	Maximum Input Active Power	100kW
	Rated Input Voltage	400 (±15%) Vac, 3P3W+PE
	Maximum Continuous Input Current	198A
AC Off-grid Parameters	Rated Input Frequency	50Hz
	AC Off-grid Voltage	400V, 3P3W+PE
	Maximum Continuous Output Current	198A
Battery Parameters	AC Off-grid Frequency	50Hz
	Cell Capacity	170Ah-Na ⁺
	Rated Energy	201kWh
	Nominal Voltage	1185.6V
	Operating Voltage Range	624~1456V
System level Parameters	C-rate	$\leq 0.5\text{C}$
	Human-Machine Interface	7-inch LCD Touch Screen
	Fire Protection System	Perfluorohexanone Fire Extinguishing
	Cooling Method	Liquid Cooling
	Operating Temperature	-40~55°C
	Protection Level	IP54
	Dimensions (W*D*H)	1400*1400*2350mm
	Weight	<3000Kg

EnerGalactic-2418-Na

Application Field:

- Peak shaving, valley filling, and output smoothing for renewable energy stations (wind and solar);
- Grid-side frequency regulation, peak shaving, and distribution network transformer capacity expansion;
- Peak-valley arbitrage and backup power for customer-side C&I commercial and industrial energy storage.



Temperature difference across the entire cabinet <5°C



Three-tier fire protection, high safety



High energy density, flexible layout and scalability



Modular prefabrication, no on-site installation required

Parameters/ Model		EnerGalactic-2418-Na	
Battery Module	Cell Capacity	170Ah-Na ⁺	
	Module Configuration	1P52S	1P104S
	Module Nominal Voltage	148.2V	296.4V
	Module Energy	25.194kWh	50.388kWh
	Protection Level	IP67	
Battery Rack	Number of Modules	8pcs	4pcs
	Battery Rack Nominal Voltage	DC1185.6V	
	Voltage Range	624~1456V	
	Single Rack Energy	201.552kWh	
Battery Enclosure	Number of Battery Racks	12pcs	
	Battery System Energy	2418kWh	
	Dimensions (W*D*H)	6058*2438*2896mm	
	Weight	≤43t	
	Cooling Method	Liquid Cooling	
	Protection Level	IP54	
Other Parameters	Compliance Standards	IEC62619、UL1973、UL9540A、UN38.3	

COSPOWERS AI Smart Cloud Platform



AI Monitoring



Real-time monitoring of battery performance and operating status, enabling lifespan prediction and proactive protection through AI simulation and fault identification.

AI Dispatch



Leveraging multi-source data and intelligent algorithms to collaboratively participate in the electricity market, enhancing system flexibility and accommodation capacity to achieve optimal strategies.

Data Management



High-availability clusters and remote backup ensure data security, while a comprehensive indicator and reporting system supports investment and market decision-making.

Smart Operation and Maintenance



Electrical equipment inspection, diagnostic battery system maintenance strategy push, offline operation and maintenance work order management, and evaluation.

The new platform is built on a microservices architecture, supporting high-availability clusters and multi-tenant management, enabling a fully closed-loop data flow for solar, storage, and charging. By integrating intelligent forecasting and optimized dispatch, it establishes a source-grid-load-storage coordination model, helping comprehensive energy systems achieve economical, low-carbon, and multi-objective optimal operation.

Sodium Battery Series Application Cases



China Mobile Ningxia Data Center Distributed Photovoltaic Project

Project Time: 2025
Project Location: Zhongwei,Ningxia,China



China Mobile Heilongjiang Smart Sodium Battery Project
Project Time: 2024
Project Location: Heihe,Heilongjiang, China

Sodium Battery Series Application Cases



China Tower Heilongjiang Smart Sodium Battery Project
Project Time: 2024
Project Location: Qitaihe,Heilongjiang, China



China Tower Gansu Smart Sodium Battery Project
Project Time: 2024
Project Location: Tianshui,Gansu, China

Four Core Pillars of the Energy Storage Cloud Platform



Multi-Model Analytics



Establishes various models based on heat generation and charge/discharge data to conduct multi-dimensional analysis on each individual battery cell, followed by a comprehensive evaluation.

High Identification Accuracy



Collects data every 500 milliseconds and applies dynamic compensation and correction to the battery data to ensure high identification accuracy.

Data Real-Time Performance



Performs data analysis for the energy storage power station based on each complete charge/-discharge cycle, significantly improving the battery assessment frequency.

Proactive Early Warning

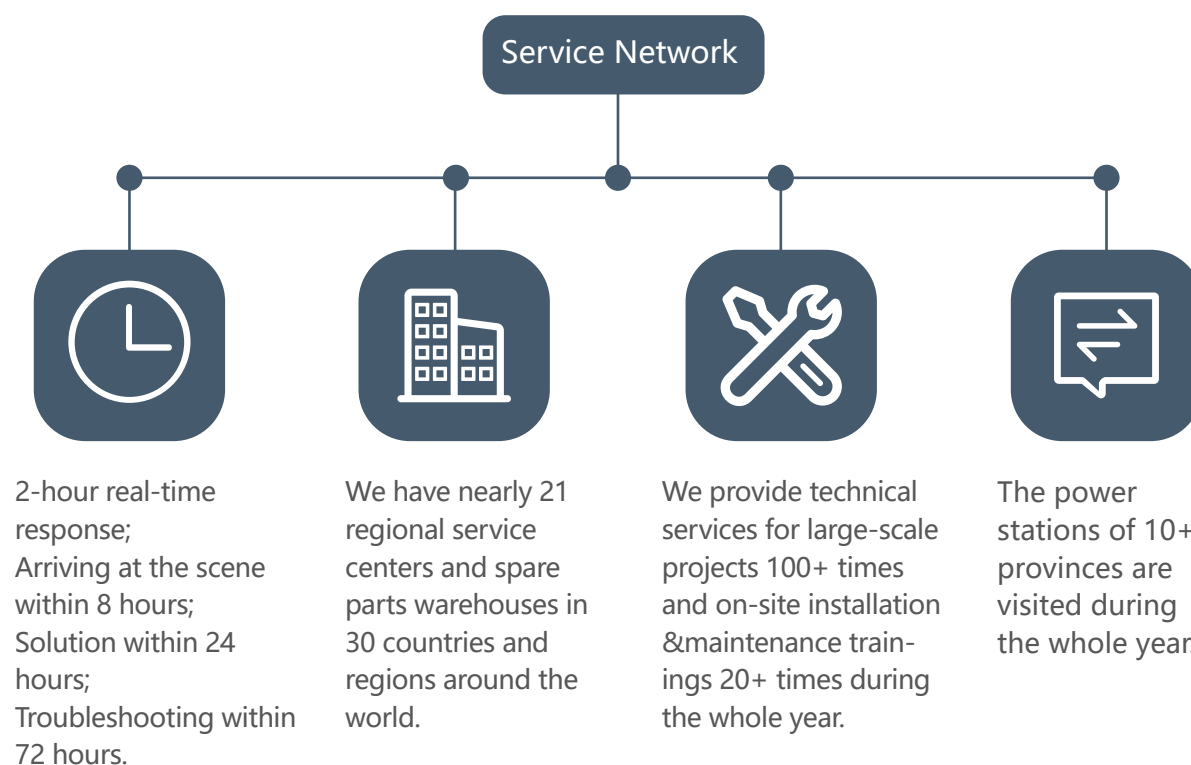


Analyzes battery data to enable the screening of potentially faulty batteries up to 7 days in advance, providing specific maintenance recommendations.

After-Sales Service



The guidance of Cospower is to improve customer satisfaction, to provide high quality, efficient and professional technical services for customers.



Cooperatice Customers

