

# Na+



**Cospowers Technology Co., Ltd.**

Room 203, No.28, Dongqi Road, Dongying City, Shandong Province, PRC

**Shenzhen Coslight Power Technology Co., Ltd.**

Factory 101, No.2, Guangtian Road, Luotian Community, Yanluo Street, Baoan District, Shenzhen City, Guangdong Province, PRC

**Changde Cospowers New Energy Technology Co., Ltd.**

(Graphene Industrial Park) No.4 Songlin Road, Sujiadu community, Zhangmuqiao Street, Economic and Technological Development Zone, Changde City, Hunan Province, PRC

**Cospowers Technology Co., Ltd. Changsha Branch**

Building 13, Phase I, Zhongdian Software Park, No.39 Jianshan Road, High-Tech Development Zone, Changsha City, Hunan Province, PRC

**Hongkong Cospower Technology Co., Ltd.**

Unit 804, 8/F, Inter-Continental Plaza, 94 Granville Road, Tsim Sha Tsui East, Kowloon, Hong Kong

**Changde Cospowers New Energy Co., Ltd.**

(Room 301, 3rd Floor, Comprehensive Building, Graphene Industrial Park) No.4 Songlin Road, Sujiadu community, Zhangmuqiao Street, Economic and Technological Development Zone, Changde City, Hunan Province, PRC

**Cospower Company Limited (South Korea)**

909-15, Ganam-ro, Ganam-eup, Yeosu-si, Gyeonggi-do, Republic of Korea

**Cospowers America Inc.**

3859 S. Valley View Blvd. Suite 2, Las Vegas.

**Cospowers GmbH**

Taufsteinstr. 1, 63477 Maintal, Germany

**Cospower Technology Indian Branch Office**

Plot No.:25-B Hardware Park, Imaratkancha, Raviraj, Maheswaram(M), Ranga Reddy, TelANGANA-500005

**Beijing Cospowers New Energy Co., Ltd.**

No.169 Jijiamiao Road, Fengtai District, Beijing City, PRC

**Harbin Coslight New Energy Co., Ltd.**

Building 1, Nanhu Road, Jizhong Area, Yingbin Road, Development Zone, Harbin City, PRC

**Anhui Cospowers New Energy Co., Ltd.**

On both sides of Jing 19 Road, South of Tiankang Avenue, Tianchang City, Anhui Province, PRC

**Lexel Battery (Shenzhen) Co., Ltd.**

No.2, Guangtian Road, No.3 Industrial Zone, Luotian Community, Yanluo Street, Baoan District, Shenzhen, PRC

**Guangdong Cospowers New Energy Co., Ltd.**

Room 403 and 501, Factory 2, No.23, Gantang Avenue, Wujiang District, Shaoguan City, Guangdong Province, PRC

**Cospowers B.V.**

Prins Hendrikade 21 E, 1012TL Amsterdam, Netherland

**Cospowers Chile SPA**

Las Condes, Región Metropolitana De Santiago, Chile

**Cospowers Technology Australia Pty Ltd**

301 Burwood Hwy Burwood Vic 3125

## COSPOWERS




# HANDBOOK OF SODIUM-ION BATTERY ENERGY STORAGE PRODUCT

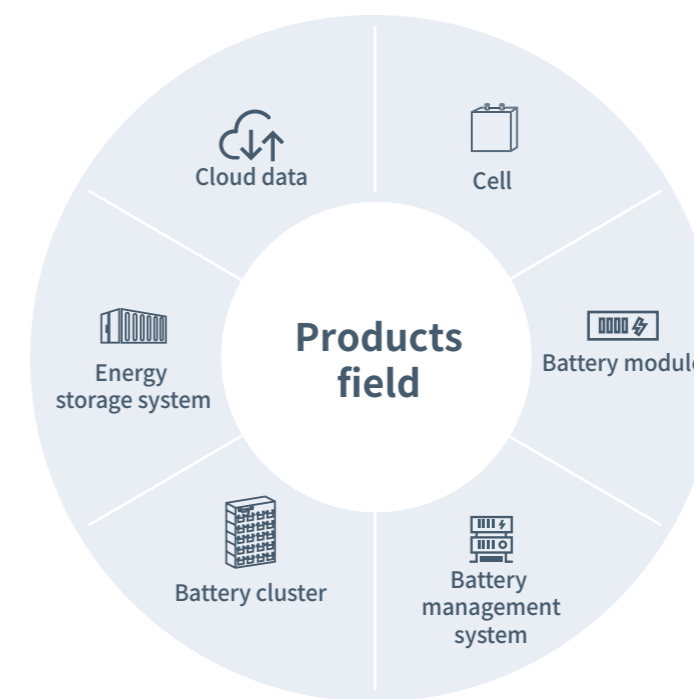
Cospowers Technology Co., Ltd.



## 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.

 <b>23GWh+</b>	 <b>Tier1</b>	 <b>860K m<sup>2</sup></b>	 <b>530+</b>	 <b>30+</b>
Global Cumulative Shipments	BloombergNEF Energy Storage Manufacturer	Factory area	Patents and Software Copyrights	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

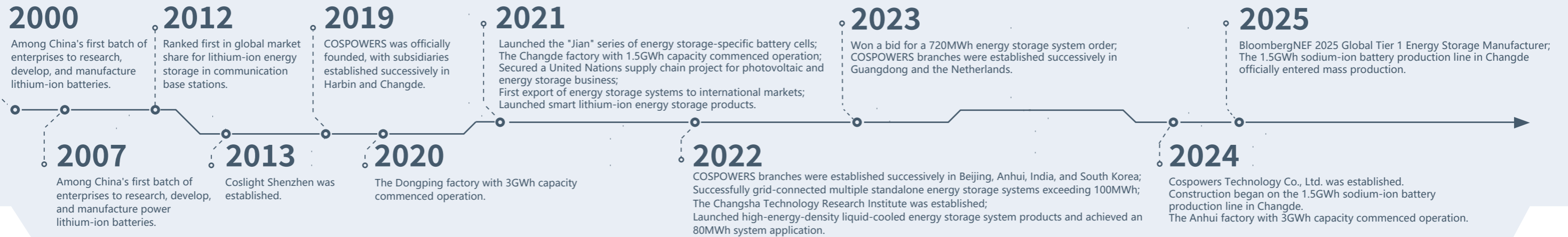
28  
Domestic and foreign subsidiary companies

3  
Production Base

4  
R&D Centers



## DEVELOPMENT HISTORY



# Sodium-Ion Battery Cell

## 50Ah



Product Model	NA50160119A
Rated Capacity	50Ah
Nominal Voltage	2.85V
Voltage Range	1.5~3.4V
Maximum Charge/Discharge Rate	1C/3C

### Product Certification



## 75Ah



Product Model	NA50160156A
Rated Capacity	75Ah
Nominal Voltage	2.85V
Voltage Range	1.5~3.4V
Maximum Charge/Discharge Rate	1C/3C

### Product Certification



## 100Ah



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

### Product Certification



## 170Ah



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

### Product Certification



# 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**  
Operates with natural cooling at ambient temperatures below 50°C, saving energy.



**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 accuracy≤10mV; 0~60V Detection accuracy≤0.5%
Current acquisition accuracy	Detection accuracy≤1% (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. 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.
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	CN4875T
Connection Method	1P15S
Rated Energy	3480Wh
Rated Capacity	75Ah
Rated Voltage	46.4V
Voltage Range	40~58V(22~58V)
Charging Current	35A
Discharging Current	75A
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*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 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**  
Operates with natural cooling at ambient temperatures below 50°C, saving energy.



**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.



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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.

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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.
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Voltage acquisition accuracy	0~5V, Detection accuracy≤10mV; 0~60V Detection accuracy≤0.5%
Current acquisition accuracy	Detection accuracy≤1% (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. 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.
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	

# 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	≤0.5C
	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-valley arbitrage and backup power for customer-side C&I commercial and industrial energy storage;
- 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.



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 <sup>+</sup>	
	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.

# COSPOWERS Energy Management System



## Intelligent Control & Efficiency Enhancement



Real-time monitoring of key parameters in energy storage systems, intelligently optimizing charging and discharging strategies to enhance economic benefits through peak-valley arbitrage.

## Smart Assessment



Utilizing algorithms to assess battery capacity and state of health, providing a basis for optimizing charging and discharging strategies.

## Safety Management



Equipped with multiple safety protections and battery balancing management, enabling fault prediction and diagnosis to facilitate quick maintenance.

## Energy Forecasting



Based on historical data and weather forecasts, predicting load and power generation to plan energy storage strategies in response to energy fluctuations.

The platform integrates monitoring, analysis, control, reporting, and optimization functions, providing panoramic monitoring and centralized management with a user-friendly visual interface. Through cloud-edge integration, it enables bidirectional data interaction and dynamically adjusts strategies based on factors such as electricity prices and load, achieving peak shaving, valley filling, and demand control.

# COSPOWERS Battery Management System



## Real-time Monitoring



Continuously collects key parameters such as battery voltage, current, and temperature, providing an accurate data foundation for the management system.

## Precision Estimation



Accurately estimates the battery's State of Charge (SOC), offering a core basis for battery protection and lifespan management.

## Intelligent Control



Intelligently controls the charging and discharging processes based on battery status and voltage parameters, ensuring the proper operation and optimal performance of the battery pack.

## Temperature Management



Monitors the temperature of the battery, BMS board, and environment, activating protective measures in case of abnormal temperatures to ensure safety and longevity.

COSPOWERS BMS provides real-time monitoring of base station battery parameters, performs fault diagnosis, SOC, and lifespan estimation, and offers protection against short circuits and leakage. Through communication interfaces, it interacts with controllers to intelligently manage charging and discharging, ensuring the safe and stable operation of base station backup power systems.

# 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



# After-Sales Service



## 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.

## 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.

## High Identification Accuracy



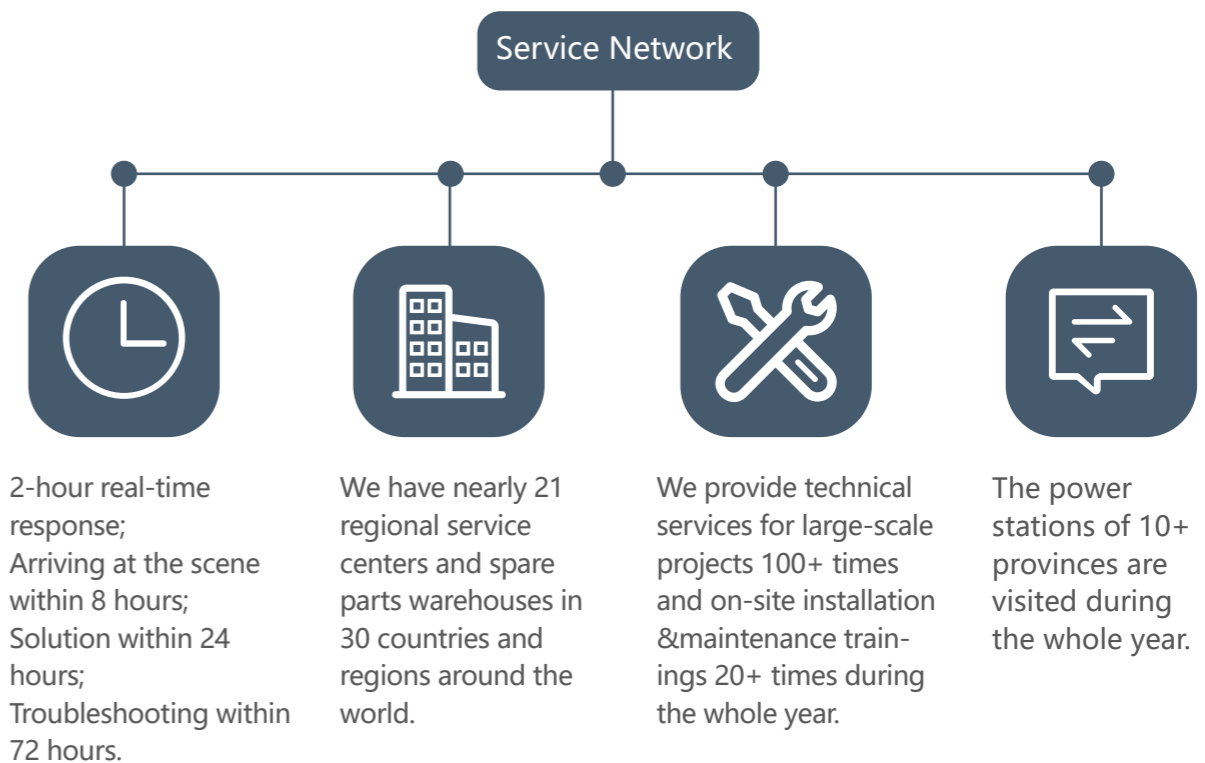
Collects data every 500 milliseconds and applies dynamic compensation and correction to the battery data to ensure high identification accuracy.

## Proactive Early Warning



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

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



# Cooperatice Customers

