PRODUCT MANUAL http://www.rw-relay.com

RB-SERIES Energy storage Battery system

High energy density
Elegant and grand appearance design
Real-time electrical safety protection
Class A cells offer a longer service life

Comply with IEC/GBT standards
Provide your house energy storage solution
Whole solutions for design, assembly, test...
Accountable solution for safety and reliability
Wide range offering, easy business and ready to use out of the box

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Zhejiang Rockwill Energy Technology Co., Ltd. is a technology enterprise specializing in providing complete solutions for power automation system and related automation system supporting equipment.

The company has a long-term strategic cooperation with internationally renowned middle and high voltage electrical equipment R & D and manufacturing companies and research institutes, and has jointly developed a series of high-quality automation products,. The company has also married with the provincial intelligent high-voltage switch laboratory to jointly develop a new generation of intelligent synchronous switch measurement and control devices, electronic transformers, voltage sensor processing units, etc., and has achieved some fruitful technical achievements and accumulated a large number of industry professional and technical elites with excellent experience. Solid talent base, advanced production equipment, perfect quality system, strict testing means, is a strong guarantee for the company's product quality alone.

In addition to providing a rich choice of products, we can provide you with technical solution support services, you only need to tell us your needs, our technical staff will be tailored for you to design a complete set of product solutions

The company is renowned at home and abroad for providing high-quality products and services. In addition to the domestic market, the products are currently exported to South America, Central Asia, the Middle East, Central Europe, Southeast Asia, Africa and other places. We always adhere to the belief of growing together with customers, and strive to provide safer, more reliable, more advanced and more humane automation system solutions and equipment.

ROCKWILL®, China. Provide with best support.

If you have any question please consult below:

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ROCKWILL® Energy strives to bring our customers the latest technology and competitive pricing and best service for distribution automatic.

The RB series energy storage battery is a battery PACK based on lithium-ion battery technology. Each pack consists of 2.5-10kW LFP cells and a BMS control board, and it is currently the mainstream design solution for energy storage batteries.

The RB series energy storage battery is a power storage system specially designed for household users. It can store electricity from renewable energy sources such as solar and wind power or during off-peak hours of the power grid, and release it during peak electricity consumption or power outages, achieving efficient energy utilization and flexible dispatching. With the acceleration of the global energy transition and the growth of household electricity demand, such systems are becoming important tools for modern families to achieve energy independence, reduce electricity costs, and enhance sustainable lifestyles.

Energy storage batteries are typically composed of battery modules, inverters, intelligent control units, etc. Its core function is to store surplus electricity and release it as needed. For example, the electricity generated by solar panels during the day, after meeting the household usage, the remaining part can be stored in the battery. At night or on rainy days, energy storage batteries can supply power to household appliances, reducing reliance on the power grid. Some systems also support the "peak-valley electricity price" strategy, charging during off-peak hours and discharging during peak hours, further saving electricity bills. In addition, in the event of a sudden power outage, the energy storage battery can automatically switch to an emergency power source to ensure the basic electricity needs of the household.

Service environment

Air temperature:	Ambient temperature: -10℃ ~ +50℃
Humidity:	0% ~ 95% (Non-congealing cream)
Above sea level:	-100~2500m

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1. High-efficiency energy storage and flexible charging and discharging

The household energy storage battery adopts high-energy-density LFP batteries, with an energy storage efficiency of over 90%, and supports fast charging and discharging. For instance, a battery with a standard voltage of 48V and a capacity of 200AH can store approximately 10kWh of electricity, meeting the minimum daily electricity demand of an ordinary household.. At the same time, the system supports priority charging of renewable energy sources such as solar and wind power, and is compatible with energy storage during off-peak hours of the power grid, achieving "low-cost electricity storage and high-price electricity consumption". Some high-end models also support bidirectional charging and discharging, selling electricity in reverse during peak grid demand periods to generate additional revenue.

2. Intelligent Energy Management System (EMS)

With built-in AI algorithms and Internet of Things (IOT) technology, energy storage batteries can analyze household electricity usage habits, electricity price fluctuations and weather data in real time, and automatically optimize charging and discharging strategies. For instance, in areas with time-of-use electricity pricing, the system charges during the low electricity price period in the early morning and supplies power to households during the evening rush hour, saving electricity bills to the greatest extent. Users can also remotely monitor the battery level and set the priority of electricity usage (such as giving priority to refrigerators and medical equipment) through the mobile phone APP, and interact with smart home devices to achieve full-process automation of "electricity usage - storage - control".

3. High safety and long service life

The LFP blade battery of the same type as BYD vehicles can effectively prevent combustion and explosion even in the case of high temperature or short circuit, and has passed international safety certifications such as UL 9540 and IEC 62619. The battery pack is equipped with multiple protection mechanisms, including temperature monitoring, over charge/over discharge protection, and self-check for faults, ensuring a service life of up to 10 to 15 years (with over 6,000 charge and discharge cycles). Furthermore, the modular design enables the system to operate at a reduced level even when a single battery fails, ensuring that the basic power supply is not interrupted.

4. Environmental Protection and Sustainability

Household energy storage batteries significantly reduce reliance on fossil fuels by maximizing the utilization of clean energy such as solar power. Take a typical 5kW photovoltaic +10kWh energy storage system as an example. It can reduce carbon dioxide emissions by 3 to 5 tons annually, which is equivalent to the environmental benefit of planting 150 trees. Meanwhile, over 95% of the materials of the battery can be recycled, avoiding the pollution problems of traditional lead-acid batteries and aligning with the global carbon neutrality goal.

5. Emergency power supply and off-grid capacity

When extreme weather conditions such as typhoons and earthquakes cause the power grid to collapse, energy storage batteries can switch to off-grid mode within 0.02 seconds and continuously supply power to critical loads such as lighting, communication equipment, and medical instruments (typically supporting 12 to 24 hours). Some systems can also be expanded to the "whole-house backup power" mode to meet the high-power demands of air conditioners, kitchen appliances, etc., achieving energy self-sufficiency for more than 72 hours, which is particularly suitable for areas with unstable power grids.

6. Flexible adaptation and scalability

The home energy storage battery adopts a modular design, with a capacity that can be expanded from 5kWh to over 50kWh, making it suitable for various scenarios such as single-family villas, apartments, and small shops. For instance, users can first install the basic capacity to meet their daily needs, and then gradually increase the configuration later based on demands such as electric vehicle charging and home expansion. In addition, the system is compatible with photovoltaic panels, inverters and V2L type charging piles of different brands, thereby building an integrated energy network.

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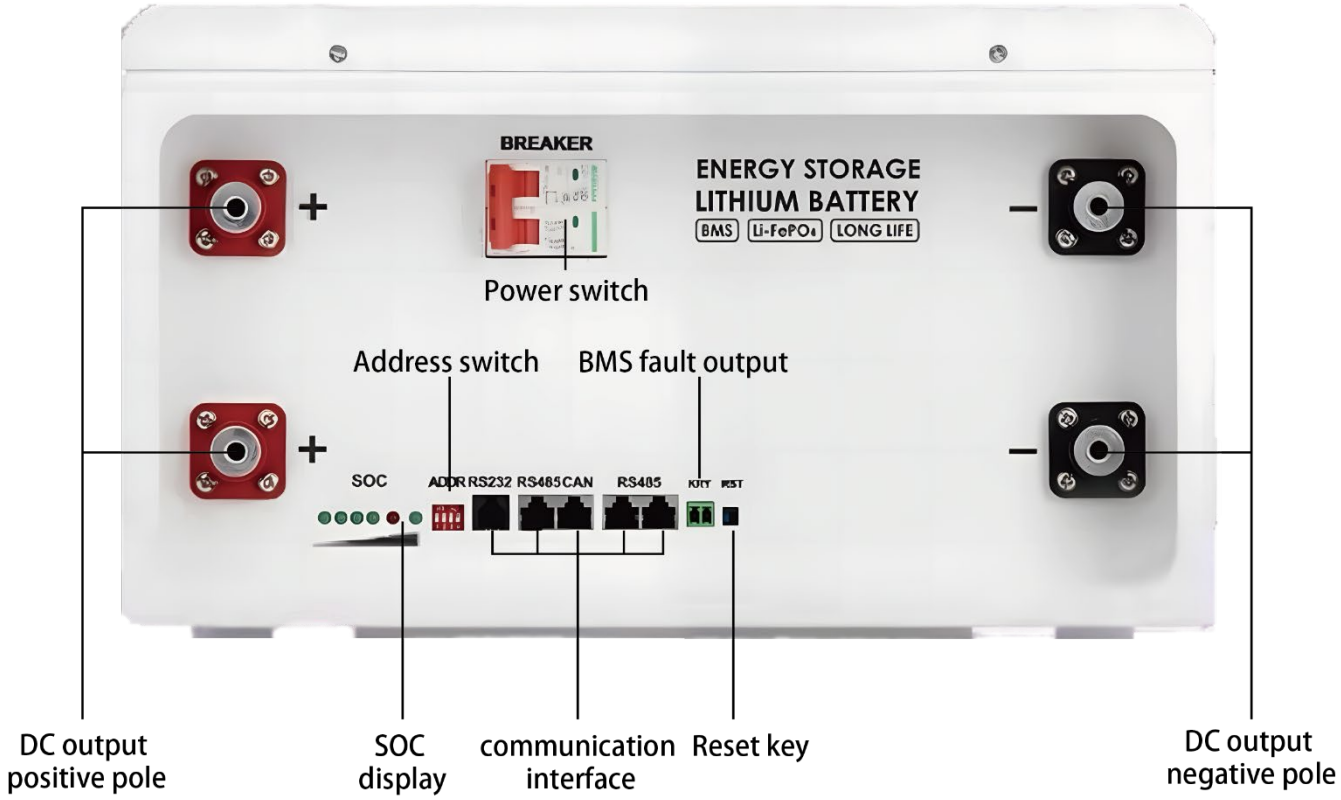
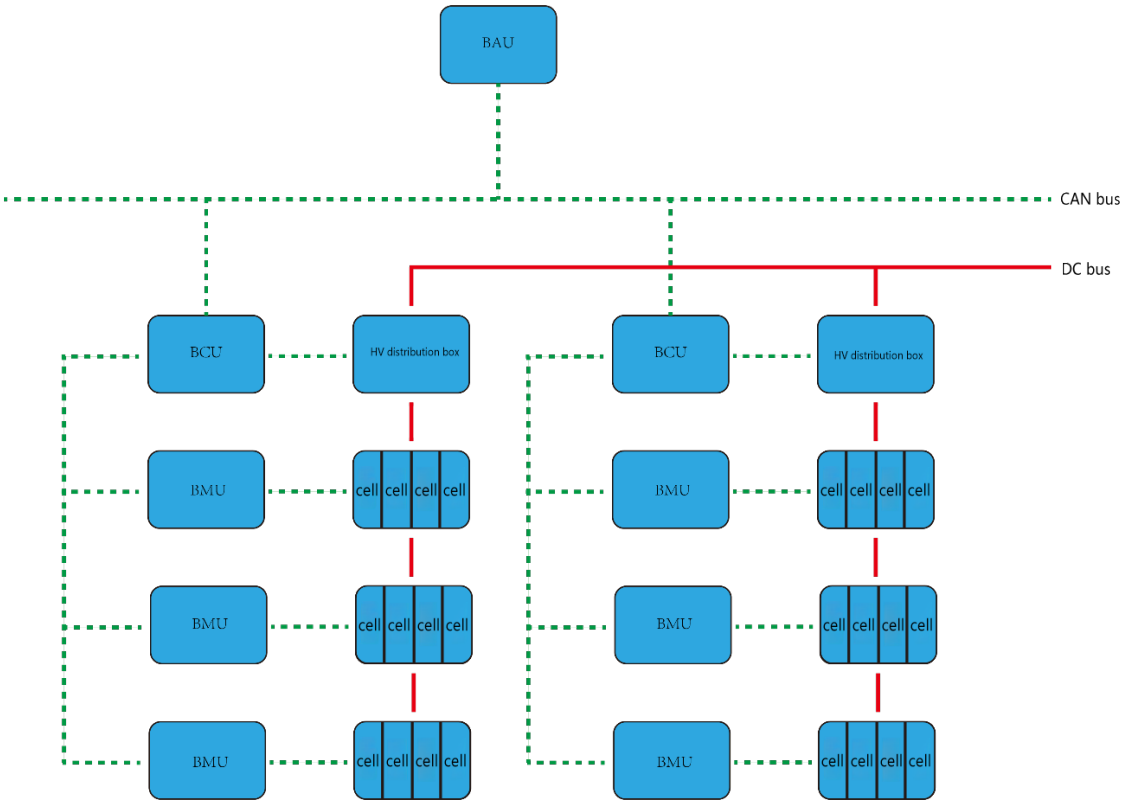
Product display:



system structure:



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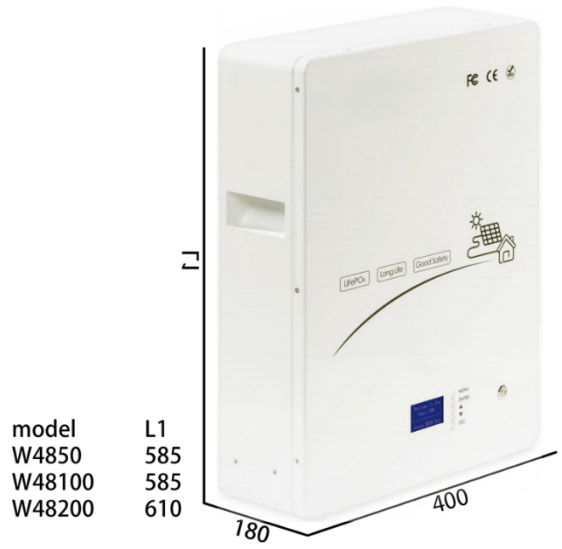
Product model	RB-W4850		RB-W48100		RB-W48200	
Battery type	LFP 3.2V 50AH		LFP 3.2V 100AH		LFP 3.2V 200AH	
Battery capacity	2.4kWh	2.56kWh	4.8kWh	5.12kWh	9.6kWh	10.24kWh
Rated discharge current	50A	50A	50A	50A	50A	50A
Maximum discharge current	100A	100A	100A	100A	100A	100A
Voltage range	40.5~54 V	43.2~57.6 V	40.5~54 V	43.2~57.6 V	40.5~5 4V	43.2~57.6 V
Standard battery unit voltage	48V	48V	48V	48V	48V	48V
Maximum DC charging voltage	54V	57.6V	54V	57.6V	54V	57.6V
Maximum charging current	50A	50A	100A	100A	100A	100A
Single Cluster Battery Pack	15S1P	16S1P	15S1P	16S1P	15S1P	16S1P
Rated output power	5KW	5KW	5KW	5KW	5KW	5KW
Communication interface	RJ45X1 RS485/232X2 CANX2					
Power battery interface	BAT+ X2 BAT- X2					
Battery life	Loop 3000~6000 times @DOD 80%/25℃/0.5C					
Maximum number of parallel machines	15					
Cooling mode	Forced air cooling					
Protection	Over (under) voltage protection/over current protection/over temperature protection/over discharge protection/short circuit protection					
Operating environment	Temperature: -30~50℃ Humidity: 20~95RH%					
Maximum working altitude	2500m(> 2000m load reduction required)					
Fire protection installation	Heptafluoropropane gas fire extinguishing device					
Class of protection	IP20					
Communication mode	Default: RS485/RS232/CAN Optional: WiFi/4G/ Bluetooth					
size	 model L1 W4850 585 W48100 585 W48200 610					

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Product model	RB-S48100	
Battery type	LiFePO4 3.2V 100AH	
Battery capacity	4.8kWh	5.12kWh
Rated discharge current	50A	50A
Maximum discharge current	100A	100A
Voltage range	40.5~54V	43.2~57.6V
Standard battery unit voltage	48V	51.2V
Maximum DC charging voltage	54V	57.6V
Maximum charging current	50A	50A
Single Cluster Battery Pack	15S1P	16S1P
Rated output power	5KW	5KW
Communication interface	RJ45X2 RS485/232X2 CANX2	
Power battery interface	BAT+ X2 BAT- X2	
Battery life	Loop 3000~6000 times @DOD 80%/25℃/0.5C	
Maximum number of parallel machines	15	
Cooling mode	Natural cooling	
Protection	Over (under) voltage protection/over current protection/over temperature protection/over discharge protection/short circuit protection	
Operating environment	Temperature: -30~50℃ Humidity: 20~95RH%	
Maximum working altitude	2500m(> 2000m load reduction required)	
Fire protection installation	Heptafluoropropane gas fire extinguishing device	
Class of protection	IP20	
Communication mode	Default: RS485/RS232/CAN Optional: WiFi/4G/ Bluetooth	
size		

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Product model	RB-L48200	
Battery type	LiFePO4 3.2V 200AH	
Battery capacity	9.6kWh	10.24kWh
Rated discharge current	50A	50A
Maximum discharge current	100A	100A
Voltage range	40.5~54V	43.2~57.6V
Standard battery unit voltage	48V	48V
Maximum DC charging voltage	54V	57.6V
Maximum charging current	100A	100A
Single Cluster Battery Pack	15S1P	16S1P
Rated output power	5KW	5KW
Communication interface	RJ45X2 RS485/232X2 CANX2	
Power battery interface	BAT+ X2 BAT- X2	
Battery life	Loop 3000~6000 times @DOD 80%/25℃/0.5C	
Maximum number of parallel machines	15	
Cooling mode	Natural cooling	
Protection	Over (under) voltage protection/over current protection/over temperature protection/over discharge protection/short circuit protection	
Operating environment	Temperature: -30~50℃ Humidity: 20~95RH%	
Maximum working altitude	2500m(> 2000m load reduction required)	
Fire protection installation	Heptafluoropropane gas fire extinguishing device	
Class of protection	IP20	
Communication mode	Default: RS485/RS232/CAN Optional: WiFi/4G/ Bluetooth	
size		

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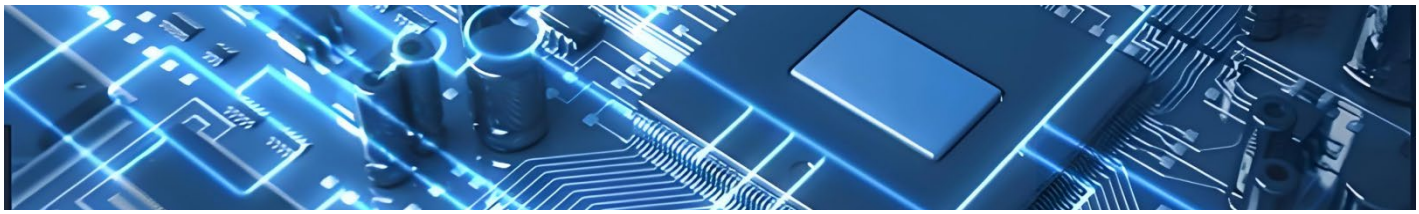

Field service operation and warranty issues:

ROCKWILL® can provide competent, well trained field service representatives to provide technical guidance and advisory assistance for the installation, overhaul, repair and maintenance of ROCKWILL® equipment, processes and systems.

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