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

RH-SERIES Household ESS

All-in-one, no installation required
Support APP control
Stable sine wave output
Multiple operation modes

Comply with IEC/GBT standards
Provided customized manufacture
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

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.

A home energy storage system (ESS) is an integrated power storage solution designed to optimize home electricity management and enhance energy utilization efficiency and stability. This system mainly consists of energy storage batteries, bidirectional inverters and energy management systems (EMS). The energy storage battery is a lithium iron phosphate battery used for storing electrical energy. The bidirectional inverter is responsible for the bidirectional conversion between direct current and alternating current. The energy management system is like the "brain", intelligently regulating the storage and release of electrical energy.

During operation, the home energy storage system can flexibly adapt to various scenarios. During the day, if solar panels are installed at home, the excess electricity can be converted into direct current through an inverter and stored in the battery. At night or when there is insufficient light, the electrical energy in the battery is converted back into alternating current through the inverter for household use. In the event of a power outage in the power grid, the system can quickly switch to off-grid mode to continuously supply power to key devices such as refrigerators, lighting, and routers, ensuring that daily life is not affected. In addition, by taking advantage of the peak-valley electricity price mechanism, charging during the off-peak electricity price period and discharging during the peak period can effectively reduce electricity costs.

In terms of safety, the system is equipped with comprehensive overcharge, over-discharge and short-circuit protection mechanisms to ensure safe use.

Service environment

Air temperature: Ambient temperature: -10℃ ~ +40℃

Humidity: 0% ~ 95% (Non-congealing cream)

Above sea level: -100~2000m

About customization

Support interface styles and power supply standards for AC output

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.

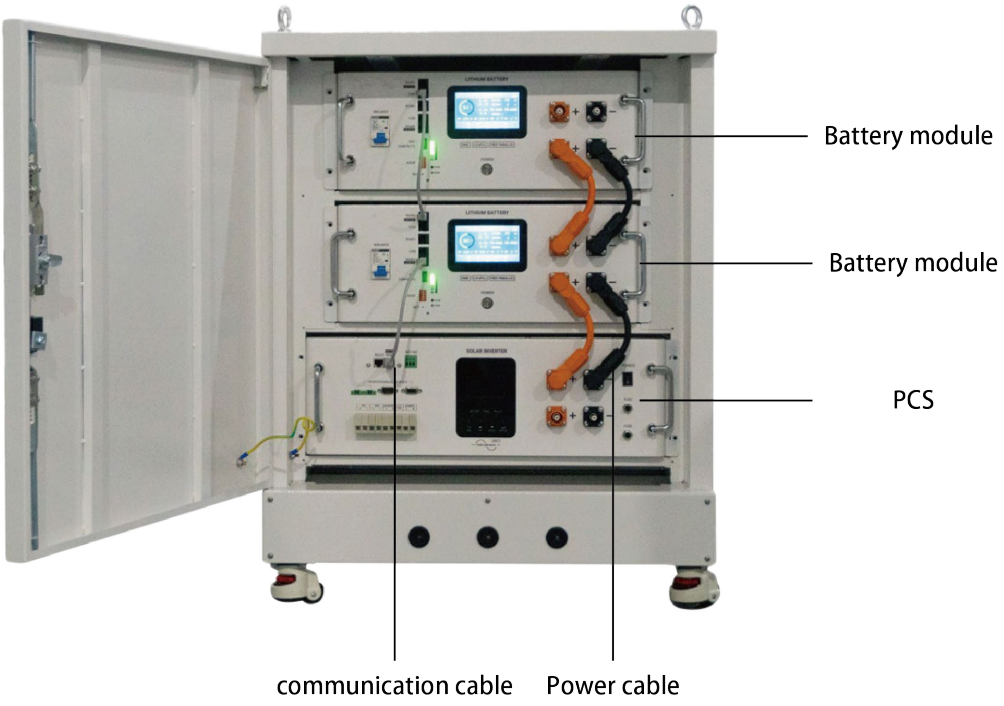
5. Emergency power supply and off-grid capacity

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.

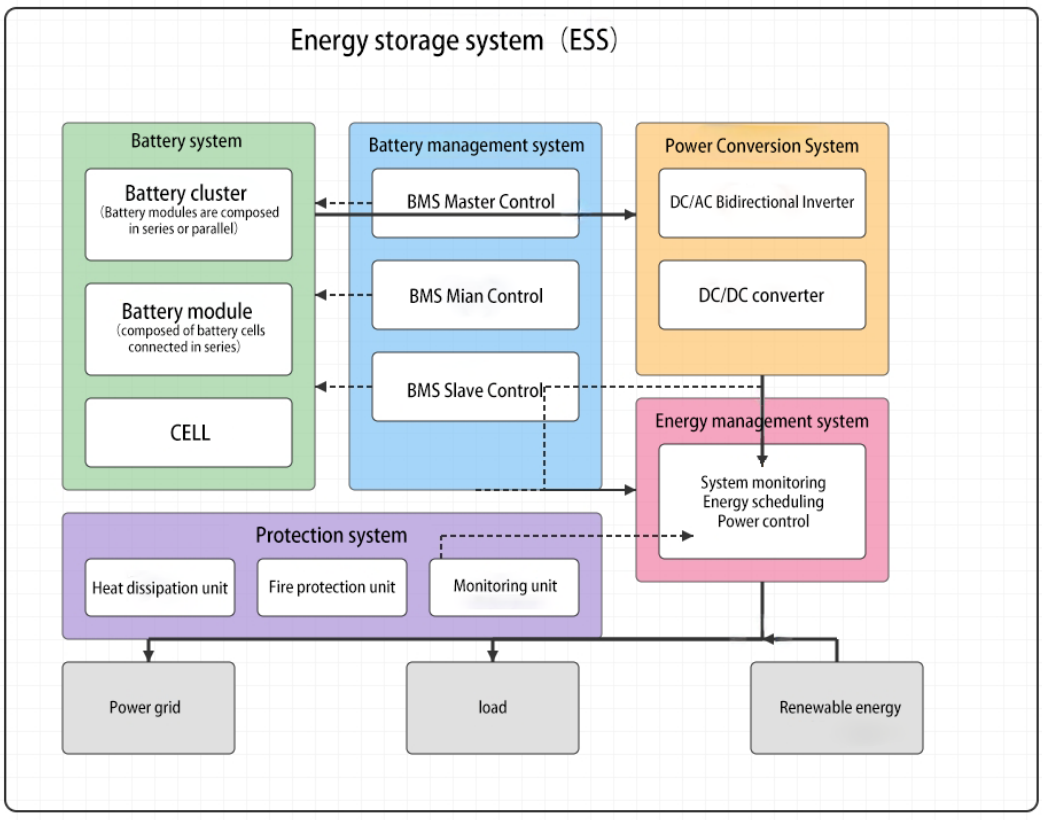
6. Flexible adaptation and scalability

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.

Product interface



system structure:



Product module		RH-LESS-5-5K	RH-LESS-5-10K	RH-LESS-5-15K
Battery capacity		5.12kWH	10.24kWH	15.36kWH
Rated discharge current		50A	50A	50A
Maximum discharge current		100A	100A	100A
Standard battery unit voltage		51.2V	51.2V	51.2V
Maximum DC charging voltage		57.6V	57.6V	57.6V
Single Cluster Battery Pack		16S1P	16S2P	16S3P
Rated discharge current		5kW	5kW	5kW
Rated PV charging voltage		360VDC		
MPPT tracking range		120-450V		
MPPT track number		1		
Grid input voltage(phase voltage)		170~280V(UPS)/120~280V(INV)		
Input frequency		45~65Hz		
Maximum grid input current		60A single		
Maximum PV input current		100A single		
Ac access mode		L+N+PE		
Inverter	Rated output voltage	230V+N	The output electric energy standard is applicable to most countries or regions such as Chinese mainland, Hong-Kong, Macao, North Korea, Australia, South Asia, the Middle East, Europe, Africa, South America, etc., and customers in non-above regions can customize according to the customer's local electric energy standard.	
	Rated output frequency	48~52HZ (58~62HZ)		
	System efficiency	86~94%		
Grid following	Rated output voltage	Follow the grid		
	Rated output frequency	Follow the grid		
	System efficiency	99%		
Battery no load loss		⩽1%		
Power grid no load loss		⩽0.5%		
Cooling mode		Forced air cooling		
Operating environment		Temperature: -10~40℃ Humidity: 20~95RH%		
Maximum working altitude		2000m(> 2000m load reduction required)		
Protection		Battery under (over) voltage protection/overload protection/over temperature protection/short circuit protection		
Class of protection		IP20		
Operation mode		Mains priority/PV priority/battery priority		
Picture				

Product module		RH-SESS-5-5K	RH-SESS-5-10K	RH-SESS-5-15K	RH-SESS-5-20K
Battery capacity		5.12kWH	10.24kWH	15.36kWH	20.48kWH
Rated discharge current		50A	50A	50A	50A
Maximum discharge current		100A	100A	100A	100A
Standard battery unit voltage		51.2V	51.2V	51.2V	51.2V
Maximum DC charging voltage		57.6V	57.6V	57.6V	57.6V
Single Cluster Battery Pack		16S1P	16S2P	16S3P	16S4P
Rated discharge current		5kW	5kW	5kW	5kW
Rated PV charging voltage		360VDC			
MPPT tracking range		120-450V			
MPPT track number		1			
Grid input voltage(phase voltage)		170~280V(UPS)/120~280V(INV)			
Input frequency		45~65Hz			
Maximum grid input current		60A single			
Maximum PV input current		100A single			
Ac access mode		L+N+PE			
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	System efficiency	86~94%			
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	Rated output frequency	Follow the grid			
	System efficiency	99%			
Battery no load loss		⩽1%			
Power grid no load loss		⩽0.5%			
Cooling mode		Forced air cooling			
Operating environment		Temperature: -10~40℃ Humidity: 20~95RH%			
Maximum working altitude		2000m(> 2000m load reduction required)			
Protection		Battery under (over) voltage protection/overload protection/over temperature protection/short circuit protection			
Class of protection		IP20			
Operation mode		Mains priority/PV priority/battery priority			
Picture					

Product module		RH-CESS-5-5K	RH-CESS-5-10K	RH-CESS-5-15K	RH-CESS-5-20K
Battery capacity		5.12kWH	10.24kWH	15.36kWH	20.48kWH
Rated discharge current		50A	50A	50A	50A
Maximum discharge current		100A	100A	100A	100A
Standard battery unit voltage		51.2V	51.2V	51.2V	51.2V
Maximum DC charging voltage		57.6V	57.6V	57.6V	57.6V
Single Cluster Battery Pack		16S1P	16S2P	16S3P	16S4P
Rated discharge current		5kW	5kW	5kW	5kW
Rated PV charging voltage		360VDC			
MPPT tracking range		120-450V			
MPPT track number		1			
Grid input voltage(phase voltage)		170~280V(UPS)/120~280V(INV)			
Input frequency		45~65Hz			
Maximum grid input current		60A single			
Maximum PV input current		100A single			
Ac access mode		L+N+PE			
Inverter	Rated output voltage	230V+N	The output electric energy standard is applicable to most countries or regions such as Chinese mainland, Hong-Kong, Macao, North Korea, Australia, South Asia, the Middle East, Europe, Africa, South America, etc., and customers in non-above regions can customize according to the customer's local electric energy standard.		
	Rated output frequency	48~52HZ (58~62HZ)			
	System efficiency	86~94%			
Grid following	Rated output voltage	Follow the grid			
	Rated output frequency	Follow the grid			
	System efficiency	99%			
Battery no load loss		⩽1%			
Power grid no load loss		⩽0.5%			
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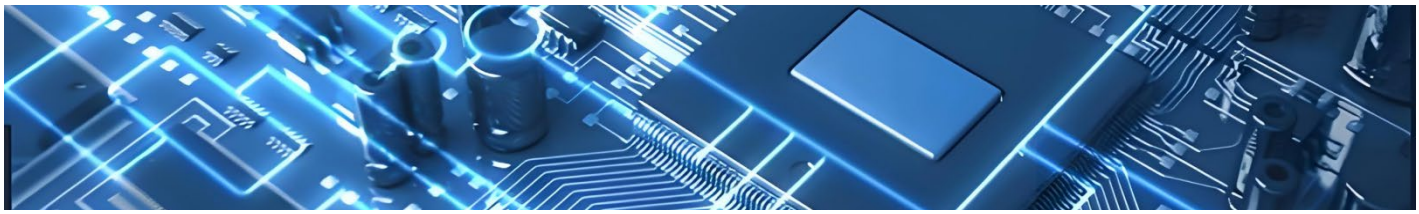

Field service operation and warranty issues:

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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