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Version: February 25, 2025, Residential Energy Storage System



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US-standard

## Residential Energy Storage System

Experience the Freedom of Energy Independence



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www.roypow.com

*ROYPOW,  
Your Trusted Partner*

## Contents

Why Choose ROYPOW

Introduction of ROYPOW RESS

Products | On-Grid/Off-Grid All-In-One RESS

Products | Off-Grid Residential Energy Storage System

Products | Off-Grid Solar Air Conditioner System

Off-Grid System Applications

Product Support



# ROYPOW For One-stop New Energy Solutions

- R&D, manufacturing and sales of motive power systems and energy storage systems as one-stop solutions
- Covering Low-Speed Vehicles' Batteries, Industrial Batteries, as well as Residential ESS, Commercial & Industrial ESS, and Mobile ESS



## Quality Control Certificates:

- ✓ Environmental Management System: ISO 14001:2015
- ✓ Occupational Health and Safety Management System: ISO 45001:2018
- ✓ Quality Management System: ISO 9001:2015, IATF16949:2016
- ✓ Information Security Management System: ISO/IEC 27001:2022
- ✓ Social Accountability Management System: SA8000:2014
- ✓ Hazardous Substance Process Management: IECQ QC 080000



## Product Certifications:

- UL 1973, UL 9540A, UL 9540, UL 2580, UL 2271, UL 1741
- IEEE 1547
- IEC 62619
- EN 62477, EN 62040, (EU) 2023/1542, EN 62109-1, EN 62109-2
- UL
- EMC
- GRID
- Function Safety
- CB
- Transport
- CE
- RoHS
- FCC, IEC/EN 61000-6, BS EN IEC 61000-6
- IEC 60730, ISO 13849-1
- UN 38.3
- RoHS Directive 2011/65/EU & (EU) 2015/863

## Manufacturing Capabilities

- **8** GWh/year total production capacity
- **3** fully automatic module lines
  - 1 fully automatic AGV line
  - 5 semi-automatic assembly lines
- **2** semi-automatic module lines
- **1** high-precision fully automatic SMT line
- **1** selective wave soldering line



## R&D Capabilities

- **200+** R&D staff; at least **6%** of annual revenue in R&D as investments
- **BMS, EMS, and PCS** all designed in house
- **231** patents

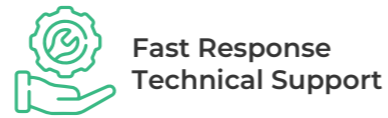


## Testing Capabilities

- **26,909.77** sq.ft testing facility
- Authorized laboratory of the **CSA** group and **TÜV SÜD**
- Over **200** main testing equipment units, covering over **90%** of the testing capabilities required by industry standards, including testing for battery cells, battery systems, chargers, vehicle energy storage systems, hybrid inverters, and materials.



## Global Sales and Service Network



ROYPOW has comprehensively expanded its overseas market layout to ensure the localization of R&D, manufacturing, marketing and service, becoming one of your most reliable and valuable partners.



## Worldwide Warehouse Points

<b>13</b> warehouses	China	USA (CA/GA/TX/FL/IN)	Europe, UK, Germany	Australia	Japan	Korea	South Africa
	1	5	3	1	1	1	1



## Worldwide Service Points

- Headquarter**
- America**
  - California (USA)
  - Georgia (USA)
  - Texas (USA)
  - Florida (USA)
  - Indiana (USA)
  - Rio (Brazil)
- APAC**
  - Chiba (Japan)
  - Cyeonggi-do (Korea)
  - Sydney (Australia)
- EMEA**
  - Rotterdam (Netherlands)
  - Frankfort (Germany)
  - London (United Kingdom)
  - Johannesburg (South Africa)

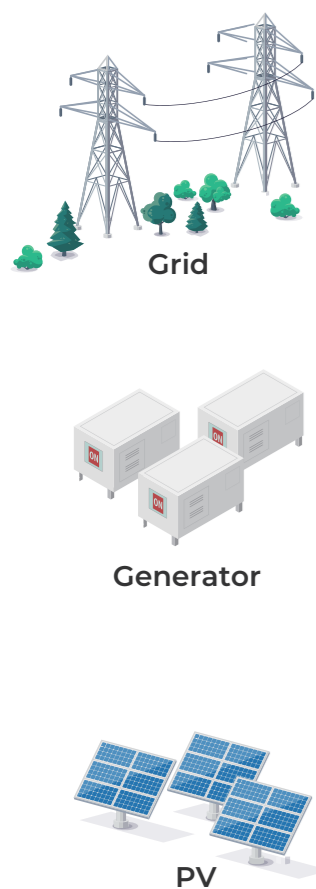


## Upgrading to New Technology, with Our Turnkey Solutions.

With years of dedication to new energy solutions, we are proud to offer customers professional solutions for:

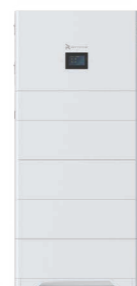
- Low-speed Vehicle Batteries
- Battery Systems for Off-highway Applications
- Residential Energy Storage Systems
- Mobile Energy Storage Systems
- Industrial Batteries
- Battery Systems for Emerging Applications
- Commercial & Industrial Energy Storage Systems
- Motors, Controllers, and Chargers





# ROYPOW RESS

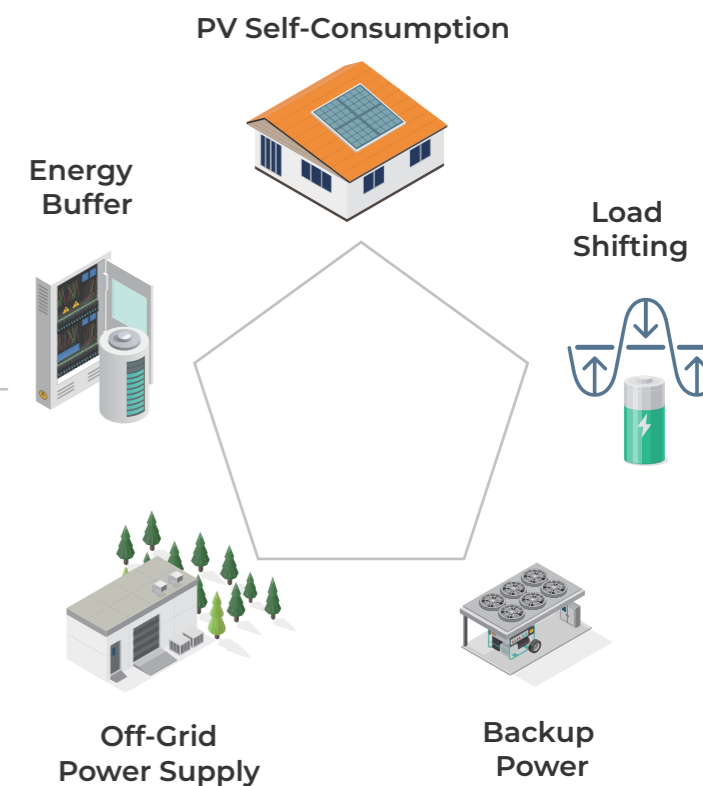
On-Grid / Off-Grid  
All-In-One RESS



+ Off-Grid  
ESS



+ Off-Grid Solar Air  
Conditioner System



## ROYPOW Residential Energy Storage Solutions

Reliable Power for Every Home

Meet the high-performance, safe, and intelligent residential energy storage solutions. ROYPOW RESS combines the most advanced battery management system with super power supply capacity to provide uninterrupted, sustainable energy for your working and family usages all day and help reduce reliance on the grid, save electricity costs, and promote a better life.

# Intelligent Residential Energy Storage System

10/12/15kW / 10~40kWh High Power, High Efficiency, High Capacity

## Efficient and Powerful



- Supports a maximum PV input of **24kW**, allowing for higher energy capture and output by connecting more solar panels
- High efficiency at **98%**
- **<10ms** backup switch time for uninterrupted power
- **4** MPPTs with up to **2** strings and **27A** current input per MPPT to accommodate larger panels

## Convenient & Flexible

- Supports **generator input** with load sharing, optimizing energy use and ensuring reliable power



- Support both **AC** coupling and **DC** coupling, working for new installation or retrofit systems
- **No setting** or **commissioning** after installation

- Up to **6 pcs** working in parallel to reach **90kW** for demanding load requirements



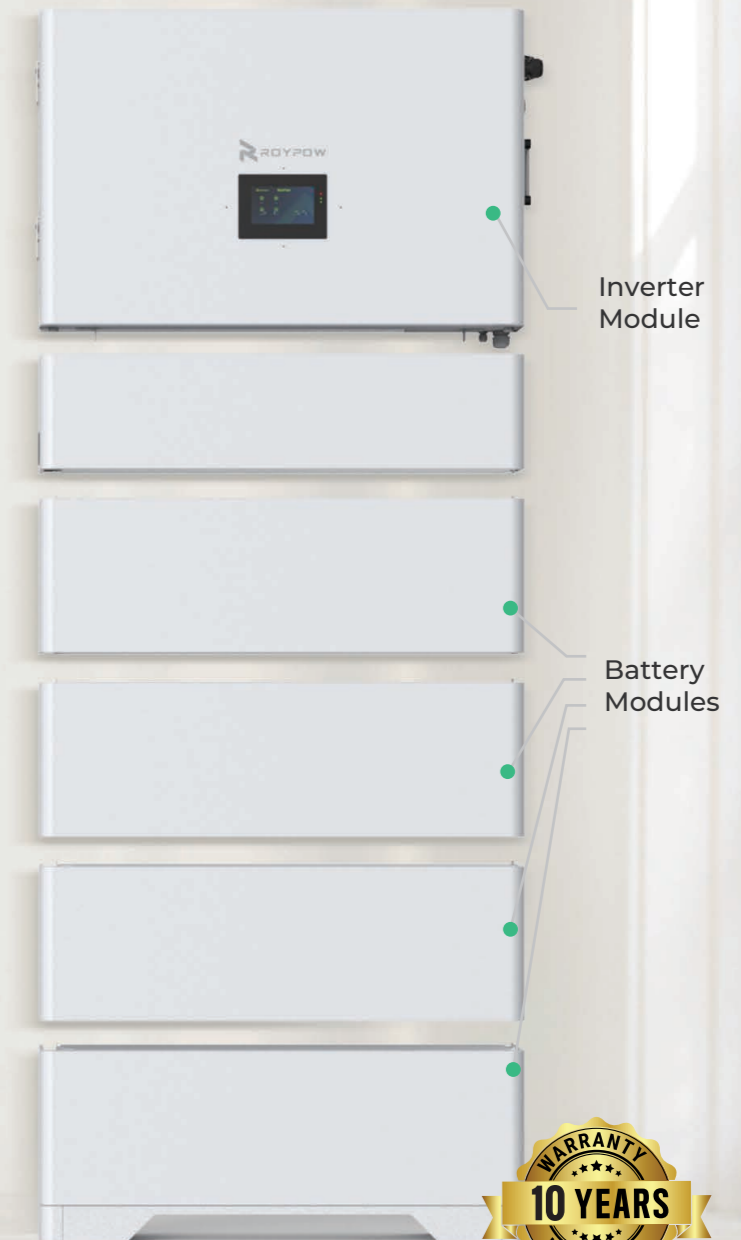
- **Modular & stackable** design for easy and fast installation
- **Three phase** available via parallel connection

## Safe and Reliable

- UL standards compliant, including **UL9540** and **UL9540A**
- **Automotive-grade** LiFePO4 battery cells from the **global top 2** ESS brand
- Enhanced safety with the built-in **aerosol fire extinguishing** system
- Multiple safety protections such as integrated Arc Fault Circuit Interrupters (**AFCI**) and Rapid Shut Down (**RSD**)
- Up to **10** years of battery design life with more than **6,000** times of cycle life
- **NEMA4X** (inverter) & **IP65** (battery) ingress rating for outdoor installation with peace of mind
- Approved in the California Energy Commission's (**CEC**) Solar Equipment List

## Intelligent Management

- **Easy** to setup and connect
- Monitor and **optimize** energy use
- **Visualize** energy flow









Whole-Home Backup Power

# ROYPOW APP

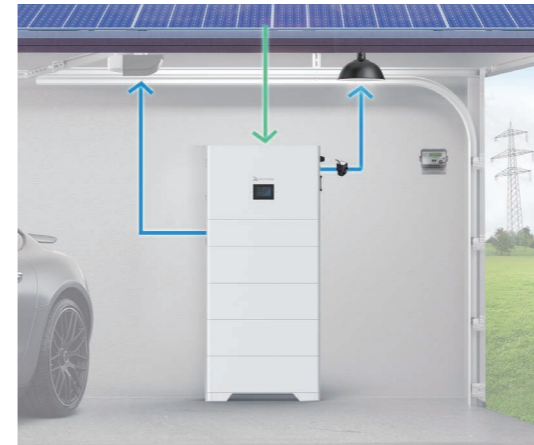
## Achieve Your Home Energy Independence & Sustainability at Fingertips

The ROYPOW App brings all the energy into visualization for easy data monitoring and management just by fingertips anytime, anywhere to run the home energy storage system at its peak efficiency, optimize energy usage, and shave off electricity bills—all while embracing a sustainable lifestyle with effortless ease.

 <p>Real-time Monitoring &amp; Comprehensive Visualization</p>	 <p>Backup Function &amp; Data Encryption</p>	 <p>Multi-terminal Compatibility &amp; Sharing</p>
 <p>Dynamic Power Flow &amp; Generation Report</p>	 <p>Working Mode Switch &amp; Profit Calculation</p>	 <p>Integrated After-sales Service</p>

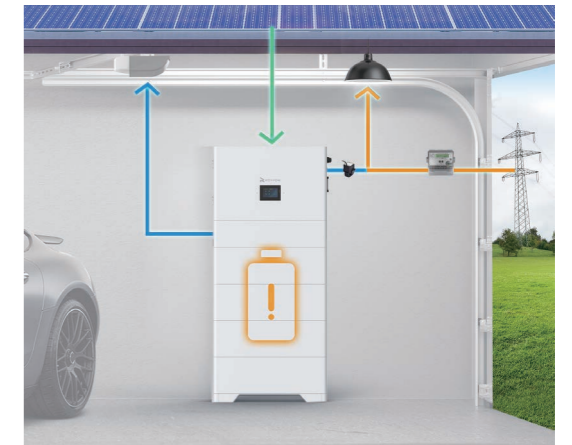


## 4 Working Modes



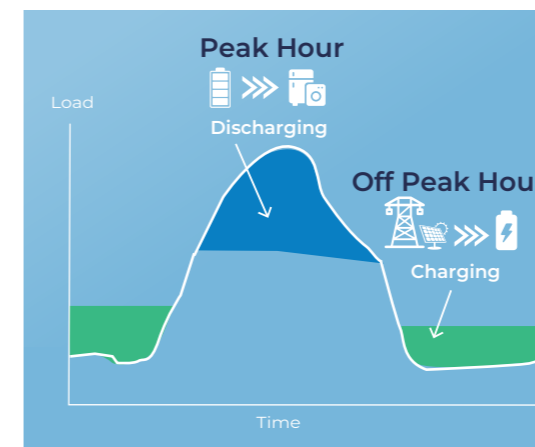
### Self-Consumption Mode

The power generated by the PV system will support the load and charge the battery. The excess electricity cannot be exported to the grid and the system won't draw the power from the grid.



### Battery First Mode

The power required by the load will be obtained from the battery first. Only when the battery is exhausted will the system draw power from the grid to support the load.



### Peak Load Shifting Mode

Battery charging and discharging time can be customized to reduce electricity bills. The battery can be charged from the grid at low grid price rates and discharged to supply loads when the power price is expensive.



### Electricity Sales Mode

Customize the peak shaving and load shifting periods. During peak grid pricing, the system operates in grid priority mode to sell electricity. In off-peak times, it switches to energy storage priority mode, focusing on storing energy.

# System Specification

Model	SUN10000S-U/A	SUN12000S-U/A	SUN15000S-U/A
Rated AC Output Power (W)	10000	12000	15000
Nominal Energy (kWh)		10 to 40	
Noise (dB)		≤29	
Operating Temperature Range		-4 ~ 131°F (-20~55°C), >45°C(113°F) derating	
Dimensions (WxDxH, mm)		33.3 x 7.9 x (32.1+10.7*N) in [845 x 200 x (815+270*N) mm], N=2 to 4	
Ingress Rating		Inverter: NEMA 4X, Battery: IP65	
Mounting Options		Indoor/Outdoor, Floor standing or Wall mounted (optional)	
<b>Compliance &amp; Certificates</b>			
	UL9540, UL9540A, UL1973, IEEE 1547, IEEE 1547.1, UL1741, UL1741 CRD, UL1741SB, UL1699B, CSA C22.2, FCC Part 15B, ICES-003, UN38.3		

## Hybrid Inverter Specification

Model	SUN10000S-U	SUN12000S-U	SUN15000S-U
<b>Input - DC (PV)</b>			
Max. Power (Wp)	14400	20000	24000
Max. DC Voltage (V)		550	
MPPT Voltage Range (V)		120~550	
MPPT Voltage Range (V, full load)	235~550	200~550	225~550
Start Voltage (V)		150	
Max. Input Current per MPPT (Imp, A)	15.5	27	27
Max. Short Circuit Current per MPPT (Isc, A)	20	40	40
Number of MPPT		4	
Number of PV String per MPPT	1	2	2

### Input - DC (Battery)

Compatible Battery	RBmax5.1H Series		
Voltage Range (V)	75~480		
Max. Charge / Discharge Power (W)	10000 / 10000	12000 / 12000	15000 / 15000
Max. Charge / Discharge Current (A)	75 / 75		

### Input - AC (GEN)

Max. AC Power (W)	19000		
Max. AC Current (A)	79.2		
Rated Voltage (V) / Frequency (Hz)	240, (L1/L2) / 60Hz		

### AC (On grid)

Rated Output Power @240V (W)	10000	12000	15000
Max. Output Apparent Power @240V (VA)	10000	12000	15000
Rated Output Current (A)	41.6	50	62.5
Rated Input Power @240V(W)	20000		
Rated Input Apparent Power @240V(VA)	20000		
Max. Input Current (A)	83.3		
Rated Grid Voltage (V)	120/240, (L1/L2/N)		
Rated Grid Frequency (Hz)	60		
THDI	<3%		
Power Factor	0.8 leading to 0.8 lagging		

### Efficiency

Max.Efficiency (PV to Grid)	98.0%		
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### AC (Back Up)

Rated Output Power (W)	10000	12000	15000
Rated Output Current (A)	79.2		
Rated Output Voltage	120/240V, L1/L2/N		
Rated Frequency (Hz)	60		
Back-up Switch Time	<10ms		
THDV	<3%		
Overload Capacity	105%<Load≤115%, 10min. 115%<Load≤125%, 1min. 125%<Load, 0.3 Sec.		

### Protections

PV Switch / PV Rapid Shutdown / Arc Fault Circuit Interrupter (AFCI) / GFCI/Anti-islanding Protection /DC Reverse-polarity Protection / AC Over / Under Voltage Protection / AC Over Current Protection / AC Short Circuit Protection/Insulation Resistor Detection

DC/AC Surge Protection Device	TYPE 4
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### Environmental

Operating Temperature	-22 ~ 140°F(-30 ~ 60°C), derating above 45°C(113°F)
Operating Humidity	0~95% RH
Storage Conditions	-22 ~ 140°F(-30~60°C), 0~95% non-condensing
Enclosure Type	NEMA Type 4X
Max Elevation	9842ft (>6561ft derating) / 3000m (>2000m derating)
Noise (dB)	≤29

### General Data

Mounting Option	Wall Mount, indoor or outdoor
Coupling	DC-Coupling & AC-Coupling
Topology	Transformerless
Cooling	Natural Convection
Display	LCD + APP (WiFi)
Communication Interface	RS485 / CAN / WiFi
Dimensions (WxDxH)	33.5 x 7.9 x 21.7 in (850 x 200 x 550mm)
Weight	121.3 lbs (55kg)

## Battery Module Specification

Model	2*RBmax5.1H	3*RBmax5.1H	4*RBmax5.1H	5*RBmax5.1H	6*RBmax5.1H	7*RBmax5.1H	8*RBmax5.1H
<b>Electric Data</b>							
Nominal Energy (kWh)	10.24	15.36	20.48	25.6	30.72	35.84	40.96
Usable Energy (kWh)	9.58	14.37	19.16	23.95	28.74	33.53	38.32
Nominal Voltage (V)	102.4	153.6	204.8	256	307.2	358.4	409.6
Operating Voltage Range (V)	89.6~113.6	134.4~170.4	179.2~227.2	224~284	268.8~340.8	313.6~397.6	358.4~454.4
Max. charge/discharge Current (A)	50 / 75						

### General Data

Battery Chemistry	LFP (LiFePO <sub>4</sub> )						
Weight (Kg)	233.7 lb (106 kg)	337.4 lb (153 kg)	441 lb (200 kg)	553.4 lb (251 kg)	657 lb (298 kg)	760.6 lb (345 kg)	864.3 lb (392 kg)
Dimensions (W x D x H) (mm)	Single tower			Double tower			
	33.3x7.9x31.7 in 845x200x805 mm	33.3x7.9x42.4 in 845x200x1075 mm	33.3x7.9x53 in 845x200x1345 mm	33.3x7.9x42.4, 33.3x7.9x27 in 845x200x1075, 845x200x685 mm	33.3x7.9x42.4, 33.3x7.9x37.6 in 845x200x1075, 845x200x955 mm	33.3x7.9x53, 33.3x7.9x37.6 in 845x200x1345, 845x200x955 mm	33.3x7.9x53, 33.3x7.9x53 in 845x200x1345, 845x200x1345 mm
Operating Temperature	Charge: 32 to 131°F (0 to 55°C), -4 to 131°F (-20 to 55°C)						
Storage temperature	≤1 month: -4 to 113°F (-20 to 45°C), >1 month: 32 to 95°F (0 to 35°C)						
Relative Humidity	5~95%						
Max. Altitude	13123ft (>6561ft derating) / 4000m (>2000m derating)						
Protection Degree	IP 65						
Installation Location	Indoor/Outdoor, Floor standing, Wall mounted						
Communication	CAN, RS485						





*Empowering Your Home  
with Sustainable Energy Solutions*



# Off-Grid Residential Energy Storage System

Designed to enhance energy resilience and independence. Perfect for **emergency backup, remote locations, vacation cottages, and areas with unstable grid connections and frequent outages**, offering a consistent power supply without reliance on the utility grid.

## ROYPOW System Includes:



### LiFePO<sub>4</sub> Batteries

ROYPOW LiFePO<sub>4</sub> battery pack is a safe and efficient solution for storing excess solar energy, reducing costs, increasing energy independence, and providing backup power for your home.

Up to **16**  
Units in Parallel

Capacity Range:  
**5.1 ~ 81.6** kWh

**>6,000**  
Times of Cycle Life

**Modular & Stackable**  
Design for Easy Installation

**15-Min**  
Installation

**IP65**  
Ingress Rating

Support  
**Battery Activation**

**Real-Time** Monitoring  
via Bluetooth

Built-in Hot Aerosol  
**Fire Extinguishing** System

Compatible with Leading Inverter Brands such as **SAJ, Megarevo, Luxpower, Senergy, Sacolar, and SRNE**



### 5kW / 6.5kW / 8kW / 10kW Solar Inverter

ROYPOW solar inverter offers a dependable solution for converting solar energy into usable power, optimizing energy consumption, and enhancing system performance, while ensuring smooth operation for your home.

**Pure Sine Wave** AC Power

Up to **6** Unit in Parallel

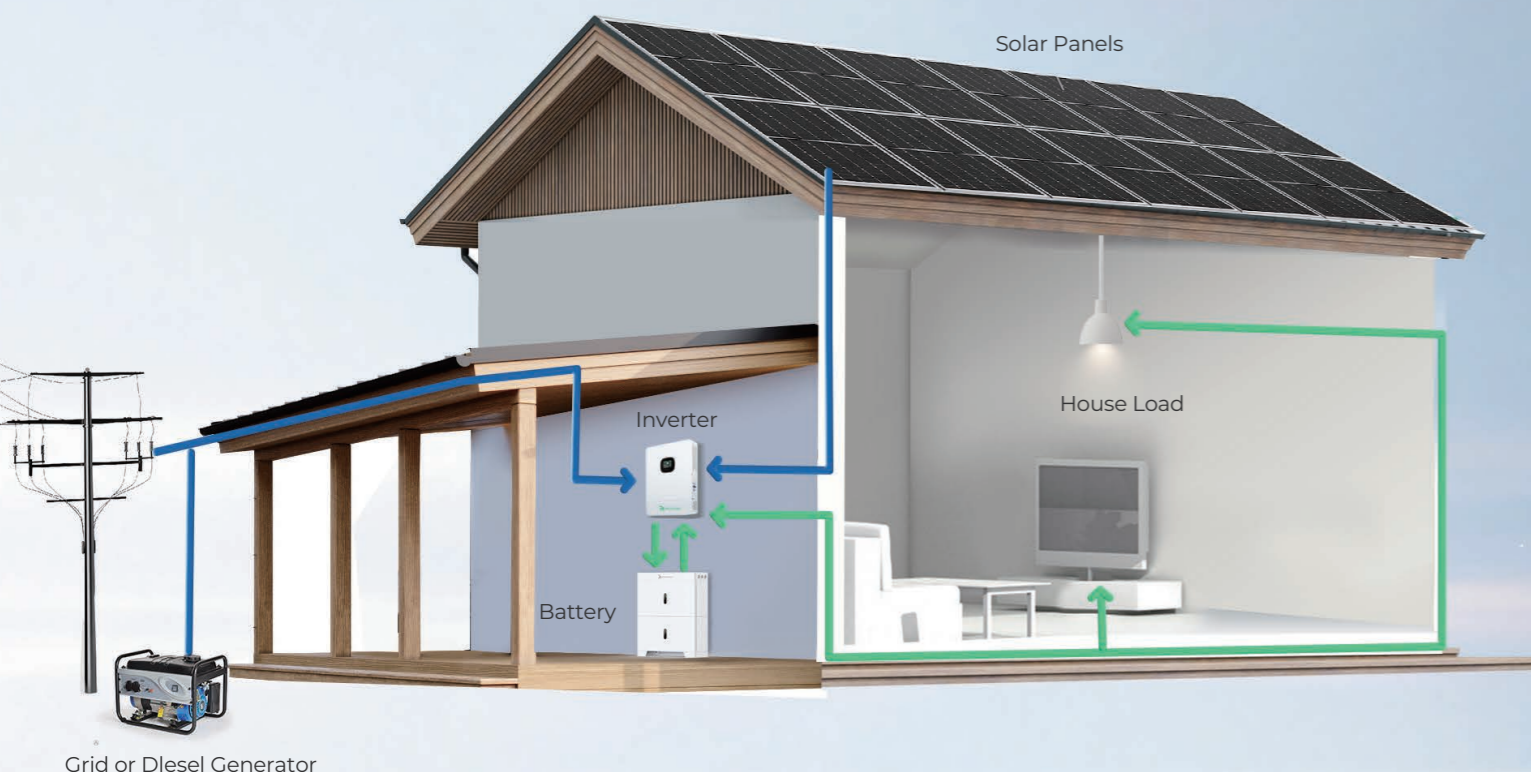
**99.9%** Max. MPPT Tracking Efficiency

**10**ms UPS Switch Time

**Generator** Input

**Three Phase** Available via Parallel Connection

# Off-Grid Residential Energy Storage System Topology



## Technical Specifications



Model	1*RBmax5.1L	2*RBmax5.1L2	3*RBmax5.1L2	4*RBmax5.1L2	5*RBmax5.1L2	6*RBmax5.1L2	7*RBmax5.1L2	8*RBmax5.1L2
Nominal Energy (kWh)	5.12	10.24	15.36	20.48	25.6	30.72	35.84	40.96
Usable Energy (kWh)	4.79	9.58	14.37	19.16	23.95	28.74	33.53	38.32
Scalability (kWh)	Max. 16 in parallel, Max. 81kWh							
Nominal Charge/Discharge Current (A)	50 / 50	100 / 100	150 / 150	200 / 200	250 / 250	300 / 300	350 / 350	400 / 400
Max. Charge/Discharge Current(A)	100 / 100	100 / 200	150 / 200	200 / 200	250 / 400	300 / 400	350 / 400	400 / 400
Cell type	Lithium iron phosphate (LFP)							
Nominal voltage (V)	51.2							
Operating voltage range (V)	44.8 ~ 56.8							
<b>General Data</b>								
Weight (Kg / lbs.)	48.5 Kg 106.9 lbs.	94.3 Kg 207.89 lbs.	140 Kg 308.64 lbs.	185.7 Kg 409.39 lbs.	234.3 Kg 516.54 lbs.	280 Kg 617.29 lbs.	325.7 Kg 718.04 lbs.	371.4 Kg 818.79 lbs.
Dimensions (W × D × H mm / inch)	650x240x460 mm 25.6 x 9.5 x 18.1 inch	650x240x790 mm 25.6x9.4x31.1 inch	650x240x1120 mm 25.6x9.4x44.1 inch	650x240x1450 mm 25.6x9.4x57.1 inch	650x240x790+ 650x240x1120 mm 25.6x9.4x31.1 inch+ 25.6x9.4x44.1 inch	650x240x1120+ 650x240x1120 mm 25.6x9.4x44.1 inch+ 25.6x9.4x44.1 inch	650x240x1120+ 650x240x1450 mm 25.6x9.4x44.1 inch+ 25.6x9.4x57.1 inch	650x240x1450+ 650x240x1450 mm 25.6x9.4x57.1 inch+ 25.6x9.4x57.1 inch
Operating temperature (°F/°C) <sup>[1]</sup>	Charge: 32 ~ 131°F (0 ~ 55°C), Discharge: 4 ~ 131°F (-20 ~ 55°C)							
Storage temperature (°F/°C)	≤1 month: -4 ~ 113°F (-20 ~ 45°C), >1 month: 32 ~ 95°F (0 ~ 35°C)							
Installation location	Indoor/Outdoor, Floor standing or Wall mounted							
Communication	CAN, RS485							
Relative humidity	0 ~ 95%							
Max. altitude (m / ft.)	4000 m / 13,123 ft (>2,000 m / >6,561.68 ft derating)							
Ingress rating	IP 65							
Compatible inverter brands	SAJ / Megarevo / Luxpower / Senergy / Sacolar / SRNE							

### Certification

IEC 62619, UL 1973, EN 61000-6-1, EN 61000-6-3, FCC Part 15, UN38.3

[1] When the ambient temperature is too low or too high, the performance of battery may be limited.

[2] All pictures shown are for reference only and data are based on ROYPOW standard test procedures. Actual performance may vary according to local conditions. Only authorized personnel are allowed to operate or make adjustments to the batteries. We reserve the right to make revisions as well as product alterations and improvements at any time without prior notice.



## System Specification



Model	R6500S-US	R8000S-US	R10000S-US
<b>PV Input</b>			
Max. PV Input Power	10000 W	11000 W	11000 W
Max. DC Voltage	550 V	500 V	500 V
MPPT Voltage Range	150 V - 450 V	125 V - 425 V	125 V - 425 V
Max. Input Current	18 A / 18 A	22 A / 22 A	22 A / 22 A
Number of MPPT	2	2	2
<b>Battery Input</b>			
Battery Type	Lead-acid / LFP	Lead-acid / LFP	Lead-acid / LFP
Rated Voltage	48 V	48 V	48 V
Voltage Range	40 V - 60 V	40 V - 60 V	40 V - 60 V
Max. MPPT Charging Current	140 A	180 A	200 A
Max. Mains/Generator Charging Current	80 A	100 A	120 A
Max. Hybrid Charging Current	140 A	180 A	200 A
<b>AC Input</b>			
Input Voltage Range	65-140 VA	90-140 VA	90-140 VA
Frequency Range	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz
Bypass Overload Current	40 A	63 A	63 A
<b>AC Output</b>			
Rated Output Power	6500 W	8000 W	10000 W
Max. Peak Power	13000 W	16000 W	20000 W
Rated Output Voltage	120/240Vac (Split Phase/Single Phase)		
Load Capacity of Motors	4HP	5HP	6HP
Rated AC Frequency	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz
Waveform	Pure Sine Wave	Pure Sine Wave	Pure Sine Wave
Switch Time	10 ms	10 ms	10 ms
<b>Efficiency</b>			
MPPT Tracking Efficiency	99.90%	99.9%	99.9%
Max. Efficiency (Battery)	93%	92%	92%
<b>General Specifications</b>			
Dimension (L x W x H)	584.6 x 410 x 133 mm (23.0 x 16.14 x 5.24 inch)	620 x 445 x 130 mm (24.41 x 17.52 x 5.12 inch)	620 x 445 x 130 mm (24.41 x 17.52 x 5.12 inch)
Weight	18.9 kg (41.66 lbs.)	27 kg (59.52 lbs.)	27 kg (59.52 lbs.)
Installation	Wall-Mounted		
Environmental Temperature Range	-10~55°C, >45°C derated (14~131°F, >113°F derated)		
Max. Altitude	>2,000m / >6,561.68 ft Derating		
Ingress Rating	IP20		
Cooling Mode	Fan		
Noise	<60dB		
Display Type	LCD Display		
Communication	Wi-Fi / RS485/CAN		

## System Specification



Model	R5000S-UP-120V
<b>PV Input</b>	
Max. PV Input Power	5500 W
Max. DC Voltage	500 V
MPPT Voltage Range	120 V-450 V
Max. Input Current	22 A
Number of MPPT	1
<b>Battery Input</b>	
Battery Type	Lead-acid / LFP
Rated Voltage	48 V
Voltage Range	40V-60 V
Max. MPPT Charging Current	100 A
Max. Mains/Generator Charging Current	40 A
Max. Hybrid Charging Current	100 A
<b>AC Input</b>	
Input Voltage Range	90-140 VA
Frequency Range	50 Hz / 60 Hz
Bypass Overload Current	63 A
<b>AC Output</b>	
Rated Output Power	5000 W
Max. Peak Power	10000
Rated Output Voltage	120 Vac ( L/N/PE Single Phase)
Load Capacity of Motors	4HP
Rated AC Frequency	50 Hz / 60 Hz
Waveform	Pure Sine Wave
Switch Time	10 ms
<b>Efficiency</b>	
MPPT Tracking Efficiency	99.90%
Max. Efficiency (Battery)	92%
<b>General Specifications</b>	
Dimension (L x W x H)	446.9 x 350 x 133 mm (17.59 x 13.78 x 5.24 inch)
Weight	14 kg (30.86 lbs.)
Installation	Wall-Mounted
Environmental Temperature Range	-10~55°C,>45°C Derated (14~131°F, >113°F Derated)
Max. Altitude	>2,000m / >6,561.68 ft Derating
Ingress Rating	IP20
Cooling Mode	Forced Air Cooling with Adjustable Air Speed
Noise	<60dB
Display Type	LCD Display
Communication	Wi-Fi / RS485

*Sustainable, Efficient,  
and Reliable Power*



# Off-Grid Solar Air Conditioner System

Utilizing solar energy, the system ensures a consistent power supply **for air conditioning even when the grid is unreliable, allowing users to stay comfortable regardless of power fluctuations.** Its efficient design reduces energy costs and promotes sustainability, making it an ideal choice for off-grid living.

## ROYPOW System Includes:



### DC48V Inverter Air Conditioner

Deliver efficient cooling and operate quietly, creating a comfortable environment. Perfect for off-grid cottages.

14 hours+ of runtime

12,000 BTU/h cooling capacity

As low as 35dB noise

>15 EER high efficiency



### MPPT Solar Charge Controller

Efficiently optimize energy capture from solar panels and ensure maximum power transfer to the batteries, while providing comprehensive charging and discharging protection.

Up to 99% MPPT efficiency

Support solar panel 2 in series / more in parallel



### LiFePO<sub>4</sub> Batteries

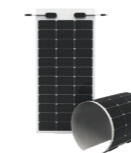
Designed for efficiency, reliability, and safety, the batteries ensure an uninterrupted power supply to run the air conditioner throughout the night.

Up to 16 units in parallel

Capacity range: 5.1kWh ~ 81.6kWh

>6,000 times of cycle life

10 years of warranty

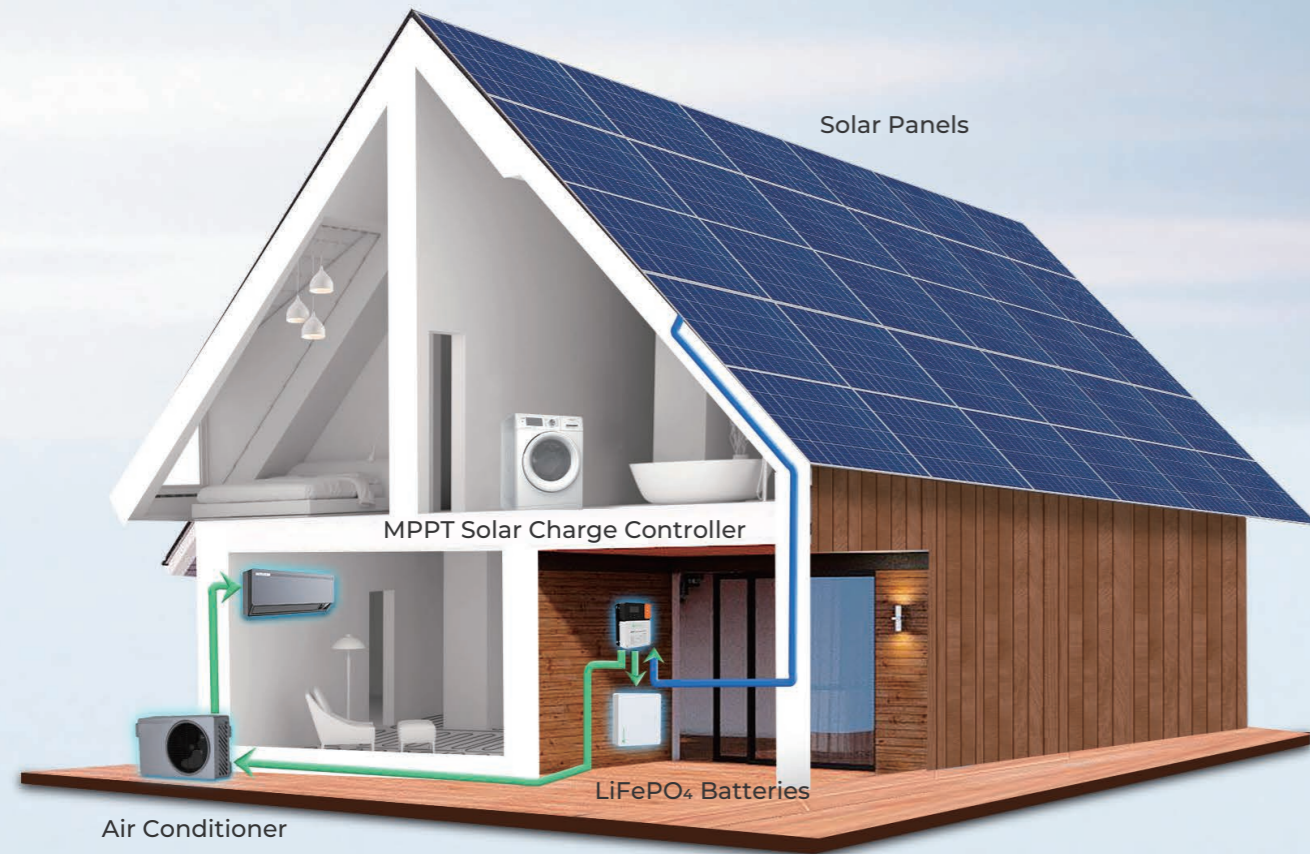


### Recommended Solar Panels

3PCS of 480W solar panels

Total 1500W solar panel power

# Off-Grid Solar Air Conditioner System Topology



## System Specification



Model	XKF-12-FTT
Rated input voltage	DC 48 V
Inverter / Non-inverter	Inverter
Mode	Cooling / Heating
Refrigerating capacity	5,000 ~ 12,000 BTU / h (1,500 ~ 3,500 W)
Refrigerating power	300 ~ 830 W
Rated cooling capacity	12,000 BTU / h (3,520 W)
Rated cooling power	750 W
Energy efficiency ratio (EER)	15 BTU / w.h
Max. rated input current	25 A
Heating capacity	2,700 BTU / h (800 W)
Input power of heating	800 W
Air flow	≥294 CFM (≥500 m <sup>3</sup> /h )
Temperature range	61°F - 86 °F (16°C - 30°C)
Refrigerant	R410A
Outdoor unit waterproof level	IPX4
Indoor unit noise level	35 dB
Outdoor unit noise level	52 dB
Indoor unit dimension (L x W x H)	26.1 x 7.7 x 11.7 inch (663 x 197 x 296 mm)
Outdoor unit dimension (L x W x H)	35.5 x 9.4 x 20.4 inch (902 x 240 x 519 mm)
Indoor / outdoor unit weight	13.2 lbs (6.0 kg) 66.1 lbs (30.0 kg)

Note: All data are based on ROYPOW standard test procedures. Actual performance may vary according to local conditions



# System Specification

## RBmax5.1L-F



Electric Data	
Nominal Energy (kWh)	5.12
Usable Energy (kWh)	4.79
Cell Type	LFP (LiFePO <sub>4</sub> )
Nominal Voltage (V)	51.2
Operating Voltage Range (V)	44.8 ~ 56.8
Max. Continuous Charge Current (A)	100
Max. Continuous Discharge Current (A)	100
General Data	
Weight (Kg / lbs.)	48 Kg / 105.8 lbs.
Dimensions (W × D × H) (mm / inch)	500 x 167 x 490 mm / 19.69 x 6.57 x 19.29 inch
Operating Temperature (°C)	0 ~ 55°C (32 ~ 131°F) (Charge), -20 ~ 55°C (4 ~ 131°F) (Discharge)
Storage Temperature (°C) Delivery SOC State (20~40%)	>1 Month: 0 ~ 35°C (32 ~ 95°F); ≤1 Month: -20 ~ 45°C (-4 ~ 113°F)
Relative Humidity	≤ 95%
Max. Altitude (m)	4000 m / 13,123 ft (>2,000 m / >6,561.68 ft derating)
Protection Degree	IP 20
Installation Location	Ground-Mounted; Wall-Mounted
Communication	CAN, RS485
Warranty	
Warranty (Years)	10 Years

Model	1*RBmax5.1L-F/FA	2*RBmax5.1L-F/FA	3*RBmax5.1L-F/FA	4*RBmax5.1L-F/FA	5*RBmax5.1L-F/FA	6*RBmax5.1L-F/FA	7*RBmax5.1L-F/FA	8*RBmax5.1L-F/FA
Nominal Energy (kWh)	5.12	10.24	15.36	20.48	25.6	30.72	35.84	40.96
Usable Energy (kWh)	4.79	9.58	14.37	19.16	23.95	28.74	33.53	38.32
Scalability (kWh)	Max. 16 in parallel, Max. 81kWh							
Nominal Voltage (V)	51.2							
Operating Voltage Range (V)	44.8-56.8							
Nominal Charge/Discharge Current (A)	50 / 50	100 / 100	150 / 150	200 / 200	250 / 250	300 / 300	350 / 350	400 / 400
Max. Charge/Discharge Current(A)	100 / 100	100 / 200	150 / 300	200 / 400	250 / 400	300 / 400	350 / 400	400 / 400

# Technical Specifications



Model	Xm4830AL
PV Input	
Max. PV Open Circuit Voltage	150 Vdc
MPPT Operating Voltage Range	(Battery Voltage + 2 V) ~ 110 Vdc
Max. PV Input Power	400 W / 12 V, 800 W / 24 V, 1,200 W / 36 V, 1,600 W / 48 V
Battery	
Battery Type	Lead-acid / Lithium-ion / User-defined
Rated Voltage	12 / 24 / 36 / 48 Vdc
Voltage Range	8 ~ 64 Vdc
Rated Charging Current	30 A
MPPT Charging Mode	Buck Charging
Load	
Load Type	Resistive Load, Inductive Load, Capacitive Load
Rated Load Voltage	Equal to Battery Voltage 12 / 24 / 36 / 48 V
Rated Load Current	30 A
Load Operation Mode	Light Control, Light and Time Control, Manual Mode (Default), Debugging Mode, Normally Opened
Efficiency	
MPPT Tracking Efficiency	>99%
Max. Charging Conversion Efficiency	85% ~ 98% (10% ~ 100% of Load Power)
Communication	
TTL	Baud Rate 9,600 kps
RS485	RS485 Communication Port
General Specifications	
Weight	7.94 lbs. / 3.6 kg
Dimension	10.24 x 8.5 x 3.88 inch / 260 x 216 x 98.5 mm
Ingress Rating	IP32
Operating Temperature Range	-35°C ~ 65°C / -31°F ~ 149°F

Technical data and illustrations are not binding. We assume no liability for misprints.

# Versatile Off-Grid System

Ideal for powering homes, remote cabins, rural areas as well as the regions where the grid access is limited, unavailable, or unreliable. Go off the grid with peace of mind.



# Support You Can Count on

At ROYPOW, as a global leading energy storage solution provider with an extensive global service network and an experienced technical team, we offer exceptional support to help you maximize the benefits of your residential energy storage system, ensuring that installers receive the support they need at every stage.



## Technical Support

We will provide answers to common questions, including features, installation, troubleshooting, and technical guides. For specific queries, our dedicated customer service team is available to answer to ensure users receive timely and effective assistance.



## Sales Support

Provide detailed product introduction material to help you effectively showcase the features and benefits of our energy storage solutions to potential customers. Give professional advice to help you choose the best product tailored to homeowners' needs.



## Product Installation

We provide comprehensive installation support, including training sessions, detailed manuals, and readily available technical assistance. By equipping installers with the necessary resources, we aim to enhance efficiency and ensure customer satisfaction.



## Product Integrations

We offer guidance on integrating our system with existing systems, such as solar PV and generators. With tailored advice on setup and compatibility, it will help ensure seamless operation and maximize energy efficiency for optimal performance.



## Marketing Support

We provide marketing materials to help installers promote our products. We actively participate in various trade shows for brand promotion and conduct advertising campaigns to increase visibility. Additionally, we share sales leads with installers to support your business growth.