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Version: January 02, 2025, Residential Energy Storage System



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Euro-standard

## Residential Energy Storage System

Experience the Freedom of Energy Independence



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Scan it!

*ROYPOW,  
Your Trusted Partner*

## Contents

About Us

ROYPOW All-In-One RESS

ROYPOW Off-Grid ESS



# ROYPOW

## For One-stop New Energy Solutions

- R&D, manufacturing and sales of motive power systems and energy storage systems as one-stop solutions
- Fully automatic production lines, a full range of test equipment and an advanced MES
- Covering Low-Speed Vehicles' Batteries, Industrial Batteries, as well as Residential ESS, Commercial & Industrial ESS, and Mobile ESS
- Self-development of power electronics technologies, including PCS, BMS, and EMS



**750+** Employees  
**190+** R&D People  
**105,000 m<sup>2</sup>** Headquarters Floor Area  
**2,500 m<sup>2</sup>** Testing Center  
**202** Patents

### 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			FCC, IEC/EN 61000-6, BS EN IEC 61000-6
IEEE 1547			IEC 60730, ISO 13849-1
IEC 62619			UN 38.3
EN 62477, EN 62040, (EU) 2023/1542, EN 62109-1, EN 62109-2			RoHS Directive 2011/65/EU & (EU) 2015/863

### R&D and Manufacturing Highlights

As a result of these investments, ROYPOW is capable of "end-to-end" integrated delivery, making our products out-perform the industry norms.

- Fully Automatic Production Lines
- BMS, PCS, EMS All Designed in House
- All-round Testing
- Advanced MES System

### Global Sales and Service Network

- Timely Delivery
- Hassle-free After-sales Service
- Fast Response Technical Support

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



### 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
- Chargers



# ROYPOW Residential Energy Storage Solutions

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.



The solutions include:



## All-In-One RESS

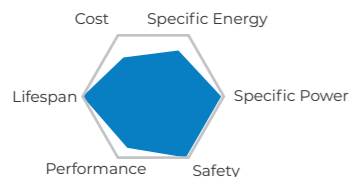
Integrate an efficient, reliable inverter with high-safety, long-life LFP batteries into a compact system for continuous power supply. The all-in-one modular system offers both aesthetic appeal and functionality, enhancing home life and providing whole-home backup support.



## Off-Grid ESS

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

## Safety



LiFePO<sub>4</sub> batteries ensure premium electrical characteristics without any safety issues.



Enhanced safety with aerosol fire protection.



Integrated Arc Fault Circuit Interrupters (AFCI)



IP65 Rating, safe and reliable while using.

## Core Value

### Application

- Energy Transformation
- Smart Home
- Energy Conservation
- Capitalization

### Platform

- Prediction
- Scheduling
- AI Algorithm
- Big Data

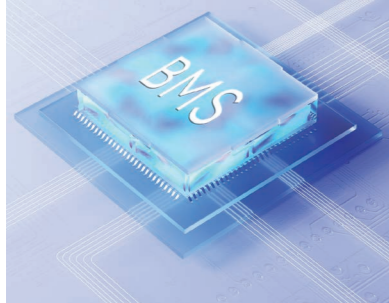
### Communication Control

- Wi-Fi Power Carrier
- Cloud Communication

### Hardware

- Power Generation / Transformation / Distribution

## Battery management system (BMS)



- **ROYPOW Research Institute**  
 30+ BMS R&D veteran researchers with 16+ years ESS BMS experiences
- **High SOC Accuracy**  
 Our SOC algorithm accuracy reaches 5%
- **Comprehensive Protection**  
 3-level software protection, redundant hardware level protection

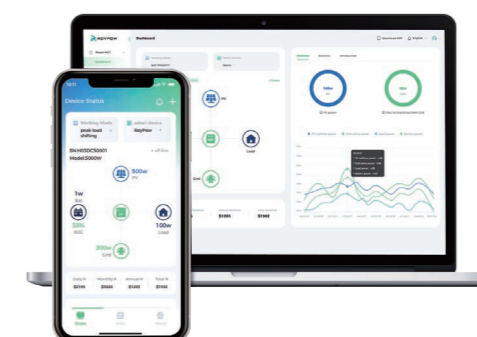
Real-time Monitoring & Comprehensive Visualization

Dynamic Power Flow & Generation Report

Multi-terminal Compatibility & Sharing

## App & Web Management

Everything at a glance and under control; the intuitive App / Web allows you to have full visibility into your self-powered home while providing real-time information on solar generation, battery power flow, and household consumption.



Backup Function & Data Encryption

Working Mode Switch & Profit Calculation

Integrated After-sales Service



# Sun Series Intelligent Residential Energy Storage System

2 MPPTs

35 dB Max. Noise

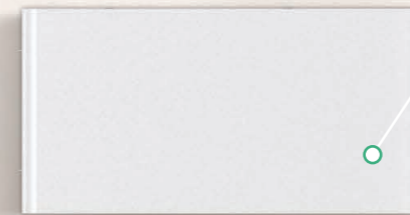
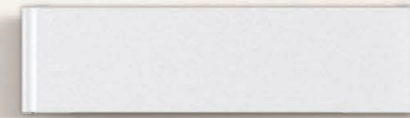
7 kVA Max. AC Input

7 kW Max. PV Input

10 Years Warranty



Inverter Module



Battery Modules



IP65 Protection



Integrated Multiple Protections



Natural Cooling



Smart Load Function



Modular & Integrated Design



Smart App & Web Management

# System Specification

Model	SUN3600S-E/A	SUN4600S-E/A	SUN5000S-E/A
Rated AC Output Power (W)	3600	4600	5000
Nominal Energy (kWh)		5 to 40	
Noise (dB)		<35	
Operating Temperature Range		-20~55°C (>45°C derating)	
Dimensions (WxDxH, mm)		650 x 240 x 750+330*N (N=1 to 8)	
Ingress Rating		IP65	
Mounting Options		Indoor/Outdoor, Floor standing or Wall mounted (optional)	

## Hybrid Inverter Specification

Model	SUN3600S-E/I	SUN4600S-E/I	SUN5000S-E/I
<b>Input - DC (PV)</b>			
Max. Input Power (W)	4600	6000	7000
Max. Input Voltage (V)		580	
MPPT Voltage Range (V)		120~550	
MPPT Voltage Range (full load)	180~550	200~550	200~550
Start Voltage (V)		150	
Max. Input Current (A)		13.5 / 13.5	
Max. Short Current (A)		16 / 16	
No. of MPPT		2	
No. of String per MPPT		1	

<b>Input - DC (Battery)</b>			
Battery Type		Lithium-ion	
Nominal Voltage (V)		48	
Operation Voltage Range (V)		40-60	
Max. Charge / Discharge Power (W)	3600 / 3600	4600 / 4600	5000 / 5000
Max. Charge / Discharge Current (A)	75 / 75	95.8 / 95.8	100 / 100
Battery Charge Method		Self-adaption to BMS	

<b>AC (On grid)</b>			
Rated Input Apparent Power (VA)		7000	
Rated Output Power (W)	3600	4600	5000
Max. Output Apparent Power (VA)	3600	4600	5000
Rated Grid Voltage		230 Vac / L+N+PE	
Rated Grid Frequency (Hz)		50 / 60	
Max. Input Current (A)		30	
Max. Output Current (A)	16	20.9	22
THDI(Rated power)		<3%	
Adjustable Power Factor		0.8 leading to 0.8 lagging	

<b>AC (Back Up)</b>			
Rated Output Power (W)	3600	4600	5000
Rated Output Current (A)	15.6	20	22
Rated Output Voltage (V)		230	
Rated Frequency (Hz)		50 / 60	
THDV (@linear load)		< 3%	
Overload Capacity	105%<Load≤125%, 10min. 125%<Load≤150%, 1min. 150%<Load rate,10S		
Back-up Switch time		< 20ms	

<b>Efficiency</b>	
Max.Efficiency (BAT to AC)	93.8%
Max.Efficiency (PV to BAT)	95.2%
Max.Efficiency (PV to AC)	97.0%
Euro.Efficiency	96.2%
Max.MPPT Efficiency	99.9%

<b>Protection</b>	
DC Switch / GFCI / Anti-islanding Protection / DC Reverse-polarity Protection / Output Over/Under Voltage Protection / Output Over Current Protection / AC Short Circuit Protection / Insulation Resistor Detection	

DC/AC Surge Protection	Type III
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<b>General Data</b>	
PV Connection	MC4/H4
DC Switch	Integated
Dimensions (WxDxH, mm)	650 x 240 x 620 mm / 25.6 x 9.5 x 24.4 inch
Net Weight (kg)	35
Operating Temperature Range	-25~60°C (-13~140°F), >45°C (113°F) derating
Relative Humidity	0~95%
Max. Altitude(m)	3000
Electronics Protection Degree	IP65
Topology type	Transformer(Bat to AC)
Night Self Consumption (W)	<10
Cooling	Natural
Noise (dB)	<35
Display	Wifi+APP / LCD
Communication	RS485 / CAN / WiFi

<b>Standard Compliance</b>	
Safety / EMC	EN IEC 62109-1, EN IEC 62109-2, EN IEC 61000-6-1, EN IEC 61000-6-3
Grid Connection Standard	VDE-AR-N 4105, NRS 097, EN 50549, G98, G99, AS 4777.2

## Battery Module Specification

Model	RBmax5.1L	2*RBmax5.1L	3*RBmax5.1L	4*RBmax5.1L	5*RBmax5.1L	6*RBmax5.1L	7*RBmax5.1L	8*RBmax5.1L
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<b>Electric Data</b>								
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

Cell type	Lithium iron phosphate (LFP)							
Nominal voltage (V)	51.2							
Operating voltage range (V)	44.8 ~ 56.8							
Max. continuous charge current (A)	50	100	100	100	100	100	100	100
Max. continuous discharge current (A)	100	100	100	100	100	100	100	100

<b>General Data</b>								
Weight	47.5 kg 99.21 lbs.	92.1 kg 203.04 lbs.	136.7 kg 301.37 lbs.	181.3 kg 399.69 lbs.	228.8 kg 504.41 lbs.	273.4 kg 602.74 lbs.	318 kg 701.06 lbs.	362.6 kg 799.39 lbs.
Dimensions (W * D * H)	Double tower							
	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 <sup>II</sup>	Charge: 32 ~ 131°F (0 ~ 55°C), Discharge: 4 ~ 131°F (-20 ~ 55°C)							
Storage temperature	≤1 month: -20 to 45°C (-4 to 113°F), >1 month: 0 to 35°C (32 to 95°F)							
Relative humidity	0 ~ 95%							
Max. altitude (m)	4000 m / 13,123 ft (>2,000 m / >6,561.68 ft derating)							
Ingress rating	IP65							
Mounting options	Indoor/Outdoor, Floor standing or Wall mounted				Communication			
					CAN, RS485			

<b>Certification</b>	IEC 62619, UL 1973, EN 61000-6-1, EN 61000-6-3, FCC Part 15, UN38.3
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1 ROYPOW All-In-One RESS 5.1 ~ 81.6 kWh



# LIFEPO<sub>4</sub> BATTERY

5.1 ~ 81.6 kWh

Empowering Sustainable Energy Storage for Homes


Up to **16** Batteries  
Flexible Capacity Expansion

> **6,000** Times  
Cycle Life


**IP65**  
Ingress Rating

**10** Years  
Warranty

 **Advanced LiFePO<sub>4</sub> Technology**  
Safe, Cobalt-free Battery Chemistry

 **Modular and Stacked Design**  
Easier Installation

 **Safe Protection**  
Intelligent BMS & Built-in Fire Extinguishing System

 **High Compatibility**  
Compatible with Inverters of Leading Brands

## 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 / 300	200 / 400	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							
<b>Certification</b>	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.

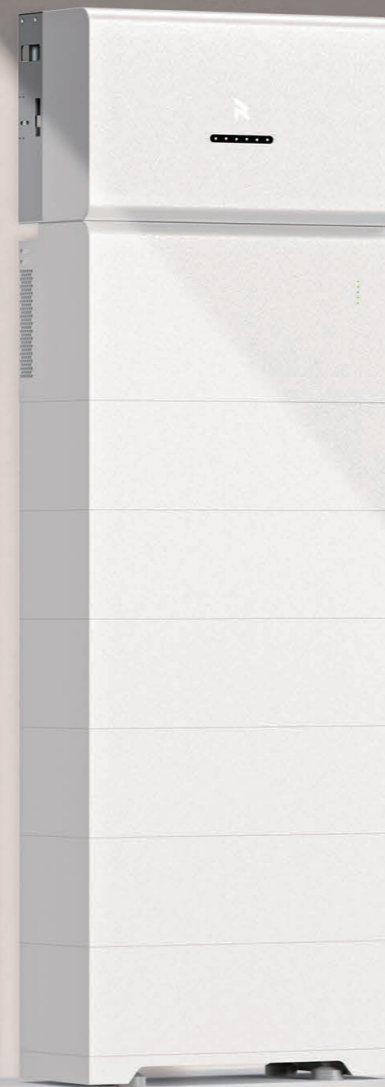


# All-In-One ESS

Three-phase

8 / 10 / 12 / 15 / 20 / 25 / 30kW

7.6 to 132kWh



Compatible with  
**AC-coupling**

Up to **6**  
in parallel

**Generator**  
Energy Storage

**Intelligent**  
Remote Monitoring



## System Specification

Model	SUN8000T-E/A	SUN10000T-E/A	SUN12000T-E/A	SUN15000T-E/A
Rated AC Output Power (W)	8000	10000	12000	15000
Nominal Energy (kWh)	7.6 to 132.7			
Noise (dB)	<29			
Operating Temperature Range	-18~50°C, >45°C derating			
Dimensions (WxDxH)	650 x 265 x (780 + 200*N (N=2 to 6)) mm			
Ingress Rating	IP65			
Mounting Options	Indoor/Outdoor, Floor standing or Wall mounted (optional)			

Model	SUN20000T-E/A	SUN25000T-E/A	SUN30000T-E/A
Rated AC Output Power (W)	20000	25000	30000
Nominal Energy (kWh)	44 to 132		
Noise (dB)	<60		
Operating Temperature Range	-18~50°C, >45°C derating		
Dimensions (WxDxH)	650 x 265 x (890+200*N (N=2 to 6, single tower) mm		
Ingress Rating	IP65		
Mounting Options	Indoor/Outdoor, Floor standing or Wall mounted (optional)		

8 / 10 / 12 / 15kW



# Hybrid Inverter

Three Phase / 2 MPPTs / Hybrid Inverter / HV

- 200% DC Oversizing
- 200% Overload Capacity
- Up to 6 Units Parallel Working
- 30<sub>A</sub> Max. PV Input Current
- 98.3% Max. Efficiency
- <10<sub>ms</sub> Seamless Switch
- 150% Three-Phase Imbalance Output
- Support Half Wave Load
- Compatible with AC Coupling
- Generator Energy Storage



Lighter, Smaller, Quieter

## Hybrid Inverter Specification

Model	SUN8000T-E/I	SUN10000T-E/I	SUN12000T-E/I	SUN15000T-E/I
<b>Input - DC (PV)</b>				
Max. Power (Wp)	20000	20000	30000	30000
Max. DC Voltage (V)		1000		
MPPT Voltage Range (V)		160-950		
MPPT Voltage Range (V, full load)	200-850	240-850	240-850	280-850
Start Voltage (V)		180		
Max. Input Current (A)	30-20	30-20	30-30	30-30
Max. Short Current (A)	40-30	40-30	40-40	40-40
Number of MPPT		2		
Number of String per MPPT	2-1	2-1	2-2	2-2
<b>Input - DC (Battery)</b>				
Compatible Battery	RBmax MH Battery System			
Voltage Range (V)	550-950			
Max. Charge / Discharge Power (W)	11000 / 8800	11000 / 11000	15000 / 13200	15000 / 15000
Max. Charge / Discharge Current (A)	20 / 16	20 / 20	27 / 24	27 / 27
<b>AC (On grid)</b>				
Rated Output Power (W)	8000	10000	12000	15000
Rated Output Apparent Power (VA)	8800	11000	13200	15000
Max. Output Apparent Power (VA)	8800	11000	13200	15000
Max. Output Power (W)	8800	11000	13200	15000
Rated Input Apparent Power (VA)	22500			
Max. Input Current (A)	3*32			
Rated Grid Voltage (V)	220/380, 230/400, 3W+N+PE			
Rated Grid Frequency (Hz)	50 / 60			
Rated Output Current (A)	3*12.8	3*16	3*19.2	3*21.8
Max. Output Current (A)	3*12.8	3*16	3*19.2	3*21.8
THDI(Rated power)	<3%			
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)			
<b>AC (Back Up)</b>				
Rated Output Power (W)	8000	10000	12000	15000
Rated Output Apparent Power (VA)	8800	11000	13200	15000
Rated Output Current (A)	3*12.8	3*16	3*19.2	3*21.8
Rated Bypass Power (VA)	22500			
Rated Bypass Current (A)	3*32			
Rated Output Voltage (V)	220/380, 230/400, 3W+N+PE			
Rated Frequency (Hz)	50 / 60			
THDV (@linear load)	< 2%			
Overload Capacity	120% for 10 min, 200% for 10 S			
THDV	<2% (R load), <5% (RCD load)			
Scalability	Max. 6 in parallel			
<b>Efficiency</b>				
Max.Efficiency	98.0%	98.0%	98.3%	98.3%
Euro.Efficiency	97.3%	97.3%	97.6%	97.6%
Max. Charge Efficiency (PV to Bus)	99%			
Max. Charge / Discharge Efficiency (Grid to Bus)	98%			
<b>Protection</b>				
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 II / Type III			
AFCI / RSD	Optional			
<b>General Data</b>				
Switch Time	< 10ms	Topology	Transformerless	
Generator Interface	Optional	Noise (dB)	<29	
PV Switch	Integated	Night Self Consumption (W)	<10	
PV Connection	MC4/H4	Cooling	Natural Convection	
AC Connection	Connector	Display	LED + APP (Bluetooth)	
Operating Temperature Range	-25~60°C, >45°C derating	Protection Degree	IP65	
Relative Humidity	0~95%	Dimensions (WxDxH)	650 x 265 x 390mm	
Altitude	4000 m	Net Weight	30 kg	
Communication Interface	RS485 / CAN / USB / (Wi-Fi / GPRS / 4G / Ethernet optional)			
<b>Standard Compliance</b>				
Grid Connection standards	VDE-AR-N 4105, EN 50549, AS4777.2	Safety/EMC/RED Standards	EN IEC62109-1/-2, EN 61000-6-1/-2/-3/-4, EN301489, EN300328, EN 62479, EN50663, EN62920, RCM	

20 / 25 / 30kW



# Hybrid Inverter

Three Phase / 3 MPPTs / Hybrid Inverter / HV

150%  
Overload Capacity

Up to 6 Units  
Parallel Working

30A  
Max. PV Input Current

98.8%  
Max. Efficiency

<10ms  
Seamless Switch

100%  
Three-Phase Imbalance Output

Support  
Half Wave Load

Compatible with  
AC Coupling

Generator  
Energy Storage



Reliable, Efficient, Powerful

## Hybrid Inverter Specification

Model	SUN20000T-E/I	SUN25000T-E/I	SUN30000T-E/I
<b>Input - DC (PV)</b>			
Max. Power (Wp)	30000	45000	45000
Max. DC Voltage (V)		1000	
MPPT Voltage Range (V)		160-950	
MPPT Voltage Range (V, full load)	340-800	270-800	340-800
Start Voltage (V)		180	
Max. Input Current (A)	30-30	30-30-30	30-30-30
Max. Short Current (A)	40-40	40-40-40	40-40 / 40
Number of MPPT	2	3	3
Number of String per MPPT	2-2	2-2-2	2-2-2
<b>Input - DC (Battery)</b>			
Compatible Battery		RBmax MH Series	
Number of Battery Input		2	
Voltage Range (V)		550-950	
Max. Charge / Discharge Power (W)	22000/22000	27500 / 27500	30000 / 30000
Max. Charge / Discharge Current (A)		50 / 50	
<b>AC (On grid)</b>			
Rated Output Power (W)	20000	25000	30000
Max. Output Apparent Power (VA)	22000	27500	30000
Max. Output Power (W)	22000	27500	30000
Rated Input Apparent Power (VA)		45000	
Max. Input Current (A)		3*65	
Rated Grid Voltage (V)		220/380, 230/400, 3W+N+PE	
Rated Grid Frequency (Hz)		50 / 60	
Max. Output Current (A)	3*28.9	3*36.3	3*43.5
THDI(Rated power)		<3%	
Power Factor		~1 (Adjustable from 0.8 leading to 0.8 lagging)	
<b>AC (Back Up)</b>			
Rated Output Power (W)	20000	25000	30000
Rated Output Current (A)	3*28.9	3*36.3	3*43.5
Rated Bypass Power (VA)		37950	
Rated Bypass Current (A)		3*65	
Rated Output Voltage (V)		220/380, 230/400, 3W+N+PE	
Rated Frequency (Hz)		50 / 60	
THDV (@linear load)		< 2%	
Overload Capacity		120%@10min /150% @200ms	
THDV		<2% (R load), <5% (RCD load)	
Scalability		Max. 6 in parallel	
<b>Efficiency</b>			
Max.Efficiency		98.8%	
Euro.Efficiency	97.2%	97.9%	97.9%
Max. Charge Efficiency (PV to Bus)		98%	
Max. Charge / Discharge Efficiency (Grid to Bus)		98%	
<b>Protection</b>			
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 II / Type III	
AFCI / RSD		Optional	
<b>General Data</b>			
Switch Time	< 10ms	Topology	Transformerless
Generator Interface	Optional	Noise (dB)	<60
PV Switch	Integated	Night Self Consumption (W)	<15
PV Connection	MC4/H4	Cooling	Smart Fan
AC Connection	Connector	Display	LED + APP (Bluetooth)
Operating Temperature Range	-25~60°C, >50°C derating	Protection Degree	IP65
Relative Humidity	0~95%	Dimensions (WxDxH)	650 x 265 x 500mm
Altitude	4000 m	Net Weight	43 kg
Communication Interface	RS485 / CAN / USB / (Wi-Fi / GPRS / 4G / Ethernet optional)		
<b>Standard Compliance</b>			
Grid Connection standards	EN 50549	Safety Standards	EN 62109-1/-2, EN 61000-6-1/-2/-3/-4, EN301489, EN300328, EN62479, EN 50663, EN62920



### Battery System Specification

Model	2*RBmax3.8MH	3*RBmax3.8MH	4*RBmax3.8MH	5*RBmax3.8MH	6*RBmax3.8MH
Battery Module	RBmax3.8H (3.84 kWh, 76.8 V, 40kg)				
Number of Battery Modules					
Nominal Energy (kWh)	7.68	11.52	15.36	19.2	23.04
Usable Energy (kWh) <sup>[1]</sup>	7.06	10.6	14.13	17.66	21.2
Rated Current (A)	45	45	45	45	45
Nominal Power (kW)	6.9	10.3	13.8	15	15
Peak Output Power (kW)	8 for 10 sec.	12 for 10 sec.	16 for 10 sec.	17 for 10 sec.	17 for 10 sec.
Weight	100.4 kg	140.4 kg	180.4 kg	220.4 kg	260.4 kg

Model	2*RBmax5.5MH	3*RBmax5.5MH	4*RBmax5.5MH	5*RBmax5.5MH	6*RBmax5.5MH
Battery Module	RBmax5.5H (5.5 kWh, 76.8 V, 45 kg)				
Number of Battery Modules					
Nominal Energy (kWh)	11.06	16.59	22.12	27.65	33.18
Usable Energy (kWh) <sup>[1]</sup>	10.18	15.26	20.35	25.44	30.53
Rated Current (A)	50	50	50	50	50
Nominal Power (kW)	7.6	11.5	15	15	15
Peak Output Power (kW)	8 for 10 sec.	12 for 10 sec.	16 for 10 sec.	17 for 10 sec.	17 for 10 sec.
Weight	110.4 kg	155.4 kg	200.4 kg	245.4 kg	290.4 kg

#### RBmax3.8MH & RBmax5.5MH Series

Operating Voltage Range (V)	550-950				
Dimensions (W x D x H)	650 x 265 x 780 mm	650 x 265 x 980 mm	650 x 265 x 1180 mm	650 x 265 x 1380 mm	650 x 265 x 1580 mm
Battery Nominal Voltage (V)	153.6	230.4	307.2	384	460.8
Battery Operating Voltage Range (V)	124.8~172.8	187.2~259.2	249.6~345.6	312~432	374.4~518.4
Battery Chemistry	Lithium Iron Phosphate (LiFePO <sub>4</sub> )				
Scalability	Max. 4 in parallel				
Operating Temperature	Charge: 0~50°C, Discharge: -18~50°C (>45°C derating)				
Storage Temperature	≤1 month: -20~45°C, >1 month: 0~35°C				
Relative Humidity	5~95%				
Max. Altitude (m)	4000 m (>2,000 m derating)				
Protection Degree	IP65				
Cooling Method	Natural Convection				
Mounting Options	Indoor / Outdoor, Floor standing, Wall mounted				
DC Protection	Circuit Breaker, Fuse, DC-DC converter				
Protection Features	Over Voltage / Over Current / Short Circuit / Reverse Polarity				
Certifications	CE, VDE-AR-E 2510-50, IEC 62619, EN 62477, EN IEC62040, RCM, CEC, UN38.3				

Battery Optimizer	RMH95050
Voltage Range(V)	550-950
Max. Charge / Discharge Current(A)	27
Communication	CAN, RS485
Scalability	Max. 4 in parallel
Dimensions (W x D x H)	650 x 265 x 270mm
Weight	15 kg

## Battery

**No Additional Wiring Required**

**Modular & Stackable Design**

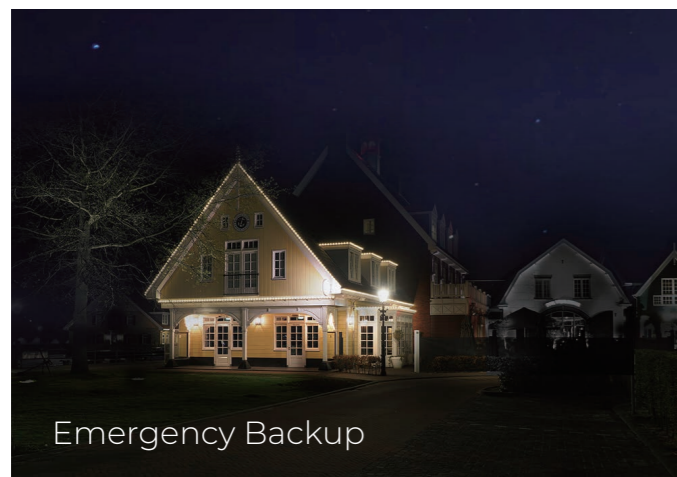
**7.6 ~ 132 kWh Flexible Capacity Expansion**

**LFP**  
Safe, Cobalt-Free Battery

**IP65**  
Ingress Rating

# Versatile Off-Grid System

Ideal for powering homes, remote cabins, resorts, rural areas, and businesses in regions where the grid access is limited or unavailable. Go off the grid with peace of mind.





# LIFEPO<sub>4</sub> BATTERY

5.1 ~ 81.6 kWh

Reliable Power for Off-Grid Living

Up to **5** kW / Module  
Maximum Continuous  
Discharge Power

Up to **16** Units  
Flexible Capacity Expansion

> **6,000** Times  
Cycle Life

**10** Years  
Warranty



## Safe

✓ Advanced Cobalt-free LiFePO<sub>4</sub>  
Battery Technology

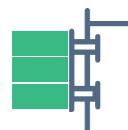
✓ Intelligent BMS with  
Multiple Protections



## Reliable

✓ Long Design Life

✓ Zero Maintenance and  
No Frequent Swapping



## Convenient

✓ Modular and Stacked  
Design for Easy Installation

✓ Ground-mounted or  
Wall-mounted Installation

## 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

#### Certification

EMC	CE
Transportation	UN38.3

#### Warranty

Warranty (Years)	10 Years
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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

2

ROYPOW Off-Grid ESS

5.1 ~ 81.6 kWh



# LIFEPO<sub>4</sub> BATTERY

5.1 ~ 81.6 kWh

Long-Lasting, Reliable Power Storage Solution

Up to **16** Units  
Flexible Capacity Expansion

**>6,000** Times  
Cycle Life

**10** Years  
Warranty

**Advanced LiFePO<sub>4</sub> Technology**  
Safe Battery Cells from Global Top 3 Brands

**Intelligent BMS**  
Intelligent Monitoring & Multiple Protections

**High Compatibility**  
Compatible with Many Brands of Inverter Protocols

**Easy Installation**  
Stackable with Flexible Brackets

**APP Support**  
Remote Monitoring of Battery Status

**Wake-up Function**  
Reactivate and Recharge Asleep Batteries

## System Specification

Model **RBmax5.1L-FX**



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.)	45 Kg / 99.2 lbs.
Dimensions (W × D × H) (mm / inch)	442 x 560 x 173 mm / 17.4 x 22.05 x 6.81 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 or Wall-Mounted
Communication	CAN, RS485
Certification	
Safety	IEC 62619
EMC	CE
Transportation	UN38.3
Warranty	
Warranty (Years)	10 years

Model	1*RBmax5.1L-FX	2*RBmax5.1L-FX	3*RBmax5.1L-FX	4*RBmax5.1L-FX	5*RBmax5.1L-FX	6*RBmax5.1L-FX	7*RBmax5.1L-FX	8*RBmax5.1L-FX
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

CE IEC 62619 UN38.3



# LIFEPO<sub>4</sub> BATTERY

9.8 ~ 78 kWh

Larger Capacity for Continuous Power Supply

Up to **8** Units  
Flexible Capacity Expansion

> **6,000** Times  
Cycle Life

**10** Years  
Warranty

**Advanced LiFePO<sub>4</sub> Technology**  
Safe Battery Cells from Global Top 3 Brands

**Intelligent BMS**  
Intelligent Monitoring & Multiple Protections

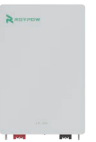
**High Compatibility**  
Compatible with Many Brands of Inverter Protocols

**Fast Charging**  
Extended Uptime for Home Backup

**APP Support**  
Remote Monitoring of Battery Status

**Wake-up Function**  
Reactivate and Recharge Asleep Batteries

## System Specification



Model	RBmax10L-F
Nominal Energy (kWh)	9.84
Usable Energy (kWh)	9.05
Cell Type	LFP (LiFePO <sub>4</sub> )
Nominal Voltage (V)	48
Rated Capacity (Ah)	205
Combination Method	15S1P
Operating Voltage Range (V)	40.5 ~ 54
Max. Continuous Charge Current (A)	200
Max. Continuous Discharge Current (A)	200

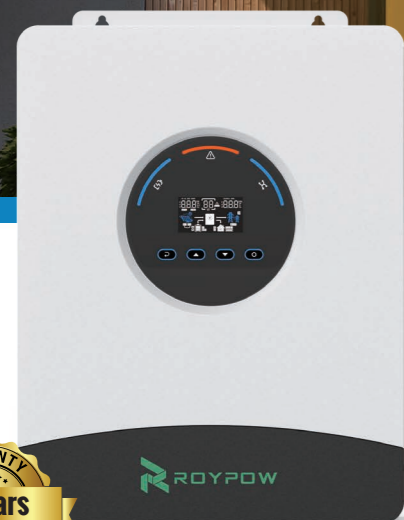
General Data	
Weight (Kg / lbs.)	90 Kg / 198.42 lbs.
Dimensions (W × D × H) (mm)	500 x 180 x 800 mm / 19.69 x 7.09 x 31.49 inch
Operating Temperature (°C)	0 ~ 55°C (32 ~ 131°F) (Charge), -20 ~ 55°C (-4 ~ 131°F) (Discharge)
Storage temperature (°C) Delivery SOC State (20~40%)	>1 Month: 0 ~ 35°C (32 ~ 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 or Wall-Mounted
Communication	CAN, RS485

Certification	
Safety	/
EMC	CE
Transportation	UN38.3

Warranty	
Warranty (Years)	10 years

Model	1*RBmax10L-F	2*RBmax10L-F	3*RBmax10L-F	4*RBmax10L-F	5*RBmax10L-F	6*RBmax10L-F	7*RBmax10L-F	8*RBmax10L-F
Nominal Energy (kWh)	9.84	19.68	29.52	39.36	49.2	59.04	68.88	78.72
Usable Energy (kWh)	9.05	18.1	27.15	36.2	45.25	54.3	63.35	72.4
Scalability (kWh)	Max. 8 in parallel, Max. 78 kWh							
Nominal Voltage (V)	51.2							
Operating Voltage Range (V)	44.8-56.8							
Nominal Charge/Discharge Current (A)	100 / 100	200 / 200	300 / 300	400 / 400	400 / 400	400 / 400	400 / 400	400 / 400
Max. Charge/Discharge Current(A)	200 / 200	400 / 400	400 / 400	400 / 400	400 / 400	400 / 400	400 / 400	400 / 400





# SOLAR INVERTER

6 ~ 72 kW

Compact and Light, Designed for Efficient Energy Production

**98%**  
Peak Efficiency

Up to **12** Units  
Parallel Working

**10**ms UPS  
Seamless Switch

**Three-Phase**  
Connection via  
Parallel Connection

**5** Years  
Additional Cost  
for Extended Warranty



Pure Sine Wave Output



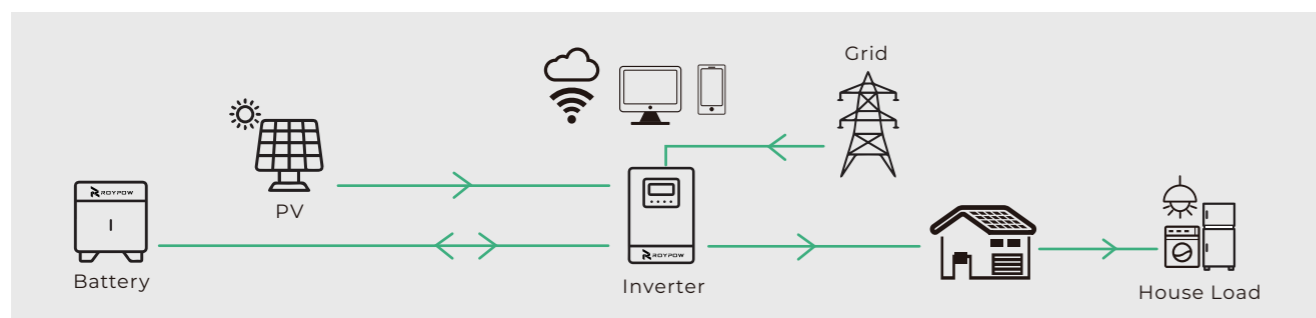
Wide MPPT Operating Range



Built-in BMS Communication



Multiple Safe Protections



## System Specification

Model

R6000S-E



### PV (DC Input)

Recommended Max. PV Input Power (W)	6000
Max. Input Voltage (VOC) (V)	500
MPPT Operating Voltage Range (V)	85 V - 450 V (@75V Start up)
Number of MPPT	1
Max. Number of Input Strings per MPPT	1
Max. Input Current per MPPT (A)	27
Max. Short-circuit Current per MPPT (A)	35

### Grid (AC Input)

Max. Input Power (W)	11500
Max. Input Current (A)	50
Rated Grid Voltage (Vac)	220 / 230 / 240
Rated Grid Frequency (Hz)	50 / 60
Acceptable Range	170 - 280 Vac (For UPS); 90 - 280 Vac (For Home Appliances)

### Battery (Bi-direction)

Battery Type	LiFePO <sub>4</sub> / Lead-acid
Battery Voltage Range (Vdc)	40-60
Rated Battery Voltage (Vdc)	48
Max. Charge / Discharge Current (A)	120 / 130
BMS Communication Mode	RS485

### Backup Output (AC Output)

Rated Output Power	6000W / 6000VA
Rated Output Current (A)	27.3
Rated Output Voltage / Frequency	220 / 230 / 240Vac 50 / 60Hz
Parallel Capacity	Max. 12 Units
Surge Power	12000 VA 5 s
THDv (@ Linear Load)	<3%
Switch Time	10ms Typical (For UPS), 20ms Typical (For Home Appliances)

### Efficiency

Peak Efficiency	98%
Max. MPPT Efficiency	99.90%

### Protection

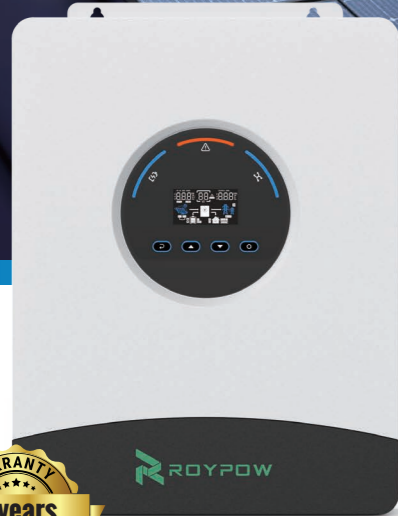
Inner Protection	Output Short-circuit Protection, Output Overvoltage Protection
Surge Protection	PV: Type III, AC: Type III
IP Rating	IP54

### General Specifications

Operating Temperature Range	-10°C ~ 55°C
Relative Humidity Range	5% ~ 95%
Max. Operating Altitude	>2,000 m / >6,561.68 ft derating
Standby Self-consumption (W)	<10
Installation Type	Wall-mounted
Cooling Mode	Fan Cooling
Communication	RS232/RS485/Dry Contact/Wi-Fi
Display	LCD

### Mechanical Specifications

Inverter Dimension (L x W x H) (mm / inch)	444.7 x 346.6 x 120 mm / 17.51 x 13.65 x 4.72 inch
Net Weight (kg)	12.4 Kg / 27.33 lbs.
Shipping Dimension (mm)	560 x 465 x 240 mm / 22.05 x 18.31 x 9.45 inch
Gross Weight (kg)	14.6 Kg / 32.19 lbs.
Warranty Period	3 years / 5 years (optional)



## SOLAR INVERTER

12 ~ 72 kW

Efficient, Safe, Reliable for Home Backup



**98%** Max. MPPT  
Tracking Efficiency

Up to **6** Units  
Parallel Working

**Three-Phase**  
Connection via Parallel Connection

**10** Years  
Long Lifespan

Up to **72** kW  
High Power

**5** Years  
Additional Cost for Extended Warranty



Pure Sine Wave AC Power



Easy Installation and Setup



Wide MPPT Operating Range



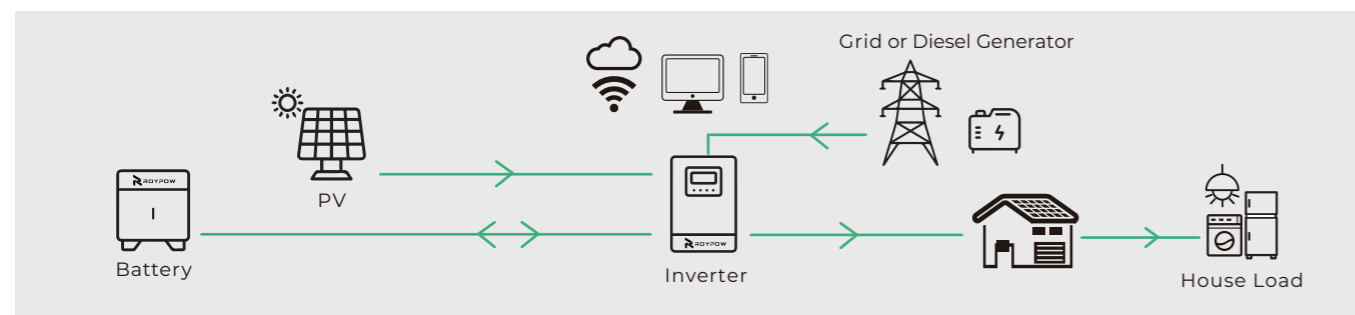
Intelligent Management via LCD Display and Wi-Fi



Comprehensive Safety Protections



Built-in Li-ion Battery BMS Communication



## System Specification

Model

R12000S-E



### PV Input

Max. PV Input Power (W)	12000
Max. DC Voltage (V)	500
MPPT Voltage Range (V)	85V-450
Rated Voltage (V)	380
Startup Voltage (V)	75
Max. DC Current (A)	27 / 27
Number of MPPT	2
Number of String per MPPT	1
DC Terminal Type	TBD

### Battery

Battery Type	Lead-acid / LFP
Rated Voltage (V)	48
Voltage Range (V)	40V-60
Max. Charge / Discharge Power (W)	12000
Max. Charge Current	210A (MPPT: 210A; Grid: 210A)
Max. Discharge Current (A)	230
Max. Charge Voltage (V)	60
Temperature Compensation	Yes (Lithium Battery)
Current / Voltage Monitoring	Yes

### AC Input

Max. Input Power (W)	20700
Max. Input Current (A)	90
Rated Input Voltage (V)	220 / 230 / 240
Rated Input Frequency (Hz)	50 / 60
THDi	<3% (Linear Load)
Power Factor	1

### AC Output

Max. Output Power (W)	12000
Rated Frequency (Hz)	50 / 60
Frequency Accuracy	±2%
Voltage Class (V)	220 / 230 / 240
Max. Output Current (A)	54.5
Voltage Stabilization Accuracy	±1%
THDV (Full Load)	<3% (Linear Load)
Overload Capacity	105% < Load ≤ 150%, Alarm and Shutdown after 10.5 s; Load ≥ 150%, Alarm and Shutdown after 5.5 s

### Efficiency

Max. Efficiency (Grid)	95%
Max. Efficiency (Battery)	93%

### Protection

Protection	Over-/Under-Voltage Protection, Output Over-Current Protection, Output Short-Circuit Protection, Over-Temperature Protection
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### General Specifications

Dimension (L x W x H)	125 x 535 x 630 mm / 4.92 x 21.06 x 24.80 inch
Weight	25 kg / 55.11 lbs.
Installation	Wall-Mounted
Environmental Temperature Range	-10~55°C, >40°C Derated (14~131°F, >104°F Derated)
Relative Humidity	5~95%
Max. Altitude	>2,000 m / >6,561.68 ft derating
Ingress Rating	IP54
Standby Self-Consumption	<10 W
Cooling Mode	Forced Air Cooling
Noise	<60 dB
Display Type	LCD Display
Communication	RS232 / Dry Contact / Wi-Fi / RS485
Warranty	3 years / 5 years (optional)
Parallel Units	6