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ALL-ELECTRIC 48V

RV  
ENERGY  
STORAGE SYSTEM

POWER  
YOUR HOME  
WHERE YOU PARK IT



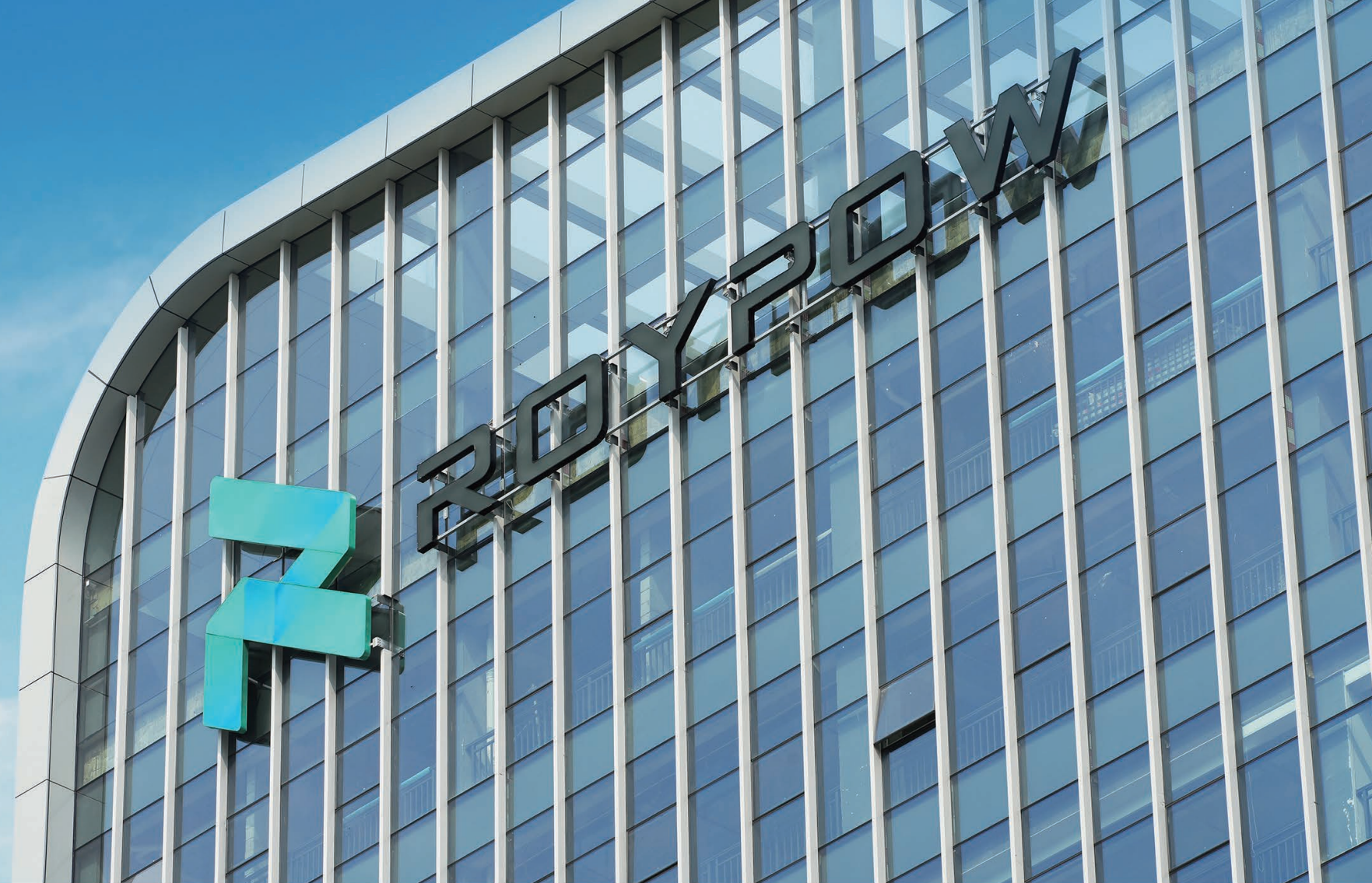
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# OFF-GRID LIVING STARTS TO CHANGE NOW

No need to  
research campgrounds with electrical hookups.  
No need to  
map routes that end your day at a specific location.  
...

## Endless Power to Explore. More Freedom to Roam.

No matter where your journey takes you, the ROYPOW RV Energy Storage System (ESS) will meet all of your energy needs, allowing you to roam freely and enjoy your caravan experiences for extended periods. With the comfort you would expect from home, you can relax and travel countless miles more.



Automotive-grade



Long run time



Proven safety



Flexible airflow models



## The Shortcomings of Traditional Energy Storage Solutions



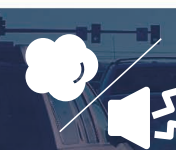
High  
fuel costs



Engine  
idling



High  
maintenance cost



Pollution  
/ noise

Safe

**LFP** (LiFePO<sub>4</sub>)  
chemistry

Virtually

**0** maintenance

Up to

**10** years  
design life

**5**

charging sources

**No Fume / No Noise  
/ No Emission**

Over

**6,000**  
life cycles

**48** V  
system

**-4°F -131°F**  
operating temperature

**The New  
Standard of  
RV Energy Storage System**

Including 48 V Alternator

**ONE-STOP SOLUTION**



# Upgrade Your RV / Van Power

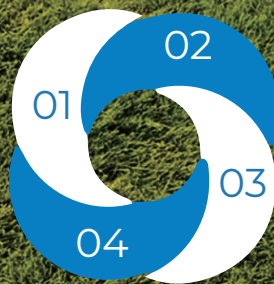
Enjoy Your Off-grid Adventures for Years to Come!

This system converts an RV into a tiny mobile home by providing RVers sustainable and independent power for a quiet and peaceful off-grid lifestyle. This system empowers RVers with freedom and confidence to extend and enjoy their adventures on their own terms.

ROYPOW  
RV ESS

**Customizable options**  
with additional solar panels or  
all-in-one inverter

**Fast charging**  
shortens the recharge process to  
enjoy air conditioner and other  
electronics more quickly



**Consistent & enduring  
power supply**  
to go off-grid for longer

**Appropriate temperature  
control & quiet operation**  
for a sound sleep

## Multiple Charging Sources

More Versatility  
& Flexibility



### Alternator

Recharge from the alternator  
when the RV is running or idling.



### Shore power

Recharge from the shore power  
when the RV is parked and plugged  
in at a campground.



### Solar panel

Recharge from the sun by  
connecting to the optional solar  
panel.



### Charging station

Get recharged when plugging  
your RV into a fast charging  
station.



### Diesel generator

For off-grid emergency backup during  
power shortage in rainy seasons,  
desert adventures, journeys to isolated  
areas, and more.



# Power Your Caravan Life, Wherever The Road Takes You.

ROYPOW RV ESS is a fully integrated system that offers the most reliable AC and DC power to run air conditioner and other high power loads in all climate conditions without worrying about power shortage anymore.



Total output  
less than  
**3,500 W**



Light bulb



Mobile phone



Mini fridge



Electric stove



Laptop



Pellet grill



Coffee maker



Microwave



# Intelligent Management System

## 01 Remote Monitoring & Control

- ✓ Monitor and manage RV energy storage system from mobile phones anytime and anywhere
- ✓ Remotely turn on / off the HVAC system in advance for unrivaled comfort and convenience



## Wi-Fi Connection Everywhere 02

- ✓ Automatically switch to available network operators globally with built-in wireless data terminal
- ✓ Reliable Wi-Fi hotspots are available to deliver the best internet experience for RVers



## XTouch 7 Energy Management System (EMS)

The energy management system (EMS) collects, manages and coordinates equipment in the region, ensuring the safe, stable, and efficient operation of the system. It can realize real-time monitoring, coordinated control, and economic operation management, and support functions such as load tracking, photovoltaic power forecasting, and demand-side management.



# PDU Power Distribution Unit

Power Distribution Unit is an essential component of vehicle and marine energy storage systems. Its main function is to distribute electrical currents to various endpoints, connect power supply equipment, and maintain the proper operation of electrical devices.

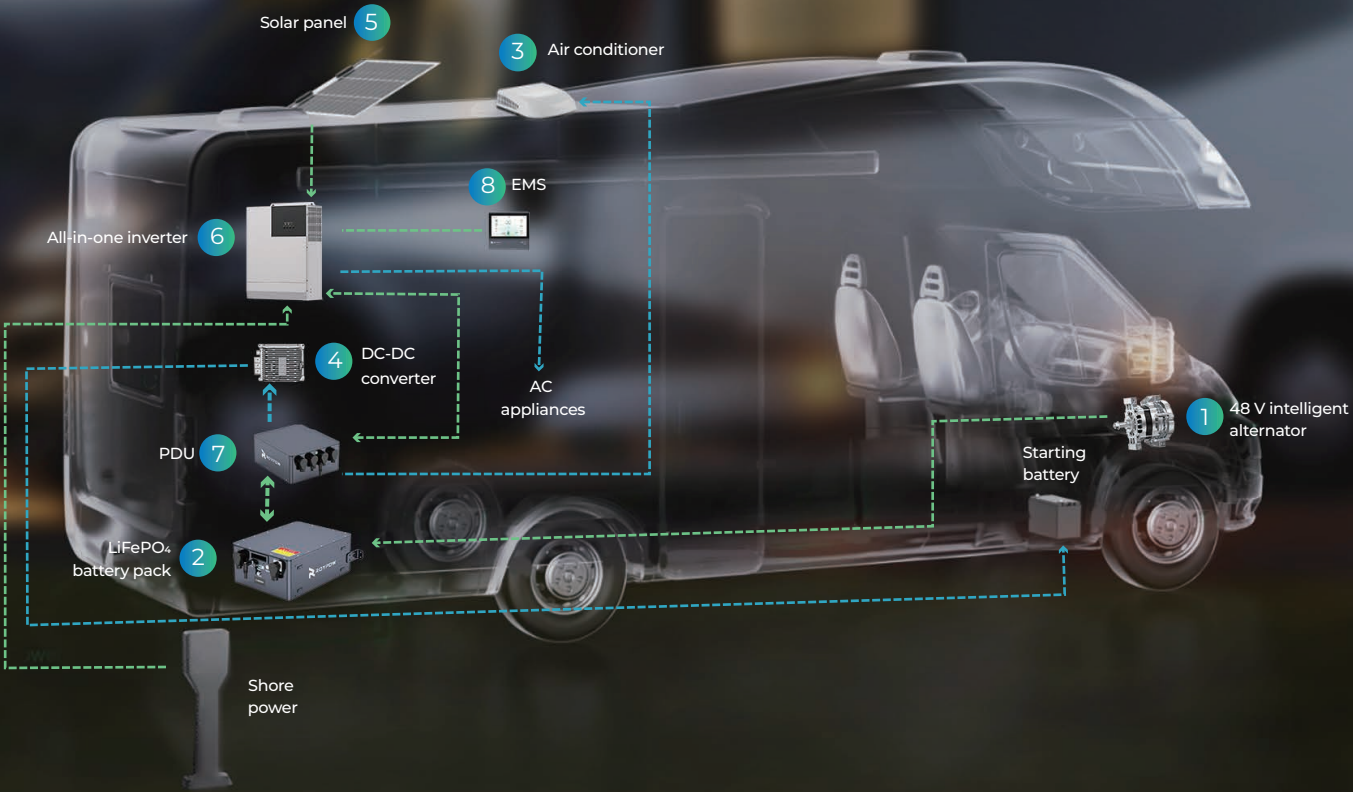
Highly integrated system with multiple interfaces that can support the entire range of RV components		Save space and ensure a rational distribution of electrical circuits	
Support up to four XBmax5.1L batteries, delivering continuous power output of 400 A and 20 kW		IP65 protection rating	





# Complete Electric System One-Stop Solution

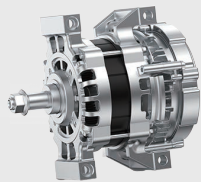
The electric system captures energy from the RV's alternator or optional solar panel and stores it in independent lithium batteries. This energy is then converted into power for cooling, heating, and electrification for over-the-road sleepers.



## RV Energy Storage Packs Included

### 1 48 V Intelligent Alternator

Its overall popularity is attributed to its high safety and efficiency, which offers the best off-grid living experience.



Up to **5 kW**  
Continuous Generated Output

Up to **85%**  
Conversion Efficiency

### 2 LiFePO<sub>4</sub> Battery

It meets the power requirements for RVs without the need to idle or run the generator.



Up to **10** Years Design Life

**0** Maintenance

**>6,000** Life Cycles

### 3 Air Conditioner

With variable speed, it expels the heat out of the RV effectively and runs quietly, creating a cozy resting environment.



Up to **12** Hours Running

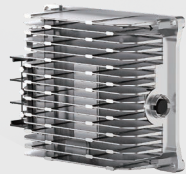
**14,000** BTU / h  
Cooling Capacity

**15,000** BTU / h  
Heating Capacity

As Low As **50** dB Noise

### 4 DC-DC Converter

The bidirectional DC - DC converter is vibration-tested to ensure it can withstand the rigid over-the-road conditions with high performances retained.



✓ Automotive-grade

✓ Max. efficiency at **95%**

### 5 Solar Panel (Optional)

Designed to provide long-lasting durability and performance in the extreme over-the-road conditions.



✓ Foldable

✓ Lightweight

✓ Ultra-thin

### 6 All-in-one Inverter (Optional)

Combined with an inverter, a battery charger and an MPPT solar charge controller into one complete system to reduce components and simplify installation.



#### ALL IN ONE

Inverter  
+  
Battery  
Charger  
+  
MPPT Solar  
Charge Controller

### 7 PDU (Power Distribution Unit)

Its main function is to distribute electrical currents to different power supply equipment, and maintain the proper operation of electrical devices.



Maximum Bus Power  
**20kW**

Maximum Bus Current  
**400A**

**IP65**

### 8 EMS (XTouch 7)

It collects, manages and coordinates equipment in the region, ensuring the safe, stable, and efficient operation of the system.



✓ Real-time Monitoring

✓ Coordinated Control

✓ Economic Operation Management





# Go Road Tripping with Instant Comfort



Designed in a compact way with corrosion protections, the RoyPow air conditioner is easy to retrofit, highly efficient, and durable for RV environments. It provides powerful cooling and heating capabilities for maximum comfort.

Up to

12

Hours Running

14,000

BTU / h

Cooling Capacity

15,000

BTU / h

Heating Capacity

As Low As

50

dB Noise

**Partition in the indoor unit**  
Use EPP foam. Combine randomly as per the different thicknesses of the vehicle roof. Safe and reliable.



**Heat insulation for evaporator**  
Use integral EPP foam that makes the unit easy to dismantle and assemble. It has features of lightweight, impact resistance, and environmental protection, and enables good effect of anti-corrosion, sealing, insulation, and heat protection.

### Indoor Unit

There are 4 separate outlets (in different directions) in the indoor unit as options. If there is a built-in duct inside the RV, close the 4 separate outlets to allow the air to blow from the duct.  
Thickness of air outlet panel of indoor unit: 50 mm.

## Technical Specifications



Model	XKFR15-YTR
Inverter / Non-inverter	Inverter
Power supply	DC 48 V
Cooling capacity	5,000 ~ 14,000 BTU / h
Cooling input power	300 ~ 1100W
EER (Energy Efficiency Ratio)	13 BTU / w.h
Heating capacity	8,000 ~ 15,000 BTU / h
Heating input power	500 ~ 1100W
COP (Coefficient Of Performance)	15 BTU / w.h
Max. rated input current	35 A
Air flow (CFM)	341 (High speed)
Refrigerant	R410A
Noise level	55 dB (A)
Dimensions (H x W x D)	29.7 x 28.1 x 15.1 (756 x 714 x 384 mm)
Net weight	33 Kg
Application area	12 ~ 16 m²

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



# LiFePO<sub>4</sub> Battery - Reliable Power for Your Journey

Travel to the most beautiful places with RoyPow LiFePO<sub>4</sub> batteries that are built tough to withstand the most rugged conditions so you can spend more time enjoying the great outdoors and less time worrying about power.



Up to

10YearsDesign Life

ZeroMaintenance

>6,000Life Cycles

IP65Rating

Scalable capacity to fit your power needs

8In ParallelMaximum

40kWhIn ParallelMaximum

Advantages

✓

Ultra Safe

Multiple protections, thermal & chemical stability

⌚

Long Runtime

Longer service life; consistent high performance

💎

High Reliability

Automotive grade lithium ferro-phosphate cells (LiFePO<sub>4</sub> cells)

🔧

Maintenance Free

No filling of distilled water; no frequent battery replacements

⚡

Fast Charging

Can be charged much faster than traditional lead-acid batteries

🛡️

More Durable

Engineered to resist vibration & shock

📦

Light Weight

Space & weight saving, easy to stack and store

🌡️

Wide Working Temperature Range

Discharge at -4°F - 131°F (-20°C - 55°C)

⚠️ Tips: Why Choose LiFePO<sub>4</sub> Batteries For RVs?

Except providing longer life, LiFePO<sub>4</sub> batteries have higher energy density and are more stable and reliable. They are environmentally "green" and lightweight to reduce the overall weight.



## Technical Specifications

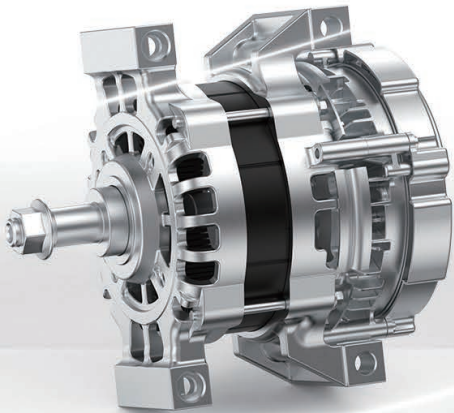
Model	XBmax 5.1L	XBmax 5.1L-24
Rated voltage (cell 3.2 V)	51.2 V	25.6 V
Rated capacity (@ 0.5C, 77°F/ 25°C)	100 Ah	200 Ah
Maximum voltage (cell 3.65 V)	58.4 V	29.2 V
Minimum voltage (cell 2.5 V)	40 V	20 V
Standard capacity (@ 0.5C, 77°F/ 25°C)	≥ 5.12 kWh (support parallel connection up to 8 pcs)	
Continuous discharge / charge current (@ 77°F/ 25°C, SOC 50%, BOL)	100 A / 50 A	200 A / 100 A
Cooling mode	Natural (passive) cooling	
Working range of SOC	5% - 100%	
Ingress protection rating	IP65	
Life cycle (@ 77°F/ 25°C, 0.5C charge, 1C discharge, DoD 50%)	> 6,000	
Remaining capacity at the end of life (according to warranty period, driving pattern, temp. profile, etc)	EOL 70%	
Operating temperature	Charging / Discharging temperature	-4 °F ~ 131°F (-20°C ~ 55°C )
Storage temperature	Short-term (within one month) Long-term (within one year)	-4 °F ~ 131°F (-20°C ~ 55°C ) 32 °F ~ 95°F (0°C ~ 35°C )
Dimensions (L x W x H)		20.15 x 14.88 x 8.26 inch (512 x 378 x 210mm)
Weight		99.2 lbs (45 kg)

Note: 1. Only authorized personnel are allowed to operate or make adjustments to the batteries  
2. All data are based on ROYPOW standard test procedures. Actual performance may vary according to local conditions  
3. 6,000 cycles achievable if the battery is not discharged below 50% DOD. 3,500 cycles at 70% DoD



# 48 V Intelligent Alternator

48 V intelligent generator's overall popularity is attributed to its high safety and efficiency, which offers the best off-grid living experience.



It can achieve

- Automotive-grade, safe and reliable
- Wide working temperature range: -4°F ~ 221°F ( -20°C ~ 105°C )

- ✓ Smooth start-stop, torque boosting during vehicle acceleration
- ✓ Power generation efficiency management and rate optimization prevent lithium battery's over-heating / over-charging damages, etc
- ✓ Energy saving and emission reduction

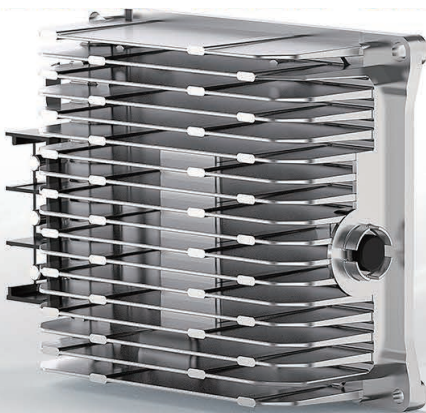
## Technical Specifications

Model	XGen4850Z
Nominal operating voltage	40 V ~ 57.6 V
Generator performance	Peak: 11.5 kW @ >4000 rpm, 105°C, 20 s Continuous: 5.5 kW @ >6000 rpm, 105°C
Efficiency	Peak: ≥85%
Rotor inertial	≤37 kg · cm <sup>2</sup>
Max operational speed	12000 rpm
Anti-reverse connection	Mechanical poka-yoke
Communication	CAN 2.0B
Motor type	Claw pole machine
Cooling type	Air
Motor overall protection	Motor: IP25 Inverter: IP6K9K
Nominal operating temperature	-30°C~105°C
Motor diameter	≤150 mm
Motor length	≤160 mm (without shaft and pulley)
Weight	≤19.84 lbs (9 kg)

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

# Bidirectional DC-DC Converter

Designed specifically for RV use, the bidirectional DC - DC converter is vibration-tested to ensure it can withstand the rigid road conditions with high performances retained.



It can achieve

- High efficiency & reduced switching losses
- Rugged design for mobile environments
- Wide operating temperature range -40°F ~ 185°F ( -40°C ~ 85°C )

## Technical Specifications

Model	XDC2500-12
48 V Voltage range	24 V - 36 / 48 / 54 V - 57 V
12 V Voltage range	8 V - 8.5 / 14 / 15.5 V - 16 V
Max. Rated Power	Buck: 2.5 kW (178 A @14 V), Boost: 2 kW (41 A @48 V) Buck mode: The derating factor is 15.5 V - 16 V , 8.5 V-8 V corresponding to 100% - 0 load Boost mode: The derating factor is 54 V - 57 V, 36 V-24 V corresponding to 100% - 0 load
Over-temperature protection range	248°F (120°C)
CAN communication	CAN communication
Wake-up type	KL15
Precharge time	Once pre-charge instruction is received, the 48 V side busbar capacitor voltage is expanded from 12 V to rated 48 V set by the controller in 150 ms.
Working temperature range	1. At temperature below -40°F (-40°C), the output is turned off. 2. At temperature between 104°F - 140°F (40°C - 60°C), full power output is reached. 3. At temperature between 140°F - 185°F (60°C - 85°C), linear reduced output of 2,500 W - 0 W is provided. 4. At temperature above 185°F (85°C), output is turned off.
Ingress protection rating	IP67
Weight	< 6.6 lbs (3 kg)
Dimension	9.4 x 6.9 x 3.0 inch (238 x 175 x 75 mm)

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





## All-in-one Inverter

Featuring higher response speed, reliability and industrial standard, this all-in-one Hybrid inverter integrates an inverter, a battery charger and an MPPT solar charge controller into one complete system, largely simplifying off-grid solar installation and ideal for mobile applications!

Features

Around **30%** MPPT energy efficiency improvement

**94%** Maximum inverter efficiency

### All-in-one Design

- ✓ Seamless switching of uninterrupted power supply to meet electricity demand in versatile scenarios

### Instant Viewing of Operation

- ✓ The LCD panel displays data and settings, which can also be viewed using the app and webpage

### Power Saving

- ✓ Power saving mode automatically reduces power consumption at zero-load

### Multiple Safety Protections

- ✓ Short circuit protection, overload protection, reverse polarity protection, and so on



ALL IN ONE



Inverter



Battery  
Charger



MPPT Solar  
Charge Controller

## Technical Specifications

Model	R3500S-U	R5000S-E
Battery Input		
Battery Type	Lithium Ferro-Phosphate (LFP)	Sealed, Flood, GEL, LFP, Ternary
Rated Battery Input Voltage	48 V	48 V
Battery Voltage Range	40 Vdc - 60 Vdc ± 0.6 Vdc	40 Vdc - 60 Vdc ± 0.6 Vdc
Hybrid Charging Maximum Charging Current	120 A	80 A
Solar Input		
Maximum PV Input Current	50 A	22 A
Maximum PV Input Power	4,400 W	5,500 W
Maximum PV Charging Current	80 A	80 A
PV Working Voltage Range	60 - 145 Vdc	120 - 500 Vdc
MPPT Voltage Range	60 - 115 Vdc	120 - 450 Vdc
AC Input (Generator/Grid)		
Rated Input Voltage	110 / 120 Vac	220 / 230 Vac
Mains Maximum Charging Current	40 A	60 A
Mains Charging Efficiency	>95%	>95%
Switch Time	10 ms (Typical Value)	10 ms (Typical Value)
AC Output		
Peak Power	3,500 VA	10,000 VA
Rated Output Power	3,500 W (2,900 / 2,050 / 3,200 W)	5,000 W (4,350 / 4,500 / 4,750 / 5,000 W)
Rated Output Voltage	120 Vac (180 / 185 / 110 Vac)	230 Vac (200 / 208 / 220 / 240 Vac)
No-load Loss	Non Energy-saving Mode: ≤ 50 W Energy-saving Mode: ≤ 25 W (Manual Setup)	
General		
Certificate	CE (IEC 62109-1) / CETLC (UL1741 / CSA C22.2 NO.107.1)	
Working Temperature Range	5°F - 131°F (-15°C - 55°C)	14°F ~ 131°F (-10°C ~ 55°C)
Storage Temperature Range	-13°F - 140°F (-25°C - 60°C)	
Humidity Range	5% - 95%	
Weight	23.8 lbs (10.8 kg)	23.2 lbs (10.5 kg)
Dimension	16.8 x 12.7 x 4.9 inch (426 x 322 x 124 mm)	16.8 x 12.7 x 4.9 inch (426 x 322 x 124 mm)

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



# PDU

## Power Distribution Unit

Power Distribution Unit is an essential component of vehicle and RV energy storage systems. Its main function is to distribute electrical currents to various endpoints, connect power supply equipment, and maintain the proper operation of electrical devices.



### Technical Specifications

Model	XBmax5.1L-PDU
Operating temperature	-22 °F - 140°F (-30 ~ 60°C)
Operating voltage range	DC8 ~ 65 V
Maximum bus power Input/output	20 kW
Maximum bus current Input/output	400 A (450 A, 20 s)
Battery bus interface	100 A x 4 groups
DC High-power load interface	400 A x 1 group
DC device interface (Inverter)	150 A x 3 groups
DC device interface (A/C)	100 A x 1 group
DC device interface (DC/DC)	100 A x 1 group
DC device interface with precharge function (Alternator/ Generator)	100 A x 1 group
Terminal form	≤100 A, fast plug, > 100 A, Glen interface
PDU protection level	≥IP65
Short circuit protection	YES
Shell material	Aluminum shell
Dimension (L x W x H)	19.96 x 14.8 x 7.28 (507 x 376 x 185 mm)
Weight	10 kg

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

# XTouch 7

## Energy Management System (EMS)

The energy management system (EMS) collects, manages and coordinates equipment in the region, ensuring the safe, stable, and efficient operation of the system. It can realize real-time monitoring, coordinated control, and economic operation management, and support functions such as load tracking, photovoltaic power forecasting, and demand-side management.



### Technical Specifications

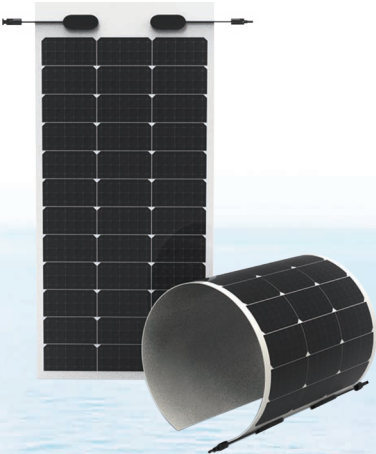
Model	Xtuch7
Display Size	7.0 Inch
Display Type	IPS LCD Display
Resolution	1024 x 600
Brightness	1000 cd / m2
Colours	24-bit RGB
Touch Screen	Projected Capacitive
Operating Voltage	8-60V, 25W
Current Draw	<4 W operating, <2 W standby
Storage Temp	-20°C to 50°C (-4°F to 122°F )
Operating Temp	-20°C to 50°C (-4°F to 122°F )
Ingress Protection	IP65
Interfaces	CAN、RS485、USB、KL15、KL30
Featured functions	Energy allocation management, Wi-Fi hotspot, Remote control, OTA
Dimensions (H x W x D)	7.17 x 6.61 x 1.4 inch (182 x 168 x 36 mm)
Weight	1 kg

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



# Solar Panel

Maximize your savings and enjoy the peace of mind that comes with solar panel's top durability, reliability and efficiency. Ideally suited for RV applications.



## Features

-  Flexible & foldable
-  Compact & lightweight

-  Durable & weather-resistant
-  Ultra thin & easy installation

-  High conversion efficiency



# Technical Specifications



## Electrical performance

ASP100M36S

Model	ASP100NH36S
Maximum power	100 W
Power tolerance	+5 W
Optimum operating voltage	20.12 V
Optimum operating current	5.01 A
Open circuit voltage	24.45 V
Short circuit current	5.31 A
Module efficiency	20.74%
STC: AM=1.5, Irradiance 1.000W / m², Module temperature 77°F (25°C).	

## Temperature coefficient

Nominal module operating temperature	109°F ± 36°F (43°C ± 2°C)
Power temperature coefficient	- 0.36% / °C
Voltage temperature coefficient	- 0.28% / °C
Current temperature coefficient	- 0.06% / °C

## Mechanical behavior

Backplane color	White
Solar cell	36 (3 x 12) / monocrystalline - PERC / 162.75 mm
Encapsulating materials	EVA / POE
Frame	Frameless
Protection grade of junction box	IP68
Cable (length / sectional area)	90 mm / 4 mm²
Connector	MC4
Module actual size (L * W)	39.0 x 19.3 inch (990 x 491 mm)
Module assembly size (L *W *H)	1,070 mm x 520 mm x 1.7 mm (excluding junction box)
Module weight	3.1 lbs (1.4 kg)

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





# ROYPOW, For One-stop New Energy Solutions

ROYPOW TECHNOLOGY is dedicated to the R&D, manufacturing and sales of motive power systems and energy storage systems as one-stop solutions.

With more than 20 years of combined experience in manufacturing renewable energy and battery systems, ROYPOW provides Lithium-ion Batteries covering most daily living and working fields: for Low-Speed Vehicles such as golf carts, personnel carriers; Industrial Batteries for use in Material Handling Equipment such as forklifts, aerial work platforms and floor cleaning machines as well as renewable Energy Storage Systems for residential, commercial, industrial, vehicle-mounted and marine applications.

ROYPOW has established a worldwide network to serve customers with a manufacturing center in China and subsidiaries in the USA, the UK, Germany, the Netherlands, South Africa, Australia, Japan and Korea to date. ROYPOW owns and operates fully automatic production lines, a full range of test equipment and an advanced MES that collectively address all aspects of its manufacturing process, from electronics, software design to module assembly, battery assembly as well as initial and final testing. ROYPOW focuses on the self-development of power electronics technologies, including PCS, BMS, and EMS as the core competence.

As a renewable energy innovator, ROYPOW is committed to the mission of achieving energy sustainability while creating a better life for human beings.



## R&D and Manufacturing Highlights

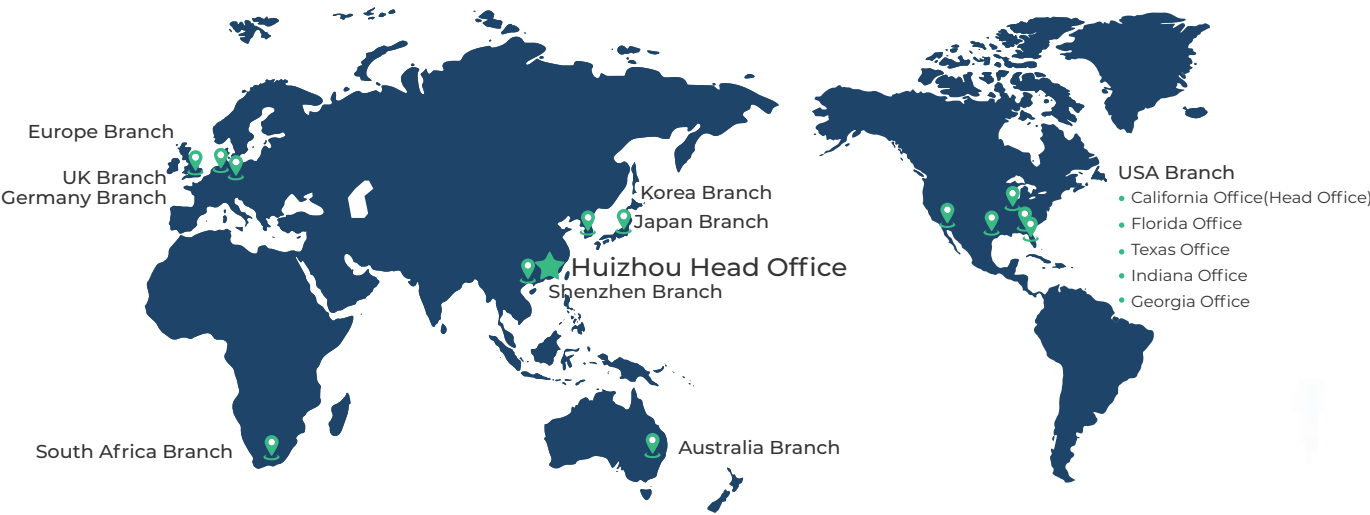
As a result of these investments, ROYPOW is capable of “end-to-end” integrated delivery making our products out-perform the industry norms.

- All-round testing.
- Integrated design.
- Advanced MES system.
- IATF 16949 automotive quality management system certification
- QC system.
- Persistent technology innovation.
- Fully automatic production line.
- ISO12405-2 vibration performance and safety testing of automotive lithium batteries

## Global Sales and Service Network System

- 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** including golf carts and sightseeing cars;
- ✓ **Industrial Batteries** including forklifts, aerial work platforms and floor cleaning machines;
- ✓ **Vehicle-Mounted Energy Storage Systems & Batteries** including RV and truck energy storage and air conditioning systems, off-grid solar systems for RV, as well as power batteries for electric motorcycles;
- ✓ **Marine Energy Storage Systems & Batteries** including trolling motors, fish finders, other off-grid energy storage systems for marine, and marine power systems;
- ✓ **Residential Energy Storage Systems** including home storage as well as off-grid energy storage (for forest cabin, island homes without electricity, etc.);
- ✓ **Commercial & Industrial Energy Storage Systems** including diesel generator power micro-grid energy storage systems (for tower cranes, air compressors, mixers, crushers, etc);
- ✓ **Chargers** for forklifts, aerial work platforms, floor cleaning machines, golf carts and various marine batteries.

