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ROYPOW Technology Co., Ltd.

Tel: +86 (0)752 3888 690

Email: sales@roypowtech.com
service@roypowtech.com
marketing@roypowtech.com

Web: www.roypowtech.com

Add: ROYPOW Industrial Park, No. 16, Dongsheng South Road, Chenjiang Street, Zhongkai High-Tech District, Huizhou City, Guangdong Province, China

ROYPOW (Europe) Technology B.V.

Email: sales@roypoweuropa.com

Tel: +31 702 001 114

Web: www.roypoweuropa.com

Add: Seattleweg 1, 3195 ND, Pernis, The Netherlands

ROYPOW Australia Technology Pty Ltd

Email: sales@roypowtech.com.au

Tel: +61 29185 0814

Web: www.roypowtech.com.au

Add: Suite 803a, 18 Orion Road, Lane Cove, NSW, 2066, Australia

ROYPOW Battery Technology (Pty) Ltd

Email: sales.za@roypowtech.com

Tel: +27 71 434 3769

Add: 53 Lake Rd, Longmeadow Business Estate, Edenvale, 1609, South Africa



ROYPOW (USA) Technology Co., Ltd.

Tel: +1 512 688 5555 (Texas Office)
+1 626 295 2527 (California Office)

Email: sales@roypowusa.com

Service Support: +1 626 269 0547

Email: service@roypowusa.com

Web: www.roypowusa.com

Head Office: 16233 Arrow Hwy Bldg B, Irwindale, CA 91706, USA

Texas Office: 2350 Campbell Creek Blvd #100 Richardson, TX 75082, USA

Florida Office: 277 Douglas Avenue, Unit 1004, Altamonte Springs, FL 32714, USA

Indiana Office: 5545 W Raymond St, Ste H Indianapolis, IN 46241, USA

ROYPOW Technology UK Limited

Tel: +44 (0) 7918 955 940

Email: sales@roypow.co.uk

Add: Regus Green Park, 200 Brook Dr, Reading RG2 6UB, UK

ROYPOW Technology GmbH

Email: sales.de@roypowtech.com

Add: Besselstraße 24, 68219 Mannheim, Germany

ROYPOW株式会社

Tel: +81 090 7092 6969

Email: info@roypow.co.jp

Web: www.roypow.co.jp

Add: 横浜市神奈川区ニッ谷町 2-8 加瀬ビル 175 3F



DIY Off-Grid System

Experience the Freedom of
Energy Independence



Power Your Adventures



✉ sales@roypowtech.com

🌐 www.roypowtech.com

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ROYPOW
Your Trusted Partner



Light Up Your Off-grid Living

There are quite a lot of regions without grid coverage, like islands, mountains, farms, remote villages, deserts, etc. The cost of running a generator is too high, and it will bring many other issues such as noise, pollution, high management costs, etc. An independent off-grid system is absolutely the best answer for an economical and reliable power supply.



ROYPOW DIY Off-Grid System

is perfect for small-scale projects and those living in small cottages, cabins, sheds, vans, RVs and food trucks. From the simplest weekend getaway to your dream cabin in the woods, we create a DIY power system that lights up your great escape.



Gain Green, Clean Energy and Grid Independence

Lower carbon emissions, shrink your carbon footprint and help curtail air pollution.



Reduce Energy Costs

Get the most out of free solar energy and avoid spiraling diesel generation costs.



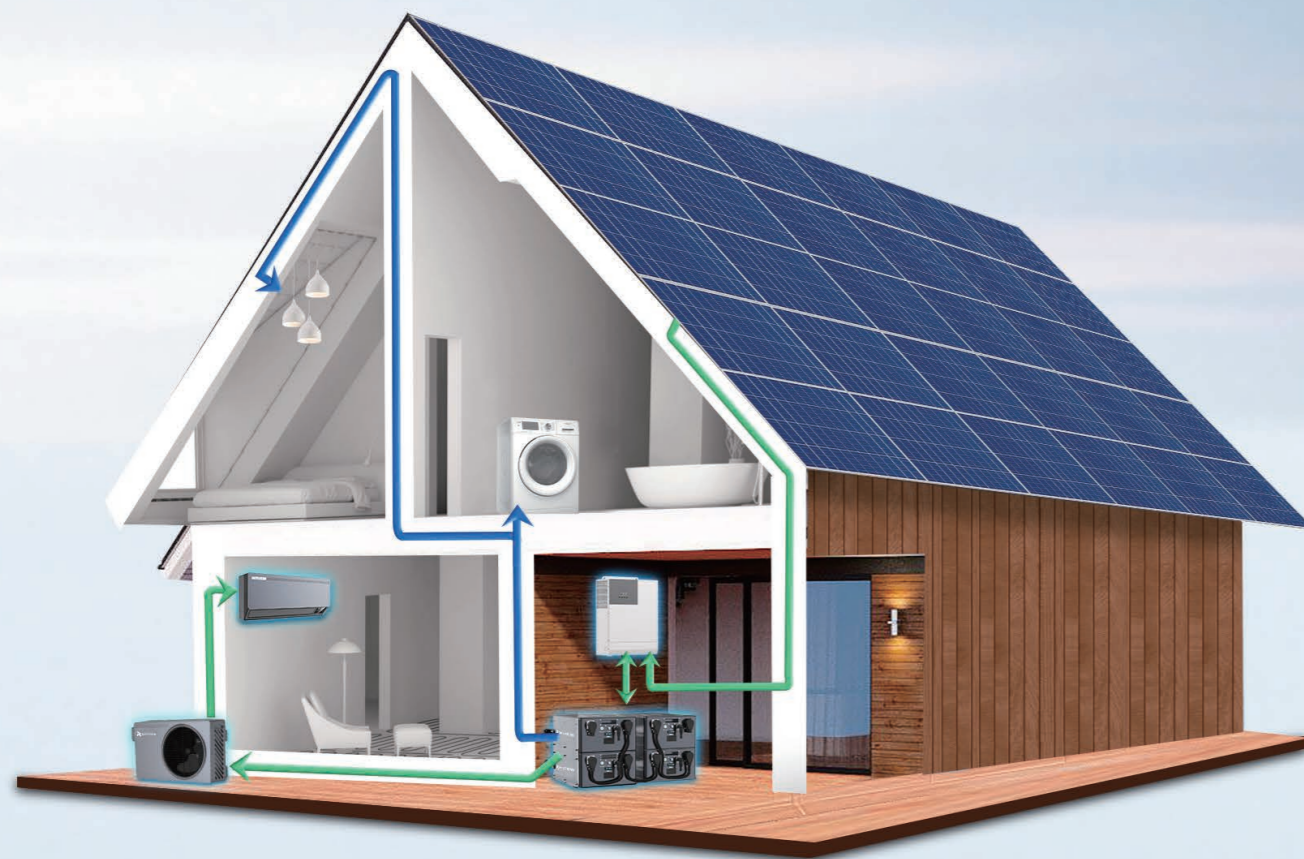
No Noise, Zero Emission, Quiet Comfort

Enjoy reduced downtime, lower gas emissions, greater reliability and maximum comfort in all climatic conditions.



All-Electric Lithium System

Captures energy from solar panels and stores in lithium batteries. This energy is then converted into power for cooling, heating and electrification in your cabin.



DIY off-grid system included

1 LiFePO4 Batteries

ROYPOW LiFePO4 battery pack provides a high power capacity for the off-grid system to run appliances such as the microwave, HVAC system, and more without the need to run the generator.



- ✓ Support up to **8** parallel connections
- ✓ Capacity range: **5.1 ~ 40.8** kWh

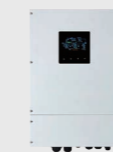
2 All-In-One Inverter

The all-in-one solar charge inverter is a combination of an inverter, a battery charger and an MPPT solar charge controller into one complete system to reduce components and simplify installation.



Standard

- ✓ Supports up to **6** parallel connections, maximum capacity 21 kW (single-phase)
- ✓ **Free combination** of single-phase, three-phase and split-phase
- ✓ Power range: **3.5 ~ 21** kW



Optional

- ✓ **IP65**
- ✓ **Generator** compatible
- ✓ Maximum **6** units in parallel
- ✓ **High-power** charging support

3 12,000 BTU HVAC

Designed for the off-grid system, this HVAC with variable speed expels the heat out of the cabin effectively and runs quietly, creating a cozy resting environment.



- ✓ **14** hours+ of runtime
- ✓ As low as **35** dB noise
- ✓ **12,000** BTU / h cooling capacity

4 Solar Panel

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



- ✓ **100** W, **20** V per piece
- ✓ Support **series connection**
- ✓ Capacity can be combined by **scenario demand**

Several Modular Intelligent Management Options Meet Your Free DIY

From an off-grid tiny house to a cabin or RV, you can adjust your kit to fit any size build.



01 Intelligent Control

Monitor operation status and customize settings in real-time with your phone.



High-Speed Wi-Fi Hotspot for Internet Access

Keep you connected to the world anytime, anywhere.

02

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 supports functions such as load tracking, photovoltaic power forecasting, and demand-side management.



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

Remark: Standard version screen can only display battery pack information; optional version is with EMS and can control and monitor the entire system with remote control and Wi-Fi hotspot function.

Stay Cool in the Hardest of Climate!

Variable Speed Compressor Provides a Wider Frequency Range

The wider capacity range, spanning from lower to higher limits, ensures power consumption occurs only when necessary, thereby conserving energy, enhancing efficiency, and aligning the HVAC system with the cabin's load.

Customized Compressor for Vehicles on Road

GMCC offers a specially customized double-cylinder DC variable frequency compressor designed for vehicles. It exhibits less vibration and higher vibration resistance than traditional single-cylinder compressors, resulting in increased stability and efficiency.



14 hours+ of runtime

12,000 BTU / h cooling capacity

As low as

35 dB noise

>15 EER high efficiency



Remark: 10 kWh capacity is measured at ambient temperature <35°C.



Air Purifying
boosts air circulation and leaves the air that is always clean and fresh

Super Quiet
allows for smooth operation and ensures complete peace of mind

Intelligent Control
with Voice Assistant, remote controller, APP monitoring or touch panel

Technical Specifications



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 ³ /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

LiFePO₄ Battery - Reliable Power for Your Journey

Travel to the most beautiful places with ROYPOW LiFePO₄ 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 **10** Years Design Life

Zero Maintenance

>6,000 Cycle Life

IP65 Rating

Scalable capacity to fit your power needs

8 In Parallel Maximum

40 kWh In Parallel Maximum

Advantages

<p>Ultra Safe Multiple protections, thermal & chemical stability</p>	<p>Long Runtime Longer service life; consistent high performance</p>	<p>High Reliability Automotive grade lithium ferro-phosphate cells (LiFePO₄ cells)</p>	<p>Maintenance Free No filling of distilled water; no frequent battery replacements</p>
<p>Fast Charging Can be charged much faster than traditional lead-acid batteries</p>	<p>More Durable Engineered to resist vibration & shock</p>	<p>Light Weight Space & weight saving, easy to stack and store</p>	<p>Wide Working Temperature Range Discharge at -4°F - 131°F (-20°C - 55°C)</p>

! Tips: Why Choose LiFePO₄ Batteries For Off-Grid Living?

Except providing longer life, LiFePO₄ 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	
Configuration	16S1P	
Rated capacity (@ 0.5C, 77°F/ 25°C)	100 Ah	
Rated voltage (cell 3.2 V)	51.2 V	
Maximum voltage (cell 3.65 V)	58.4 V	
Minimum voltage (cell 2.5 V)	40 V	
Standard capacity (@ 0.5C, 77°F/ 25°C)	≥ 5.12 kWh (support parallel working up to 8 PCs)	
Continuous discharge / charge current (@ 77°F/ 25°C, SOC 50%, BOL)	100 A / 50 A	
Cooling mode	Natural (passive) convection	
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~113 °F (-20°C~45°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

All-in-one Inverter

Featuring higher response speed, reliability and industrial standard, this all-in-one solar charge 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

Power Saving

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

Instant Viewing of Operation

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

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



Battery input

Battery type	Lithium Ferro-Phosphate (LFP)
Rated battery input voltage	48 V (minimum startup voltage 44 V)
Hybrid charging maximum charging current	120 A
Battery voltage range	40 Vdc - 60 Vdc ± 0.6 Vdc

Solar input

Maximum PV open-circuit voltage	145 Vdc	Maximum PV input current	50 A
PV working voltage range	60 - 145 Vdc	Maximum PV input power	4,400 W
MPPT voltage range	60 - 115 Vdc	Maximum PV charging current	80 A

AC input (generator/grid)

Mains maximum charging current	40 A	Mains charging efficiency	> 95%
Rated input voltage	110 / 120 Vac	Switching time	10 ms (typical value)
Maximum bypass overload current	40 A	Frequency	50 Hz / 60 Hz (automatic detection)
Input voltage range	(90 Vac - 140 Vac) ± 2%		

AC output

Output voltage waveform	Pure sine wave	On-load motor capacity	2 HP
Peak power	3,500 VA	Maximum efficiency	> 91 %
Output frequency range (Hz)	50 Hz ± 0.3 Hz / 60 Hz ± 0.3 Hz		
Rated output voltage (Vac)	120 Vac (180 / 185 / 110 Vac)		
Rated output power (VA)	3,500 VA (2,900 / 2,050 / 3,200 VA)		
Rated output power (W)	3,500 W (2,900 / 2,050 / 3,200 W)		
No-load loss	Non energy-saving mode: ≤ 50 W Energy-saving mode: ≤ 25 W (manual setup)		

General

Certificate	CE (IEC 62109-1) / CETLCUL1741 / CSA C22.2 NO.107.1		
EMC certification level	EN61000, C2	Storage temperature range	-13°F - 140°F (-25°C - 60°C)
Humidity range	5% - 95%	Working temperature range	5°F - 131°F (-15°C - 55°C)
Weight	23.8 lbs (10.8 kg)	Dimension	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

All-in-one Inverter

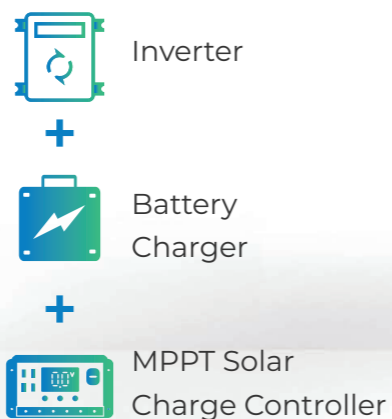
Featuring higher response speed, reliability and industrial standard, this all-in-one solar charge inverter integrates an inverter, a battery charger and an MPPT solar charge controller into one complete system, largely simplifying off-grid solar installation and ideal for mobile applications!

Features

<p>IP65 waterproof and dustproof makes the inverter available for various working conditions</p>	<p>Dual outputs for smart load management</p>	<p>Reserved communication port for BMS (RS485, CAN-BUS or RS232)</p>	<p>Replaceable fan design for ease of maintenance</p>	<p>Battery independent design</p>
<p>Selectable high power charging current</p>	<p>Configurable AC/PV output usage timer and prioritization</p>	<p>Selectable input voltage range for home appliances and personal computers</p>	<p>Compatible with utility mains or generator input</p>	<p>Parallel operation up to 6 units</p>



ALL IN ONE



Technical specifications

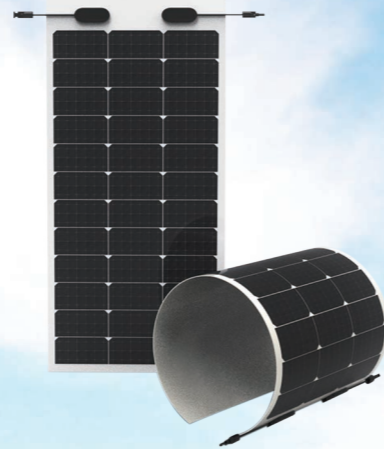


Battery input	R8000S-E
Battery type	Lithium Ferro-Phosphate (LFP)
Rated battery input voltage	48 V (minimum startup voltage 44 V)
Battery voltage range	40 Vdc - 60 Vdc ± 0.6 Vdc
Solar input	
Maximum PV open-circuit voltage	500 Vdc
Rated power	8000 W (4000 W X2)
PV array MPPT voltage range	90 Vdc ~ 450 Vdc
Start-up voltage	80 V +/- 5 Vdc
Maximum PV input current	18 A x 2
Maximum PV charging current	150 A
AC input (generator/grid)	
Input voltage range	(170 ~ 280 Vac) ± 7 V
Rated input voltage	230 Vac
Frequency	50 Hz / 60 Hz (auto detection)
Mains maximum charging current	60 A
Mains charging efficiency (Line Mode)	> 95% (rated R load, battery full charged)
AC output	
Rated output power	8000 W
Output voltage waveform	Pure sine wave
Output voltage regulation	230 Vac ± 5%
Output frequency	60 Hz or 50 Hz
Peak efficiency	93%
Overload protection	100ms@≥ 205% load, 5s@>150% load, 10s@110% ~ 150% load
Surge capacity	2 * rated power for 5 seconds
Switching time	10 ms typical (UPS), 20 ms typical (appliances)
General specifications	
Max parallel numbers	6
Parallel communication	CAN
Transfer time in parallel mode	Max 50ms
Operating temperature range	50°F ~ 122°F (10°C ~ 50°C)
Storage temperature	5°F ~ 140°F (-15°C~ 60°C)
Humidity	5% to 95% relative humidity (non-condensing)
Dimension (D * W * H)	26.18 x 17.12 x 8.26 inch (665 x 435 x 210 mm)
Net weight	70.55 lbs (32 kg)
Safety compliance	CE

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 the solar panel's top durability, reliability and efficiency. Ideally suited for outdoor applications.



Features



Flexible & foldable



Durable & weather-resistant



High conversion efficiency



Compact & lightweight



Ultra thin & easy installation



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 mm ²
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, Your Trusted Partner

For One-stop 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, Europe, South Africa, Australia, and Japan 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.

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

By virtue of all this, ROYPOW is capable of "end-to-end" integrated delivery, and makes our products out-performing 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 realize the localization of R&D, manufacturing, marketing and service, then become your most reliable partner.



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 system, off-grid solar system for RV, as well as power batteries for electric motorcycles;
- ✓ **Residential Energy Storage Systems & Portable Power Units** including home storage and portable energy storage products, as well as off-grid energy storage (for forest cabin, island villa without electricity, etc.);
- ✓ **Marine Energy Storage Systems & Batteries** including trolling motors, fish finders, other off-grid energy storage systems for marine, and marine power system;
- ✓ **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.

