

Smart Lithium Iron Phosphate Battery  
RV12200  
User Manual

## Legal Information

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# Safety Instructions

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## Warning

- The device should be used in strict compliance with local laws, electrical safety regulations, and fire prevention regulations of the nation or the region.
- Do not place the device near open fire, heat sources and flammable materials.
- Do not leave the device in an extremely hot environment.
- Do not place the device in damp locations.
- Do not expose the device to high electromagnetic radiation.
- Do not strike, mechanically crush or cut the device.
- Do not puncture the device with sharp objects.
- Do not stack heavy objects on the device.
- Do not place metal objects or wires on the device.



## Caution

### General

- For safety purposes, please use only the accessory (cable, charger, and etc) supplied or recommended by Pylontech. Pylontech shall not be liable for damage caused by third-party accessories.
- Before first use, please check if the device is in good condition. If the device is deformed or has an odor, do not use the device and return it to the distributor.
- Keep the device out of reach of children and pets.
- If the device falls into water during use, please take it out immediately.
- If the battery leaks, avoid contact with the leaking liquid or gas. In case of contact with skin or eyes, flush immediately with plenty of clean water and seek medical advice.

### Installation

- Do not install the device in an unstable place. Personal injury or property damage may be caused if the device falls.
- Do not place the device in dusty locations.

### Operation

- Please ensure good ventilation while the device is in use.
- If the device has been stored for more than one year, please check it carefully to make sure there is no problem before using it.

### Transportation

- Keep the device upright when moving it.
- Handle the device gently.

# Safety Instructions

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## Maintenance

- Charge the device regularly. If you need to store the device for a long time, please charge it to at least 60% every time before storing it.
- Recharge the device as soon as possible after it has been fully discharged.
- If the device does not work properly, please contact your distributor or the nearest service center within 24 hours. DO NOT disassemble the device for repair or maintenance by yourself. Pylontech shall not assume any responsibility for problems caused by unauthorized repair or maintenance.
- Do not charge the device which is hot, deformed, or leaking.
- It is recommended to check the connection between power cords and screws regularly to ensure that there is no loosening, breakage or corrosion at the connection points.
- It is recommended to regularly check if the device storage environment is normal.

## Cleaning

- Please use a soft and dry cloth to clean the exterior surfaces.

## Disposal

- Dispose of used batteries according to the laws or the regulations of the nation or the region.

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# 1 Introduction

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RV12200 is a smart lithium iron phosphate battery module. It is designed to replace deep cycle lead-acid batteries. With a standard BCI 4D size, it is perfect for recreational vehicles (RV), marine (boats), trucks, cabins, and other off-grid deep-cycle applications.

The product has the following advantages.

- High Reliability

Adopting advanced BMS, the battery has comprehensive protection functions.

- Long Cycle Life

With Energy Storage Grade LiFePO<sub>4</sub> Cells, the battery extends its cycle life to more than 8 times that of lead-acid batteries.

- High Energy Density

With the high energy density lithium cells, the battery is 50% the weight of the lead acid battery of equivalent energy, and 70% the size of the regular lithium battery of equivalent energy. It's easier to carry, faster to charge, and more convenient to use.

- Flexible Connection in Parallel and Series

Available in 12 V, 24 V, 36 V and 48 V, multiple batteries can build a battery system with a max. energy output of 40.96 kWh through flexible connection in parallel and series.

- Strong Environmental Adaptability

With low-temperature smart heating function, the battery can be charged safely in sub-zero temperatures.

- Real-time Monitoring via App

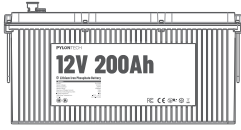
You can monitor the battery status via Pylontech Auto App.

- Low Self-discharge Loss

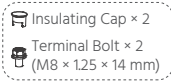
The battery can be stored for over 2 months if it is turned off after being fully discharged, and can be stored for over 6 months if it is turned off when its level is between 40% and 70%.

## 2 Packing List

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Battery



User Manual

## 3 Optional Accessories

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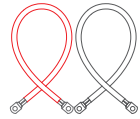
KIT-C1



Extended Antenna



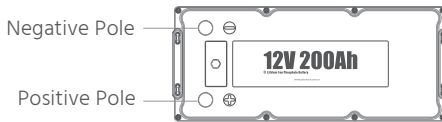
Rubber Duck Antenna



Battery Adapter Cables

## 4 Interface

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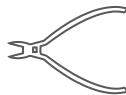
## 5 Battery Installation

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### 5.1 Tools and Accessories Preparation



Voltmeter



Wire Cutter

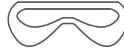


Screwdriver

# 5 Battery Installation



Insulating Gloves



Safety Goggles



Bus Bar

## 5.2 Pre-installation Check



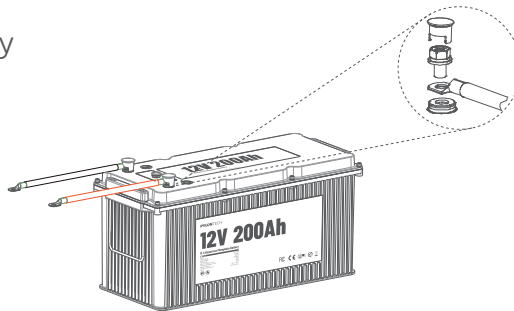
- Cut off the power before wiring, installing or removing the battery.



- To prevent electric shock, please remove watches, bracelets, rings and other conductive items (if any) and wear insulating gloves and safety goggles before installation.

## 5.3 Battery Connection

- Single Battery



- Multiple Batteries

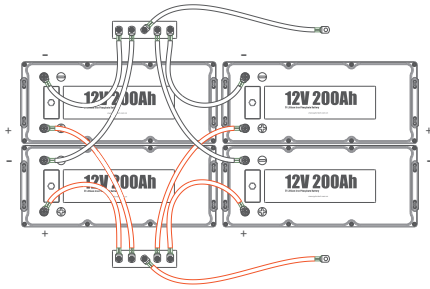
### Caution

- Before use, check if the voltage difference between the batteries is less than 0.1 VDC before using them in series connection, or less than 0.5 VDC in parallel connection. If not, charge the batteries separately, and float charge them for 24 hours after a full charge. Otherwise, over-current protection may be triggered due to the large voltage difference.
- Do not mix batteries of different brands, types, models or life spans.
- In order to prolong the life span of the batteries, please make sure the length, diameter and internal resistance of the power cables are the same when using multiple batteries.



# 5 Battery Installation

## ① Connecting the Batteries in Parallel



Method 1 (Optimal)

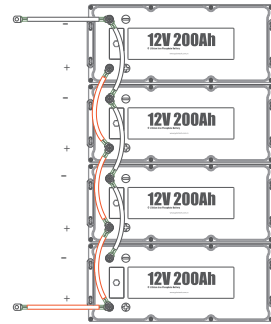
### Steps:

1. Connect the Positive Terminals of the batteries to a bus bar.
2. Connect the Negative Terminals of the batteries to another bus bar.
3. Finally, connect the two bus bars to the external devices via two cables.



### Note

Up to 8 batteries can be connected in parallel.

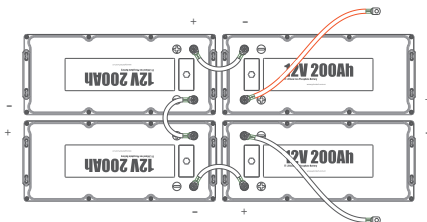


Method 2

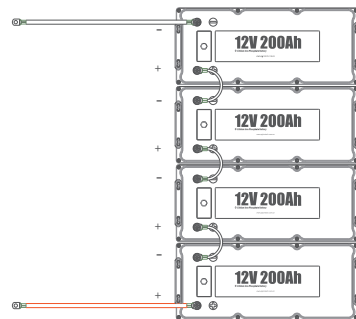
### Steps:

1. Connect the Positive Terminals of the batteries in sequence.
2. Connect the Negative Terminals of the batteries in sequence.
3. Finally, connect the Positive Terminal of the last battery and the Negative Terminal of the first battery to the corresponding terminals of external devices.

## ② Connecting the Batteries in Series



Method 1



Method 2

# 5 Battery Installation

Steps:

1. Connect the Positive Terminal of the first battery to the Negative Terminal of the second battery.
2. Connect the Positive Terminal of the second battery and the Negative Terminal of the third battery, and so on.
3. Finally, connect the Positive Terminal of the last battery and the Negative Terminal of the first battery to the corresponding terminals of external devices.

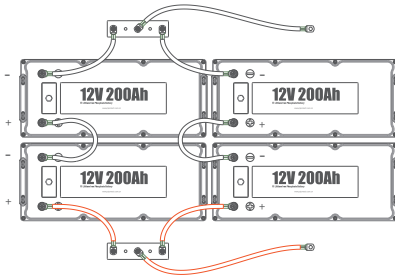


Note

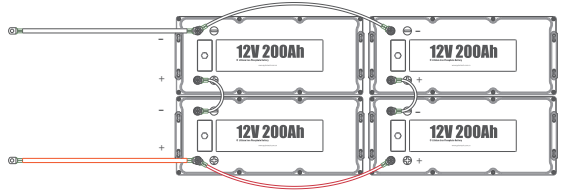
- Up to 4 batteries can be connected in series.
- Using batteries in a series connection for a long time may lead to imbalances. It is recommended to regularly connect the batteries in parallel, and float charge them for 24 hours after a full charge.

Series Configuration	Recommended Charging Voltage Value (VDC)
1S	14 ~ 14.6
2S	28 ~ 29.2
3S	42 ~ 43.8
4S	56 ~ 58.4

## ③ Connecting the Batteries in Series & Parallel



Method 1 (Optimal)



Method 2



Note

- To avoid triggering battery protection due to the large voltage difference, it is recommended to connect the batteries in parallel, float charge them for 24 hours after a full charge, and then use them in series and parallel connection.
- When connecting the batteries in series and parallel, please connect them in series first and then in parallel.
- Up to 16 identical batteries are supported in series and parallel connection (Max 4S4P).

## 5.4 Post-Installation Check

Please check if the positive and negative connections are correct.

# 6 Battery Activation

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Before first use, use a charger with a current greater than 1 A to activate the battery, and verify if the battery is activated successfully by measuring its voltage.

# 7 Battery Monitoring

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## 7.1 App

You can finish battery networking, check battery information, complete remote upgrades and more through PylontechAuto App.



PylontechAuto App

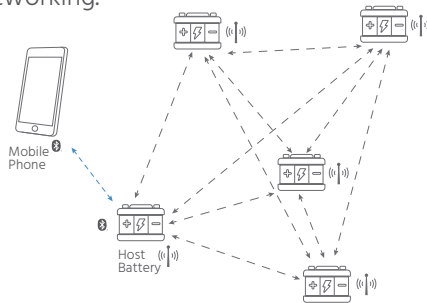


PylontechAuto App  
Quick Guide

## 7.2 Battery Networking

- Basic Mode

Before first use, follow "Connect" section in the Pylontech Auto App Quick Guide to finish battery networking.



Note

In this mode, make sure that there is no obstruction between the devices, and that the distance between the mobile phone and the host battery is less than 10 m, and the distance between the batteries is less than 5 m.

# 7 Battery Networking

## • Extension Mode

With a KIT-C1 communication box, Bluetooth signal can be transmitted smoothly in an enclosed space or over a long distance.

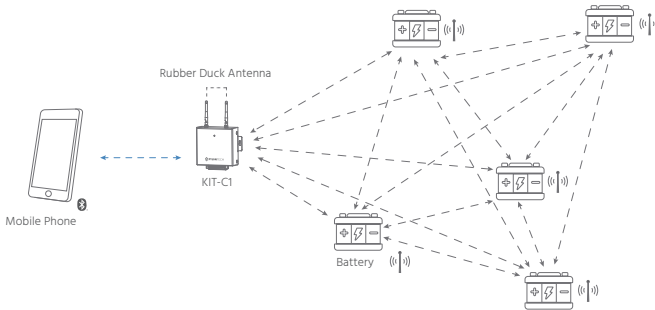


### Note

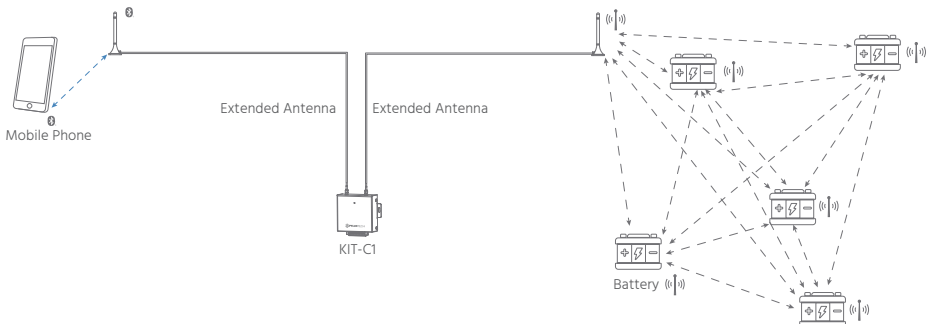
- KIT-C1 power supply: DC10 V ~ 60 V.
- When KIT-C1 is far away from the mobile phone or battery, or when there is an obstruction between KIT-C1 and the mobile phone or battery, you are recommended to use an extended antenna for smooth signal transmission.
- For more information about KIT-C1, refer to the KIT-C1 User Manual.

## KIT-C1 Connection Scenarios

① When KIT-C1 is close to both the mobile phone and the batteries, and there is no obstruction between the devices, rubber duck antennas are recommended for both ports.

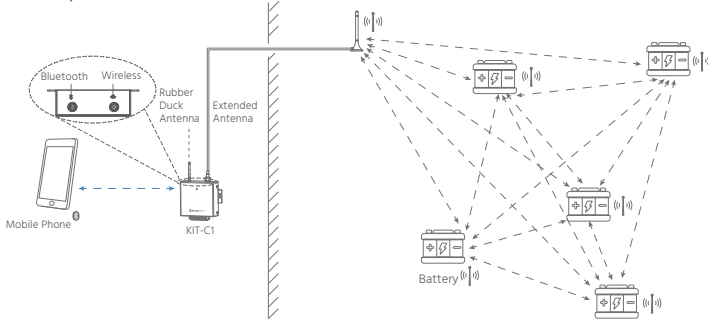


② When KIT-C1 is far from both the mobile phone and the batteries, extended antennas are recommended for both ports.

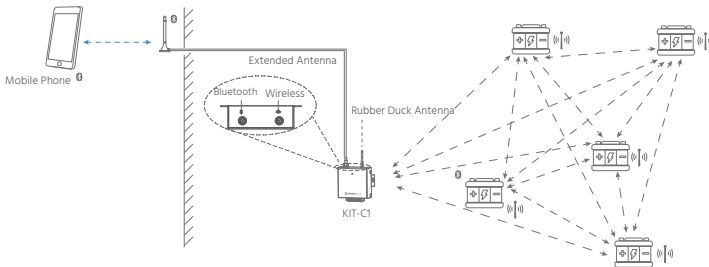


# 7 Battery Networking

③ When KIT-C1 is close to the mobile phone and there is no obstruction between them, while there is an obstruction between KIT-C1 and the batteries, a rubber duck antenna is recommended for the Bluetooth port and an extended antenna for the wireless port.



④ When there is an obstruction between KIT-C1 and the mobile phone, and KIT-C1 is close to the batteries and there is no obstruction between them, an extended antenna is recommended for the Bluetooth port and a rubber duck antenna for the wireless port.



## 7.3 Battery Status Check



Overview Page

Heating Film Off  
Heating Film On



Detail Page

# 8 Battery Storage

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Please follow the steps below to store the battery.

1. Make sure the battery level is between 40% and 70%.
2. Disconnect the battery from all loads and the charging device (if present).
3. Store the battery in a well-ventilated, clean, dry area with temperatures between 23 °F (-5 °C) and 95 °F (35 °C).



Note

- Charge the battery at least once every 6 months to prevent over-discharge.
- In extreme conditions, the battery can be stored for up to 1 month at temperatures as low as -40 °F (-40 °C) or as high as 140 °F (60 °C).

# 9 Battery Management System

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## Protection and Warnings

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Under-voltage

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Over-voltage

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Over-current

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Over-temperature/Under-temperature

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Short Circuit

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System Error

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## Management and Monitoring

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Cell Balancing

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Smart Heating Mode

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SoC Calculation

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Wireless Internal Communication

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Wired Extended Communication

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Operation Log

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# 10 Specifications

## Electrical Specification

Nominal Voltage	12.8 VDC
Nominal Capacity	200 Ah
Resistance	< 10 mΩ
Efficiency	99%
Self Discharge	≅ 3% per month
Max. Batteries in Parallel or Series	4S4P
Cycle Life (25°C)	> 4000 (80% DOD, 0.5 C, 25 °C)
Design Life	≧ 10 years

## Discharge Specification

Max. Continuous Discharging Current	100 A
Peak Discharging Current	200 A @5 s

## Charge Specification

Recommended Charging Current	50 A
Max. Continuous Charging Current	100 A
Recommended Charging Voltage	14 V ~ 14.6 V

## Environment Specification

Discharging Temperature	-4 °F ~ 140 °F (-20 °C ~ 60 °C)
Charging Temperature	32 °F ~ 131 °F (0 °C ~ 55 °C)
Storage Temperature	-40 °F ~ 140 °F (-40 °C ~ 60 °C)
Operating Temperature	-4 °F ~ 122 °F (-20 °C ~ 50 °C) *If charging is required when the temperature is below 32 °F (0 °C), please connect the charger to enable the heating film. The battery starts charging when the cell temperature is heated to a certain temperature.
Max. Altitude	13123 ft (4000 m)
Relative Humidity	5% ~ 95% (non-condensing)

# 10 Specifications

## Mechanical Specification

Dimensions (L × W × H) 18.07 in × 7.48 in × 9.23 in  
(459 mm × 190 mm × 234.5 mm)

Weight Approx. 46.08 lbs (20.9 kg)

Terminal Type M8 × 1.25 × 14 mm

Terminal Torque 9 ± 1 Nm

Case Material PC

IP Rating IP65

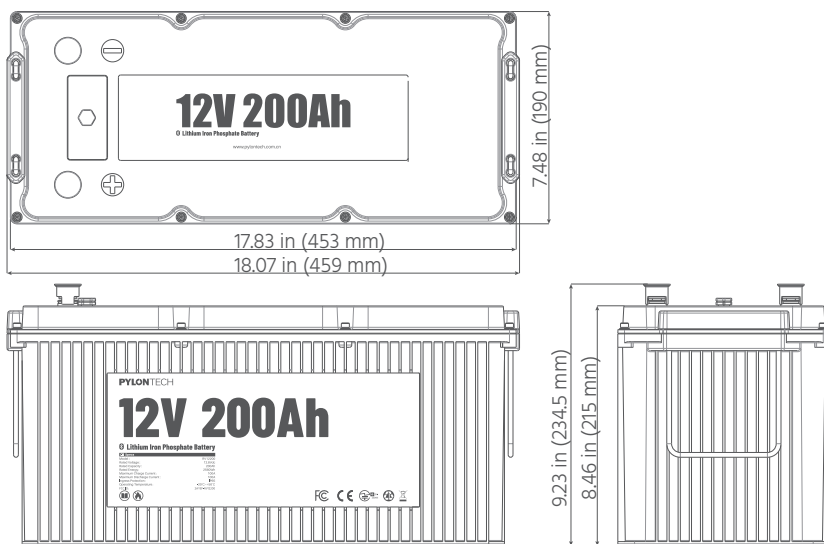
## Other

Certifications UN38.3, IEC 62619, TELEC, FCC, CE

Communication BLE 5.0

\*Product performance is based on testing in a controlled environment. Your results may vary due to several external and environmental factors.

## Dimension



Unit: inch (mm)



# 11 Troubleshooting

## My battery won't turn on?

Check if the charger is connected properly.

<input type="checkbox"/> Yes	Check if the charger output is normal.
<input type="checkbox"/> No	Contact your distributor.

## My battery won't turn off?


Disconnect all external devices, and the battery will turn off after 24 hours of inactivity.




## My battery won't charge?

<input type="checkbox"/> Over-voltage / Over-current	—	Check if the charger specification is in the rated range.	<input type="checkbox"/> Yes	Restore the battery by discharging it.
			<input type="checkbox"/> No	Change a charger.
<input type="checkbox"/> Over-temperature / Under-temperature	—	Wait for the battery temperature to return to working temperature range.		

## My battery won't discharge?

<input type="checkbox"/> Low Power	—	Disconnect all external devices, and charge the battery in time.		
<input type="checkbox"/> Over-current	—	Check if the total current of all external devices is within the rated range.	<input type="checkbox"/> Yes	Restore the battery by charging it.
			<input type="checkbox"/> No	Change a charger.
<input type="checkbox"/> Over-temperature / Under-temperature	—	Wait for the battery temperature to return to working temperature range.		
<input type="checkbox"/> Short Circuit	—	Check if the external device is short-circuited. If yes, disconnect the external devices and see if the battery can discharge . If the battery still cannot discharge, restore it by charging it.		

 Pylon Technologies Co., Ltd  
No.300, Miaojiao Road, Kangqiao Town,  
Pudong New Area, Shanghai, China

 [service@pylontech.com.cn](mailto:service@pylontech.com.cn)  
 [www.pylontech.com.cn](http://www.pylontech.com.cn)  
 +86-21-51317699

