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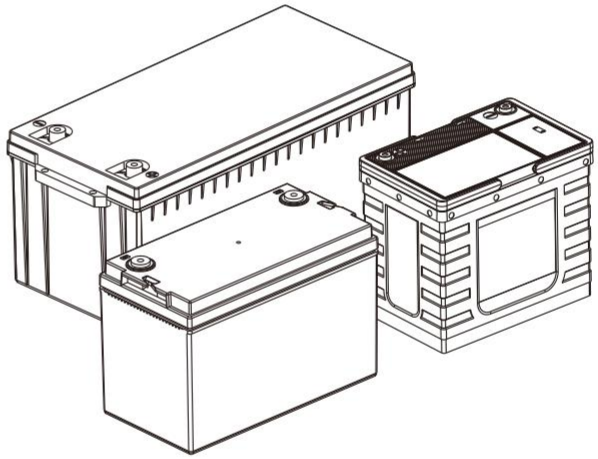
PowerUrus

Welcome Guide

PowerUrus Portable Power Unit

12V S Series



WARRANTY INFO:

Serial Number _____

Purchase Date _____

CUSTOMER SERVICE: support@powerurus.com
Please contact our customer service before returning.

RD-S12100M-Y-07

Welcome to PowerUrus Products

At PowerUrus, we provide portable power that is safe, silent and renewable. Our products are used in emergencies and for work and play. Please read the user manual carefully before using the product and always take care when using this product. This product is not intended for use by young or infirm persons without supervision.

Attentions and Warnings:

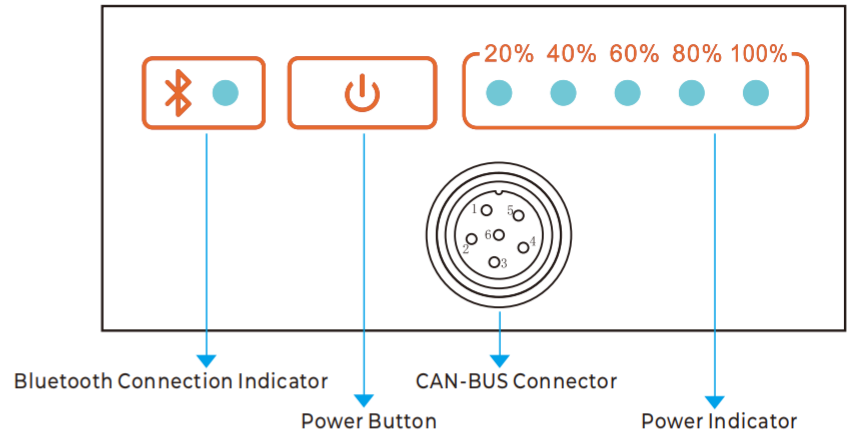
- Standard Version and Preheat Version cannot be mixed;
- Do not disassemble, resemble, or repair the battery. Incorrect reassembly may cause combustion or electric shock;
- If the battery is damaged, contact the place you purchased it;
- Do not short-circuit the battery, use it near heat or water sources, or allow it to become wet;
- Do not insert nails or other objects into the battery, strike it, or weld directly on the battery;
- Do not use a badly damaged battery or operate it with damaged cables or charging adapters;
- Do not operate this product in explosive atmospheres (i.e. flammable liquids , gases, or dust) or set the unit on flammable materials (i.e. carpeting, upholstery, paper, cardboard);
- In case of skin or eye contact, rinse immediately with clean water and seek medical attention;
- Do not keep using this product if it is damaged, waterlogged, distorted, or broke;
- This product contains lithium ion batteries. When it is worn out dispose it properly using local laws and regulations.

Battery Specifications

Item	Parameter			
Version	Standard Version		Preheat Version	
Model Number	S12100A	S12200A	S12100H	S12200H
Nominal Capacity	100Ah @ 0.5C	200Ah @ 0.5C	100Ah @ 0.5C	100Ah @ 0.5C
Actual Capacity	≥100Ah @ 1C	≥200Ah @ 1C	≥100Ah @ 1C	≥200Ah @ 1C
Nominal Voltage	12.8V			
Charge Voltage	14.4V~14.6V			
Max Charge Voltage	14.6V			
Discharge Protection Voltage	10.8V			
Continuous Charge Current	50A	100A	50A	50A
Max Charge Current	100A	200A	100A	200A
Continuous Discharge Current	100A	200A	100A	200A
Discharge Protection Current	200A @ 20sec 280A @ 5sec	250A @ 30sec 400A @ 1sec	200A @ 20sec 280A @ 5sec	250A @ 30sec 400A @ 1sec
Bluetooth Version	Bluetooth 5.0			
Battery Terminal Size	M8			
Cycle Life	>3500 Cycles @ 25°C, 0.5C Charge, 1C Discharge, DOD 70% (SOC 30~100%)			
Charge Below 32°F/0°C	Unsupported		Supported	
Battery Cells Low-temperature Charge Protection Temperature	≤32°F/0°C		/	
Battery Cells Preheat Temperature	/		Preheat Start: 38°F/3°C Preheat Stop: 61°F/16°C	
Operating Temperature	Charge: 32~113°F/0~45°C /45~85% RH Discharge: -4~131°F/-20~55°C /45~85% RH		Charge: -4~113°F/-20~45°C /45~85% RH Discharge: -4~131°F/-20~55°C /45~85% RH	
Storage Temperature	1-Month: -4~113°F/-20~55°C /45~85% RH 1-Year: 32~95°F/0~35°C /45~85% RH			
Product Size(MM/IN)	330x173x215 MM / 13x6.8x8.46 IN	520X240X220 MM / 20.45X9.45X8.66 IN	330x173x215 MM 13x6.8x8.46 IN	520X240X220 MM / 20.45X9.45X8.66 IN
Product Weight (KG / LB)	12.5KG / 27.5LB	27KG / 59.5LB	13KG / 28.2LB	27.5KG / 60.5LB

Item	Parameter
Version	Preheat Version
Model Number	S12100M
Nominal Capacity	100Ah @ 0.5C
Actual Capacity	≥100Ah @ 1C
Nominal Voltage	12.8V
Charge Voltage	14.4V~14.6V
Max Charge Voltage	14.6V
Discharge Protection Voltage	10.8V
Continuous Charge Current	50A
Max Charge Current	100A
Continuous Discharge Current	100A
Discharge Protection Current	200A @ 30sec 300A @ 5sec
Bluetooth Version	Bluetooth 5.0
Battery Terminal Size	M8
Cycle Life	＞3500 Cycles @ 25°C,0.5C Charge, 1C Discharge, DOD 70% (SOC 30~100%)
Charge Below 32°F/0℃	Supported
Battery Cells Low-temperature Charge Protection Temperature	/
Battery Cells Preheat Temperature	Preheat Start: 38°F/3°C Preheat Stop: 61°F/16°C
Operating Temperature	Charge: -4~113°F/-20～45°C /45～85% RH Discharge: -4~131°F/-20～55°C /45～85% RH
Storage Temperature	1Month: -4～113°F/-20～55°C /45～85% RH 1Year: 32～95°F/0～35°C /45～85% RH
Product Size(MM/IN)	259x167x225 MM /10.20x6.57x8.86 IN
Product Weight (KG / LB)	11.5KG / 25.35LB

Additional Functions Description (Only for Battery with Control Panel)



Instructions of Power Button	
Function	Operation
Bluetooth Connection Inspection (ON / OFF)	CLICK
Remaining Power Inspection	CLICK
Errors Recovery (Short-circuit / Overcurrent / Over-discharge etc.)	CLICK

Instructions of Bluetooth Connection Indicator			
Condition	Bluetooth	Duration	Operation
ON	CONNECTED	5S	CLICK POWER BUTTON
OFF	DISCONNECTED	-	-

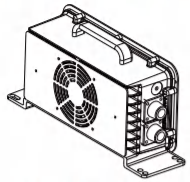
Instructions of CAN-BUS Connector		
Functions	Users	Specs
Battery Info Indicator (Required to purchase a separate LCD Meter)	Customer	6-pin
Battery Failure Diagnosis (A specific battery BMS failure diagnosis tool required)	Maintenance Staff	6-pin

Instructions of Power Indicators					
Condition	LED1	LED2	LED3	LED4	LED5
0	5S-2HZ (FLASH)	OFF	OFF	OFF	OFF
1%-10%	5S(ON)	OFF	OFF	OFF	OFF
11%-30%	5S(ON)	5S(ON)	OFF	OFF	OFF
31%-50%	5S(ON)	5S(ON)	5S(ON)	OFF	OFF
51%-75%	5S(ON)	5S(ON)	5S(ON)	5S(ON)	OFF
76%-100%	5S(ON)	5S(ON)	5S(ON)	5S(ON)	5S(ON)

Gets Charged

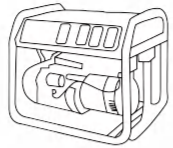
Tips: After receiving the PowerUrus battery, please fully charge it first before using or testing, or the battery SOC in the APP will be inaccurate.

I. Three typical ways to get charged:



AC Charger

Solar Charger



Generator & Alternator

II. Charge Tips for different charging methods:

a. AC charger selection Recommend a 14.4V~14.6V AC lithium battery charger to charge the PowerUrus battery, a lower than 50A (0.5C) charging current would be suggested.

b. Parameter settings on solar (inverter/controller) charger.

Mode Selection	
Battery Type	12V / LiFePO4
Setting Mode	User Defined / Customized

Charging Parameters	
Charging Limit Voltage	14.6V
Over Voltage Disconnect Voltage	14.7V
Over Voltage Reconnect Voltage	14.4V
Absorption Voltage	14.4V
Setting Mode	14.4V
Boost Voltage	14.4V
Boost Reconnect Voltage	13.2V
Float Voltage	13.6V
Equalization Voltage	Disabled or 14.4V

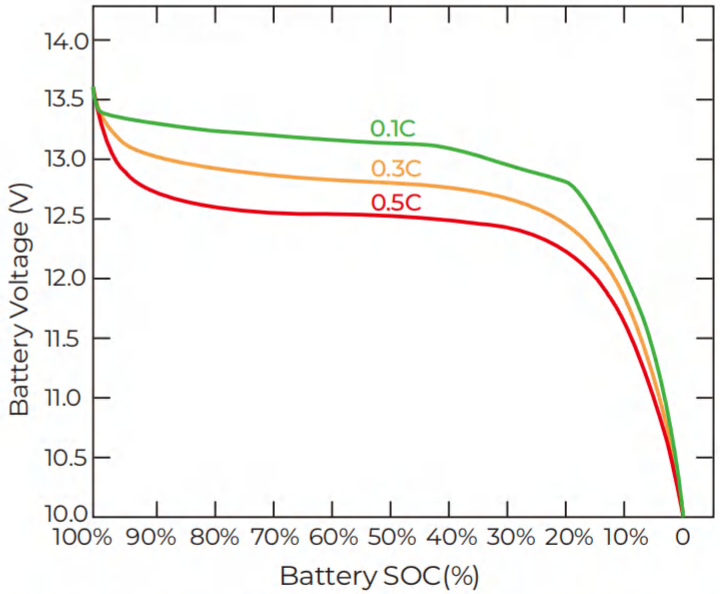
Discharging Parameters	
Low Voltage Disconnect Voltage	11.2V
Low Voltage Reconnect Voltage	12.4V
Under-Voltage Warning Voltage	12.0V
Under-Voltage Warning Reconnect Voltage	12.4V
Discharging Limit Voltage	11.0V
Over-Discharge Disconnect Voltage	11.0V
Over-Discharge Reconnect Voltage	12.0V
Over-Discharge Delay Time	1 Second

Other Parameters	
Absorption Time	120 Minutes
Equalization Duration Time	120 Minutes
Equalization Interval	Not Applicable to LiFePO4 Battery
Boost Duration Time	120 Minutes
Boost Interval	Not Applicable to LiFePO4 Battery
Temperature Compensation	OFF
Low-Temperature Cut-off	OFF

c. With a 12V DC-DC charger, the gas generator/alternator in the RV also can charge the PowerUrus battery.

III. Correspondence Between Battery Voltage and SOC (For Reference Only)

Battery Voltage vs Battery SOC



14.4 V	100% Charging
13.6 V	100% Resting
13.4 V	99%
13.3 V	90%
13.2 V	70%
13.1 V	40%
13.0 V	35%
12.9 V	30%
12.8 V	20%
12.5 V	15%
12 V	10%
10 V	0%

NOTE: Only for reference on the brand new PowerUrus 12.8V 100Ah / 200Ah batteries.

Gets Multi-connected

I. To connect PowerUrus batteries in series or/and parallel, these battery conditions below should be met:

a. From the same brand

b. Within the same model number

c. Purchased at the near time (Within 1 month)

Note: The PowerUrus batteries with low-temperature protection cannot be connected to the PowerUrus batteries with low-temperature preheat function in series or parallel, even if they have the same power capacity.

II. Preparation before connecting PowerUrus batteries in series or/and parallel:

Step 1. Fully charge each battery individually;

Step 2. Connect all the batteries in parallel one by one for 12~24 hours;

Step 3. Disconnect these batteries, and reconnect them in series or/and parallel as required.

Note: Maximum up to 48V (4 identical PowerUrus batteries in series) power system and 400Ah/800Ah power capacity (4 identical 100Ah/200Ah PowerUrus batteries in parallel). If the battery connections contain both the series and parallel connections, please make the parallel connections first, and then make the series connections.

III. Cable Sizing

Note: The cable length is total length of the positive and negative wires. (i.e. the distance from battery to appliance multiplied by 2)

Cable Length in Meter / Feet	Amperes & Cable Sizes							
	0-5A	5-10A	10-15A	15-20A	20-25A	25-30A	30-40A	40-50A
0-2 m / 0-6.5 ft	16 AWG	16 AWG	14 AWG	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG
2-3 m / 6.5-10 ft	16 AWG	14 AWG	12 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG
3-4.5 m / 10-15 ft	16 AWG	12 AWG	10 AWG	10 AWG	8 AWG	8 AWG	6 AWG	6 AWG
4.5-6 m / 15-20 ft	14 AWG	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG	6 AWG	4 AWG
6-7.5 m / 20-25 ft	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	6 AWG	4 AWG	4 AWG
7.5-9 m / 25-30 ft	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG
9-12 m / 30-40 ft	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG
12-15 m / 40-50 ft	10 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG
15-18 m / 50-60 ft	10 AWG	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	1/0 AWG
18-21 m / 60-70 ft	8 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	1/0 AWG	2/0 AWG
21-24 m / 70-80 ft	8 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	1/0 AWG	2/0 AWG
24-27 m / 80-90 ft	8 AWG	4 AWG	2 AWG	2 AWG	1 AWG	1/0 AWG	2/0 AWG	3/0 AWG
27-30 m / 90-100 ft	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	1/0 AWG	2/0 AWG	3/0 AWG
30-33 m / 100-110 ft	6 AWG	4 AWG	2 AWG	1 AWG	1/0 AWG	1/0 AWG	3/0 AWG	4/0 AWG
33-37 m / 110-120 ft	6 AWG	4 AWG	2 AWG	1 AWG	1/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG
37-40 m / 120-130 ft	6 AWG	2 AWG	2 AWG	1 AWG	1/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG

Cable Length in Meter / Feet	Amperes & Cable Sizes							
	50-60A	60-70A	70-80A	80-90A	90-100A	100-120A	120-150A	150-200A
0-2 m / 0-6.5 ft	6 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	1 AWG	2/0 AWG
2-3 m / 6.5-10 ft	6 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	1 AWG	2/0 AWG
3-4.5 m / 10-15 ft	4 AWG	4 AWG	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	2/0 AWG
4.5-6 m / 15-20 ft	4 AWG	2 AWG	2 AWG	2 AWG	2 AWG	1 AWG	1/0 AWG	2/0 AWG
6-7.5 m / 20-25 ft	2 AWG	2 AWG	2 AWG	1 AWG	1 AWG	1/0 AWG	2/0 AWG	3/0 AWG
7.5-9 m / 25-30 ft	2 AWG	1 AWG	1 AWG	1/0 AWG	1/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG
9-12 m / 30-40 ft	1 AWG	1/0 AWG	1/0 AWG	2/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG
12-15 m / 40-50 ft	1/0 AWG	2/0 AWG	3/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	
15-18 m / 50-60 ft	2/0 AWG	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG	4/0 AWG		
18-21 m / 60-70 ft	3/0 AWG	3/0 AWG	4/0 AWG	4/0 AWG				
21-24 m / 70-80 ft	3/0 AWG	4/0 AWG	4/0 AWG					
24-27 m / 80-90 ft	4/0 AWG	4/0 AWG						
27-30 m / 90-100 ft	4/0 AWG							
30-33 m / 100-110 ft	4/0 AWG							

Note:

Three main factors to consider selecting the cables:

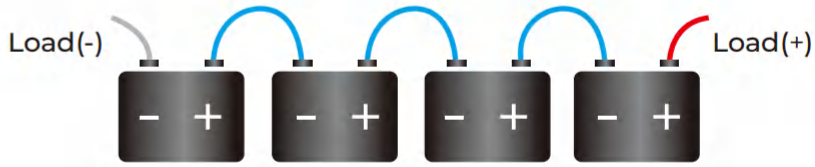
a. With an identical load power, a higher circuit current requires a bigger cable;

b. With an identical load power, a higher circuit voltage requires a smaller cable;

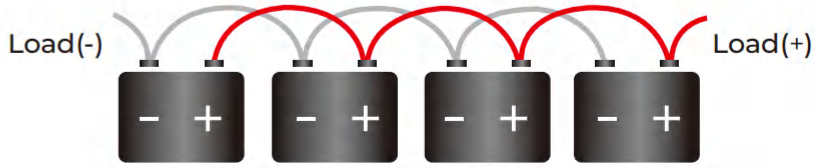
c. With an identical load power, a longer distance to the battery requires a bigger cable.

IV. Wiring Diagram

a. Series Connection (Max.4S, 48V 100Ah/200Ah)



b. Parallel Connection (Max.4P, 12V 400Ah/800Ah)



APP Installation & Usage

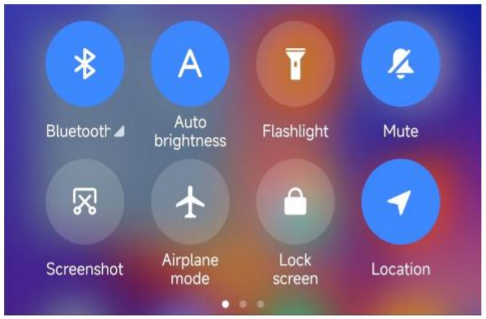
I. Installation Steps

Step 1: Search "RoyPow Fish" in the APP store (Android & IOS), and install it;

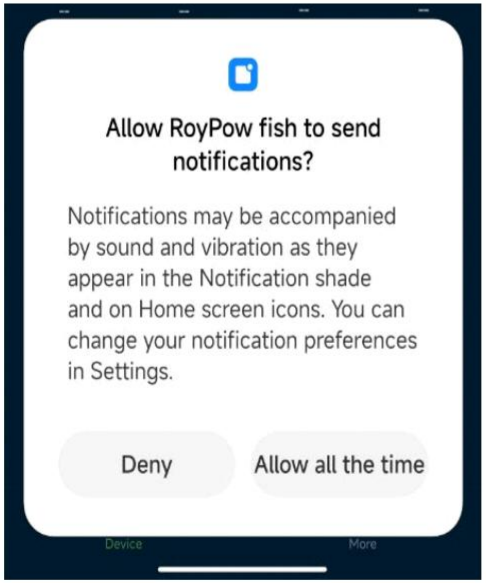
Step 2: Release the required permissions for the RoyPow Fish APP when installing.

II. Usage Steps

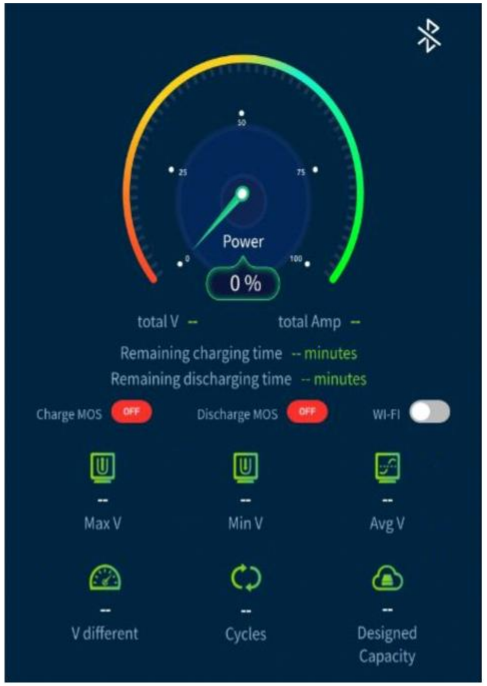
Step 1: Turn on the Bluetooth function;

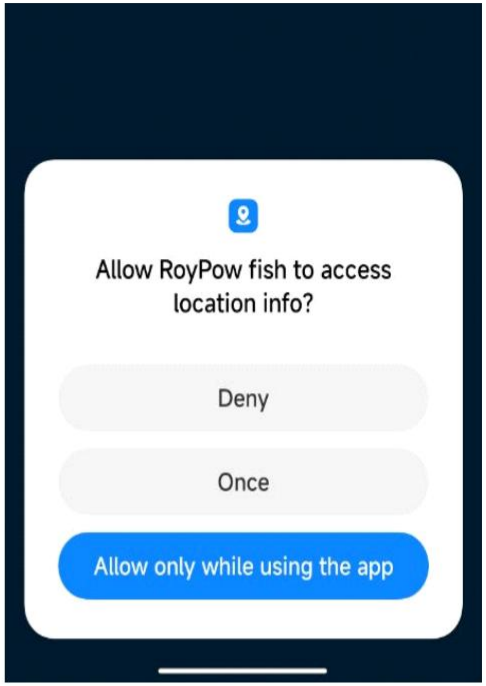


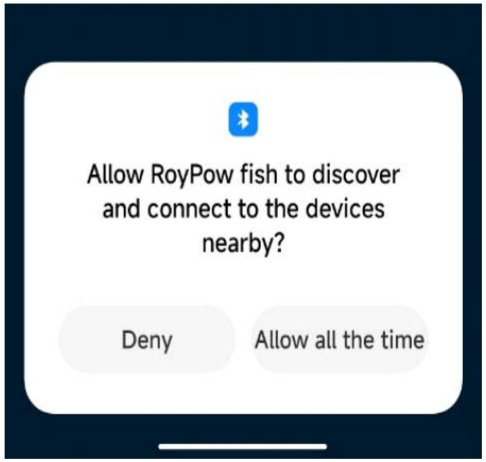
Step 2: Start the "RoyPow Fish" APP, and allow releasing the required permissions.



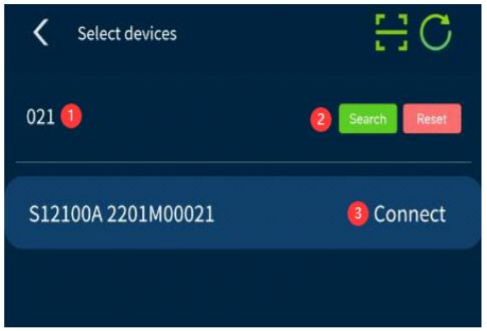
Step 3: Click the "Bluetooth" icon at the right top of the "RoyPow Fish" APP, and allow releasing the required permissions.



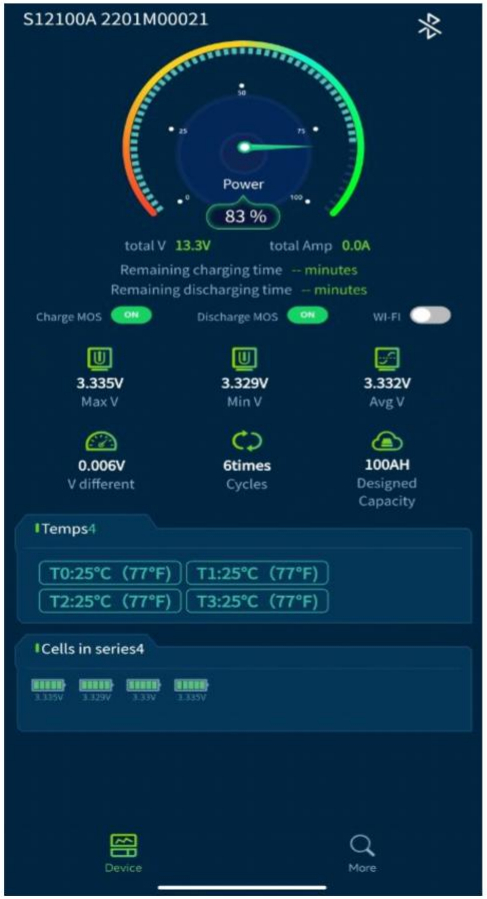




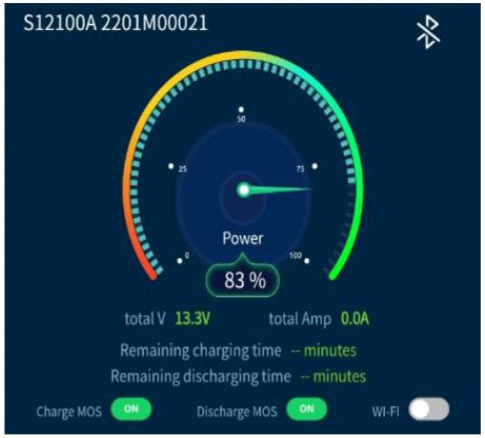
Step 4: Select the corresponding serial number of the battery to connect, or enter the last 3~4 digits (displayed on the top of the battery, e.g. 021 or 0021) to search for the required battery's serial number to connect.

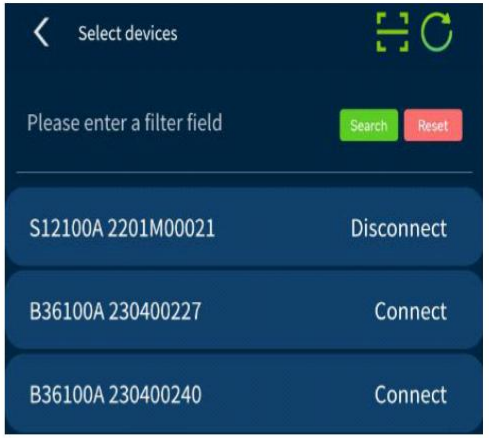


Step 5: Click "Skip" to display the detailed battery info.

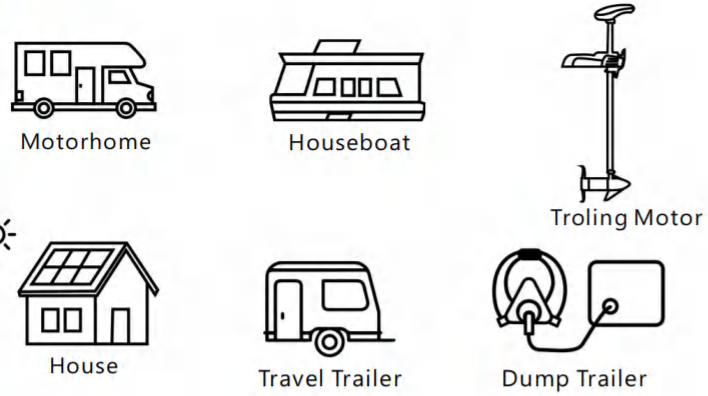


Step 6. If needed, click the "Bluetooth" icon again, click "Disconnect", then repeat "Step 4" to connect the second/third battery.





Applications



Maintenance Suggestions

- Limited maintenance during use: to reach the expected life span and get the full power out of them with each use, if batteries are in series and not being charged by a multi-bank charger, PowerUrus recommends you to fully charge the batteries individually once a month if the system is used frequently. Batteries are in parallel this is not necessary to be charged individually, just make sure the batteries are charged to 14.2V - 14.6V frequently for internal balance;
- Charge and discharge the battery once every three months if not in use;
- In order to avoid over-discharge, charge the battery periodically at the suggested battery storage voltage (12.9V - 13.2V, 30% - 70% SOC) to avoid over-discharge;
- For storage over one month, place the battery in a dry, cool, well-ventilated room;
- Do not store near corrosive material, fire, and heat sources.

WARRANTY

PowerUrus is always dedicated to supplying the most reliable batteries and the best aftersales service possible. We supply the Limited Warranty for the PowerUrus S-series batteries as below:

- S-series Battery Capacity < 500Wh, 2-Year Limited Warranty;
- S-series Battery Capacity ≥ 500Wh, 5-Year Limited Warranty;

NON-TRANSFERABLE

This Limited Warranty is to the original purchaser of the Product and is not transferable to any other person or entity. Please contact the place of purchase regarding any warranty claim.

WARRANTY EXCLUSIONS

The Manufacturer has no obligation under this Limited Warranty for the Product subject to the following conditions(including but not limited to):

- Punctures and normal wear and tear;
- Damage due to improper installation; loose terminal connections, under-sized cabling, incorrect connections (series and parallel) for desired Voltage and AH requirements, or reverse polarity connections;
- Damage caused by collision;
- Damage due to improper maintenance, under or over-charging the Product, dirty terminal connections;
- Product that has been opened, modified, or tampered with;
- Product that was used for applications other than which it was designed and intended for, including repeated engine starting;
- Product that was used on an over-sized inverter/charger (any inverter/charger that is rated to 3500 Watts or greater) without the use of a Manufacturer-approved current surge limiting device;
- Product not stored in adherence to the Manufacturer's storage guidelines, including storage of the Product at a low state-of-charge.

This Limited Warranty does not cover a Product that has reached its normal end of life due to usage, which may occur prior to the Warranty Period. A battery can deliver only a fixed amount of energy over its life, which will occur over different periods of time depending on the application. The Manufacturer reserves the right to deny a warranty claim if the Product is determined, upon inspection, to be at its normal end of life even if within the Warranty Period.

RETURN POLICY

- We accept a limited return period of 30 calendar days from the original ship date;
- A receipt or proof of the purchase must be required for the return;
- To be eligible for a return, the item must be in the same condition that you received it in;
- The return of new/unused items with original packaging has no restocking fee in the return period of 30 calendar days;
- Restocking fee will be paid by the buyer when returning the item that has been installed, used, or no longer has the original packaging. The restocking fee will be assessed and shared with the buyer when the return merchandise authorization (RMA) is issued;
- Returns will not be accepted without an RMA number;

REFUND POLICY

- We accept 30 calendar days of money-back from the date the item shipped, in other words, you have 30 calendar days to return an item from the date the item shipped;
- Once we receive your item, we will inspect it and notify you that we have received the item. We will also notify you of the status of your refund after inspecting the item. If the return is approved, we will initiate a refund to you;
- You will receive the credit within a few days, depending on the bank/card issuer's policies;
- No refund is guaranteed after 30 calendar days or if the item has been used.

SHIPPING POLICY

- You will be responsible for paying the shipping costs to return the item if the 30 calendar days of the return period from the original ship date has passed, or you purchase the wrong item and require returning it;
- Shipping costs of the return are non-refundable and will be deducted from your refund.

FAQ

Question: Why can't my cellphone find the battery's Bluetooth?
Answer: The battery Bluetooth version is Bluetooth 5.0, please check the compatibility with your cellphone. If possible, please change to another cellphone for a try.

Question: Why can't my phone be connected to the battery's Bluetooth?
Answer: Firstly, we recommend the connection distance between the battery and the cellphone should be within 5 meters upon the initial connection test. If the Bluetooth cannot be found or connected, we suggest uninstalling the current "RoyPow Fish" APP and downloading it again from the APP store. Next, reinstall it and release all the required permissions for the "RoyPow Fish " APP. Lastly, make sure to turn on the cellphone's Bluetooth, and start the APP to reconnect it.

Question: How can I get the device binding code set up?
Answer: The device binding code is only used for maintenance by the manufacturer, so the user can ignore this device binding code, if it appears when connecting the battery, please click "Skip" it to the next.

Question: Why can't I turn on the Wi-Fi in the APP?
Answer: If the connected PowerUrus battery is not a Wi-Fi version, the Wi-Fi in the APP will be disabled.

Question: Why is the battery's voltage too low at the first use?
Answer: Due to the logistics restriction, the battery only has 25~30% SOC before leaving the factory, we suggest recharging the battery completely before use, and the battery's voltage will become normal.

Question: Why does the battery SOC in the APP seem inaccurate?
Answer: If you just received the new battery or the battery hasn't been recharged for a long time, the battery SOC in the APP might be inaccurate, the SOC will be accurate after a circle of full charge and discharge.

Question: How many PowerUrus batteries can be connected in series or parallel?
Answer: The Maximum PowerUrus batteries can be up to 4 in series (48V Battery System) or 4 in parallel (12V Battery System). Please contact us first if you require PowerUrus batteries to be connected both in series and parallel.

Question: What gauge of cable should I need for my battery system?
Answer: As the cable size is affected by the cable length, cable current, the inverter power rating, and something else, so you have to check the total power consumption of the total electricity system and the operating voltage of the battery system (e.g. 12V / 24V / 36V / 48V battery system) first, and then you can roughly calculate the current in the battery system. Lastly, refer to the "Cable Sizing" chart in the "Welcome Guide" to select the corresponding cable gauge. You also can consult us for more advice on cable sizing.

Question: What's the PowerUrus batteries difference between the Standard Version and the Preheat Version?
Answer: The Standard Version has low-temperature charge protection and doesn't allow to be charged below 0℃, while the Preheat Version has a battery preheating function and allows to be charged below 0℃ without damaging the battery. They apply to different use scenarios.

Question: Can standard batteries be connected in series or parallel with preheated batteries?
Answer: Not recommended, because when these two types of batteries are connected in series or parallel to be used in cold weather below 0°C / 32°F, there will be a problem that the preheated battery can be charged while the standard battery cannot be charged. In this case, the battery system will work abnormally.

Question: How does battery preheating work?
Answer: The battery preheating function will be activated by the BMS when the battery is connected to a charger to be charged at -20°C to 3°C (-4°F to 38°F). The preheating will stop when the battery temperature reaches 16°C (61°F), and start to charge the battery.