



## LITHIUM IRON Phosphate Battery LifePO4

Before operating this unit, please read the USER MANUAL carefully  
to get the most out of the device.

### 12.8V 230AH

#### SPECIFICATIONS

- Battery Type: Lithium iron phosphate battery(LIFEPO4)
- Model: 12.8V 230AH
- Battery capacity: 12.8V 230AH(2944WH)
- Input voltage: 14.4±0.2V
- Output voltage/current: 12.8V 150AH
- Peak current: 300A@10S
- Life cycle: > 4000 Cycles @ 0.5C Charge/Discharge at 100%DOD, End of Life 80% Capacity
- Operating Temperature: -20°C~60°C
- Dimension: 384x250x194 mm
- Weight: 20.25KG

### FEATURES OF LiFePO4 BATTERY

- Longer Cycle Life: Offers up to 20 times longer cycle life and five times longer float/calendar life than a lead acid battery, helping to minimize replacement cost and reduce the total cost of the owner.
- Lighter Weight: About 40% of the weight of a comparable lead acid battery. A 'drop in' replacement for lead acid batteries.
- Higher Power: Delivers twice the power of a lead acid battery, even high discharge rate while maintaining high energy capacity.
- Wider Temperature Range: -20°C-60°C.
- Superior Safety: Automatic protection with an internal battery management system. Lithium Iron Phosphate chemistry eliminates the risk of explosion or combustion due to high impact, overcharging, or short circuit situations.
- Increased Flexibility: Modular design enables deployment of up to four batteries in series and up to four batteries in parallel.

### 2. APPLICATION

Electric vehicles, electric mobility; Solar/wind energy storage system; UPS, backup power; Telecommunication; Medical equipment; Lighting.

### 3. HOW TO USE THE PRODUCT

1. Ensure the area around your battery cover is clean and free from sediment.
2. Remove the lock and frame (where applicable) from the cover.
3. Remove the covers from the battery compartment to gain access to the batteries.
4. Remove the positive (Red) terminal and the negative (Black) terminal from the old battery.
5. Return the negative terminal (Black) & then the positive terminal (Red).
6. Return any flaps or covers back into their original position and ensure that they are locked in place.
7. Replace the cover and locks.
8. Your battery is ready to use.

### 4. TROUBLESHOOTING

Solutions to general failures of lithium iron phosphate batteries:

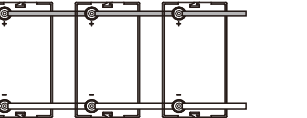
PROBLEM	SOLUTION
THE BATTERY PACK CANNOT BE DISCHARGED PROPERLY	1.CHECK WHETHER THE BATTERY CONNECTION IS LOOSE OR NOT
	2.MAKE SURE THE BATTERY TERMINAL POSTS WERE CONNECTED CORRECTLY AND FIRMLY
	3.SWITCH OFF THE LOAD AND SWITCH ON AGAIN AFTER 3 SECONDS
THE BATTERY PACK CANNOT BE CHARGED PROPERLY	1.USE CHARGERS WITH COMPATIBLE OUTPUT
	2.ONLY CONNECT TO ELECTRIC APPLIANCES WITH COMPATIBLE INPUT
THE BATTERY HEATS UP WHEN USING	1. MAKE SURE THE APPLIANCE CONNECTED ARE COMPATIBLE AND NOT OVERLOADED
	2.CONNECT THE BATTERY PACKS CORRECTLY AND FIRMLY

### 5. WARNING & TIPS

1. Disassemble or modify the battery is forbidden.
2. Do not reversely connect or short-circuit the positive and negative poles of the battery, do not mix the battery with metal objects avoid short circuit from metal objects touch the positive and negative electrodes of the battery, damaging the battery or even causing danger.
3. It is strictly forbidden to immerse the battery in sea water or throw it into fire.
4. It is strictly prohibited to use chargers that do not meet the requirements for charging.
5. Avoid frequent overcharging. Overcharging will cause the internal temperature rise and harmful to the lithium-ion battery and charger.

### PARALLEL AND SERIES BATTERIES

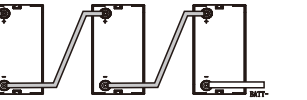
#### 5.1 Parallel connection batteries



- 1) Parallel connection: unlimited quantity.Precautions:
  - The voltage difference between batteries before putting them in parallel should not be more than 0.1v.
  - It is recommended that the maximum charger current is not greater than the maximum charging current of each battery.

CAPACITY OF PARALLEL BATTERY	BATTERY NUMBERS	CHARGE	DISCHARGE
		LIMITED VOLTAGE	CUT-OFF VOLTAGE
12.8V/CAPACITY*1	1 PCS	14.4 V	8.8V
12.8V/CAPACITY*2	2 PCS	14.4 V	8.8V
12.8V/CAPACITY*3	3 PCS	14.4 V	8.8V
12.8V/CAPACITY*4	4 PCS	14.4 V	8.8V

#### 5.2 Battery in series



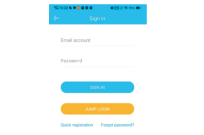
Max. can connect 4 batteries in series

### Voltage battery calibration with APP

- 1.Open Play Store, find the APP "xiaoxiang electric",install the APP in your cellphone, allow the permits requested anytime in the process. The application icon is the blue elephant like the one in the following image:



- 2.Turn ON the Bluetooth in your cellphone, open the APP, you should use these credentials user:  
register: email, password, code, enter register.  
login: email, password, code.



- 3.Now you will be on the "device list" page, in case it is not there you can click above on the screen where it show "device list", the next photo shows the 2 possible screens where you could arrive and where you should click if you are in the second photo



- 4.You must choose one of the batteries that appears on the list, if there is a single battery there will only be one option, but if it is close to several batteries,the list could be long.



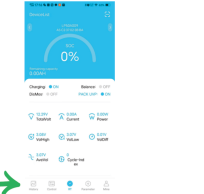
In the yellow boxes that we have drawn, is the strength of the Bluetooth signal of each battery, the closer to O the battery is closer to the cell phone and the more negative the number means that the battery is further away from the cell phone.

To find out which battery is the one of your interest, you can take that battery and move it about 15 meters away from the others (if this is not possible, you can try putting the cell phone as close as possible to the battery of interest). This way you can see that the battery closest to the cell phone is the one with the "strong" warning and with the negative number closest to zero.



In this example the battery that shows -66 is the closest, click and the new menu appears.

- 5.Here you will be able to see the real-time information of the battery, the first time the battery is connected it may not show a true charge capacity value, like in this photo which shows 0%charge. (SOC state of charge).



The best way to calibrate the charging capacity is to charge the battery until it is fully charged, at which point the state of charge will show 100%, this may take several hours, and it will depend on the charging current.



- 6.The other way to calibrate the state of charge of the battery is by going in the menu that points the green arrow to the "CONTROL" tab. There you click on "Reset Capacity" (orange arrow) and the battery will recover the value of its state of charge.

This value could be an approximation and as shown above, the battery would have to be charged to 100% to achieve a more accurate measurement. You will only have to do this the first time you use the battery, going forward after this calibration the battery will display the correct values.

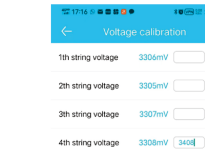


At this moment the battery will show the real state of charge SOC that it has, in the RT (Real Time) tab.

- 7.Go to the CONTROL tab, a "Voltage Calibration" icon appears there:



- 8.There a calibration menu opens for the 4 cells, they must be calibrated one by one. That is, you write in a single box and click "Set", repeat the same thing 4 times.



The batteries are balanced, so you must divide the total battery difference by 4.For example, if the voltmeter shows 13.62 and the display shows 13.22, there is a difference of 400mV, then 100mV is increased for each measurement.

	BEFORE		NOW
	Display	Voltmeter	New "Set"
	3306		3406
	3305		3405
	3307		3407
	3308		3408
total	13.22	13.62	13.62

After this calibration the voltmeter and the battery display should be showing the same value.