

**12.8V LifePo4 Battery Pack  
Energy Storage Battery**

# User Instruction



The internal single battery adopts the anode material of lithium ferrous phosphate(LifePo4 which has high safety, high energy density and excellent cycling performance.

**Installation**

The batteries may be mounted in any orientation. But care must be taken in connecting to the battery terminals. The positive and negative terminals are labeled and color coded (red for +, black/blue for -)

**DO NOT REVERSE POLARITY THE BATTERY AS THIS WILL DAMAGE BOTH THE BATTERY AND THE DEVICE BEING CONNECTED!!!**

The batteries come standard with a terminal post with a 3/8" hole to accommodate a M8 bolt and lug sizes up to 2 AWG. All batteries ship with 18-8 stainless steel M8 bolts. If multiple lugs are used, the longer bolts may be required in order for the bolt to fully seat into the copper pillar.



**Parallel**

Max.4 units are supportive for parallel connections, but do please make sure the load power doesn't reach the limited power, like one 12V 100Ah is for 1200W, it's better lower than 2400W for 2 in parallel, to avoid the peak current of one battery pack is over 260, due to the out-sync caused by length difference of cables. However, all cables and connections MUST be able to accommodate the high currents that can be delivered by the battery. Appropriate fuses and circuit breakers are also highly recommended to protect downstream components from current spikes and short circuits.

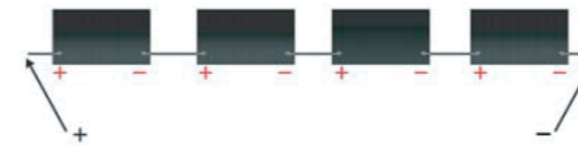
Note: The voltage of each battery for parallel should be same before operation.



**Series**

Up to four 12V100Ah battery packs may be connected in series to increase the voltage of the system up to a 48V system. When batteries are mounted in series, current capacities remain the same, but the system voltage is additive. Two 12V100Ah battery packs mounted in series to form a nominally 25.6V system should be charged using a bulk and absorption voltage of 28.8V. Four 12V 100Ah battery packs mounted in series to form a nominally 51.2V system should be charged using a bulk and absorption voltage of 58.4V.

Batteries to be connected in series should be at the same state of charge before they are connected. For best results, fully charge each 12V 100Ah battery packs using a 12V charger prior to connecting them in series, in order to ensure that they are at the same state of charge.



**Series and Parallel**

12V 100Ah could be connected max.4 in series and parallel, to reach 48V 400Ah, air breaker is recommended to add in the circuit to keep safety. Batteries to be connected in series should be at the same state of charge before they are connected. For best result, fully charge each 12V battery pack using a 12V charger prior to connecting diagram for 2S4P and 4S4P are showing below.

**Charging Parameters  
Bulk/Absorption**

For your Bulk/Absorption stage, the ideal voltage is between 14.2V-14.6V. For full charge and balance, the absorption mode should be set to last for at least 20 minutes per battery (for multiple batteries in parallel).

**Float**

LifePo4 batteries do not need a float for charging, but a float voltage between 13.4V and 13.8V can be used when connected to shore power.

**Equalization**

Equalization is not recommended for our batteries. Most chargers will allow you to shut this feature off or use a setting that does not use equalization, If you cannot turn off his mode, than you will need to adjust the equalization voltage to below 14.6V.

**Temperature Compensation**

Temperature compensation is not needed with our batteries and in some cases, may trigger the built-in BMS to go into protect mode. The temperature protection is designed in our BMS.

**BMS Basic Features**

All lifepo4 batteries come with a built-in battery management system (BMS) that protects the cells for long-term cycling. The BMS protects against the following conditions:

**High voltage: >15V**

If an individual cell voltage exceeds 3.75V during charging, the BMS will prevent a charge current from continuing. Discharge is always allowed under this condition.

**Low voltage: <8.8V**

If an individual cell falls below 2.2V during discharging, the BMS will prevent further discharge. Although the battery is in "low-voltage disconnect" mode, it will still allow a charging current.

**High temperature: >65°C**

The BMS will not allow a charging or discharging current.

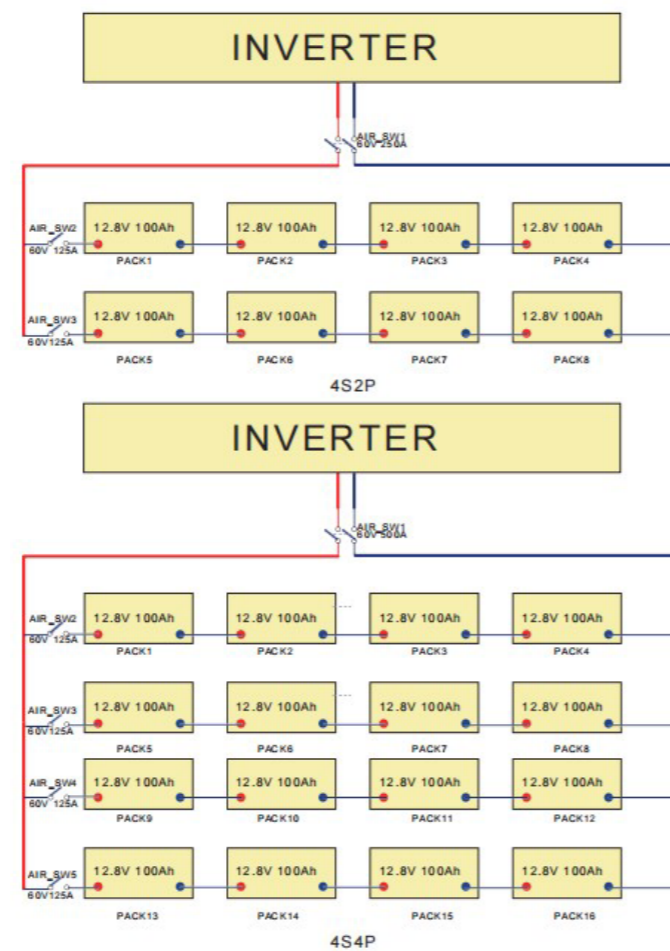
**Low temperature: <0°C**

The BMS will not allow a charging current.

**High current**

The BMS allows constant current 100 (+/-5%) Amps, 260 (+/-10%) Amps for 5s. For power model, constant current 150 (+/-5%) Amps, 500 (+/-5%) Amps for 5s.

A passive balancing process is activated by the BMS at the top of each charge cycle, when the battery voltage exceeds around 14.4V. This ensures that all the cells remain at the same state of charge which helps for pack longevity and performance.



**Warning**

- ※Do not throw the battery into water, keep it under dry;
- ※Do not short circuit the batteries;
- ※Do not reverse polarity;
- ※Do not use or keep the battery under the high temperature;
- ※Do not mishandle, drop, or apply excessive force to the batteries;
- ※Do not operate with loose terminal connections;
- ※Do not ship or store the batter together with metal.

**Storage and maintenance**

**Storage**

Storage could nor be easier simply charge the batteries to at least 50% state of charge and disconnect from any charge or discharge.

**Maintenance**

The lifepo4 batteries require very little maintenance if any at all. If your batteries are in series and not being charged by a multi-bank charger, it is recommended that you fully charge the batteries individually once half a year. This will balance out the entire battery bank to ensure the batteries will reach its expected life span. If your batteries are in parallel this is not necessary. The BMS has a built-in passive balancing system that will take care of this.

**Warranty policy**

In the unlikely event, you are having an issue with one of our batteries we have Developed a straightforward warranty policy to help answer questions you may have 5 years manufacturers defect warranty is offered from the date of purchase. Anew one will be offered once the battery is default caused by product itself.

Model:	LP12100	LP12200	LP12300
Cell Type:	LifePo4		
Dimension:	11kg	22kg	33kg
Warranty:	5 years	5 years	5 years
Nominal Voltage:	12.8V	12.8V	12.8V
Nominal Capacity:	100Ah	200Ah	300Ah
Nominal Energy:	1280Wh	2560Wh	3840Wh
Standard Charge Voltage:	14.6V	14.6V	14.6V
Max Charge Current:	100A	100A	100A
Discharge Cut-Off Voltage:	10V	10V	10V
Max Discharge Current:	100A	150A	150A
Internal Resistance:	≤40mΩ		
Cycle Life:	>4000 Times		
Service Life:	10 Years		
Charge Temperature Range:	0°C~45°C		
Discharge Temperature Range:	-20°C~65°C		
BMS:	4S100A	4S150A	4S150A

All specifications are subject to change without prior notice.