



## Quick Start Guide and Precautions for Use

1. Please read the product manual carefully before use.
2. When you receive your battery it will likely be in the shutdown or sleep mode during transportation. To activate the battery press the power button, or charge the battery with a qualified charger greater than 1 Amp. Then measure the terminal voltage with a multimeter or voltmeter to confirm voltage.
3. After checking that the battery is normal, disconnect all connections and shut down the battery. Then install the battery according to the installation requirements.
4. Before connecting the battery to the load, connect a safe DC circuit breaker between the battery and the load, and ensure that the circuit breaker is closed before connecting the battery to the load, and do not short circuit or reverse.
5. If there is a battery for communication, connect the communication cable to the load. The battery and the device will run normally.
6. Use the charger that meets the requirements, including the highest charging voltage, current, etc., is strictly prohibited to use beyond the specifications.
7. Please refer to the product specifications for the output current of the battery.
8. Authorized by non-factory technical personnel, it is strictly forbidden for non-professional personnel to modify battery parameters or disassemble battery shell for maintenance.
9. This product is NOT waterproof, please take protective measures, damage caused by water is not within the free warranty scope.
10. Please use the battery in a good environment. Do not put the battery near heat source or fire source.
11. Damage caused by human factors such as but not limited to; failed trial and error in custom installations, other non-use or mis-operation and force majeure factors (including but not limited to geology, weather, etc.) are not covered by the free warranty. The warranty offers coverage against manufacturing defects in material or workmanship.
12. Always consult a professional to ensure feasibility, proper system design and installation.



## INSTRUCTIONS FOR CONNECTING BATTERIES IN PARALLEL

Please Note: It is emphasized that the voltage must be the same between the battery groups before they can be connected in parallel. Before using the battery pack please follow the below recommendations for proper parallel interconnection.

### 1) Battery Appearance / Visual Check

- a) Carefully open the protective carton/wooden box when batteries received.
- b) Perform a visual check of the batteries for any scratches or impact during shipping.

If any damage appears please document it with dated photos and contact us immediately (email). If everything looks satisfactory please proceed to step #2.

### 2) Identify the Positive and Negative Cables and/or Terminals

Be sure to correctly identify the positive and negative cable (or terminal) and always be sure to correctly connect the battery with Positive Pole and Negative Pole (usually Red + Black -). Failure to connect the battery correctly will likely cause a short circuit.

### 3) Connection

- a) Be sure to keep the battery packs charged within 1.0VDC voltage difference when you prepare to connect them in parallel (or series).
- b) The smaller the voltage difference (0.1V-1.0V), the better for connection.

### 4) Battery Use

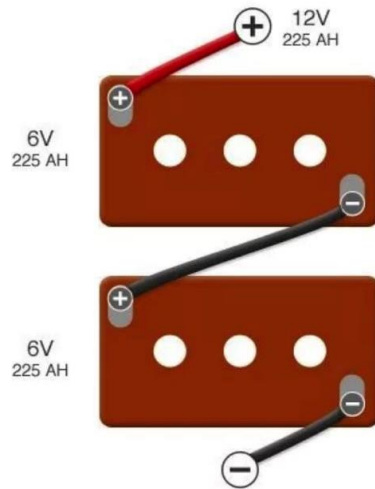
- a) Try to never discharge the battery pack to 0%, this will ensure a longer battery life.
- b) Always try to charge the battery to 80% (100% would also be fine) and recharge the battery while they are discharged/used down to no less than 20% power.
- c) Recharge the Battery Packs every 3 months if they are shelved/not used for long time.

If you have any questions on the above instructions, please contact us at [sales@specializedpower.net](mailto:sales@specializedpower.net)

## Example of Parallel vs Series Connection

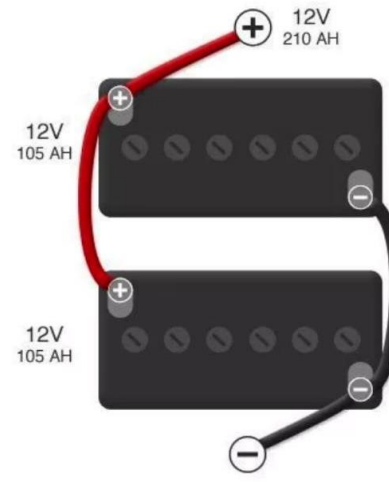
### Wired In Series

2 batteries wired in series = voltage x 2  
AH (Amp Hours) stay the same

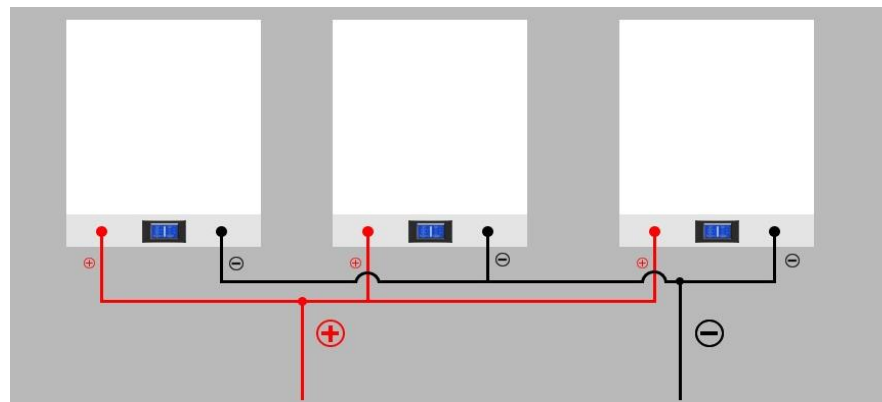


### Wired In Parallel

2 batteries wired in series = AH x 2  
Battery voltage stay the same



## Example of Proper Parallel Connection



## The Right Battery. The Right Price.



### HOME & COMMERCIAL SOLAR



- Off Grid Solar & Wind
- Backup/Standby Power
- UPS and IT Equipment
- Stored Energy Resellers
- Peak Shave / Load Sharing

### RV, CAMPER & MARINE



- RV & Marine Solar Systems
- Main & Starting System
- Trolling / Electric Boat Motors
- Electric Vehicles and Scooters
- Reduce Weight for Any Vehicle

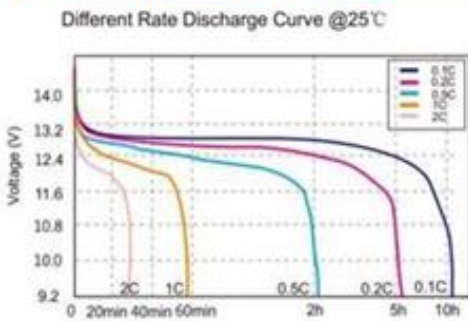
### SPECIALIZED & CUSTOM



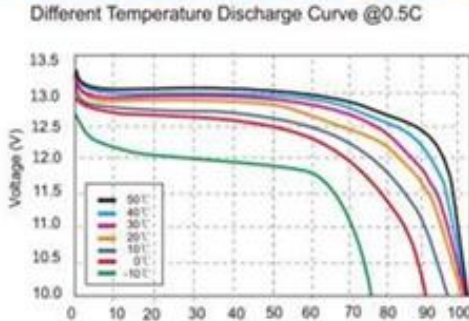
- Medical Devices
- Respironics DreamStation
- Lights & Beacons
- Cell & Transmission Towers
- Competition Sound Systems

Specialized Power Lithium Batteries are constructed to offer superior life cycles to leading competitors. The majority of your battery's value is in the cells and craftsmanship. Below is critical and pertinent data for all of our LiFeP04 Lithium Batteries. (\*12V graphs shown, multiply voltage for other voltages)

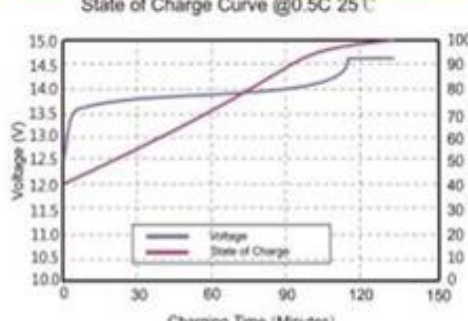
**Different Rate Discharge Curve**



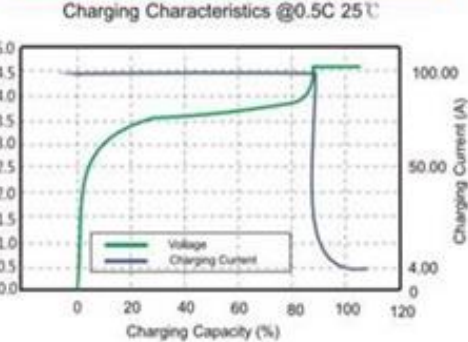
**Different Temperature Discharge Curve**



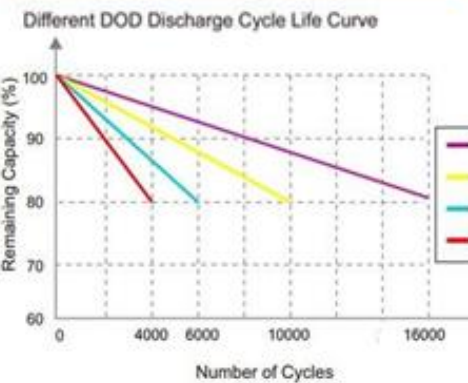
**State of Charge Curve**



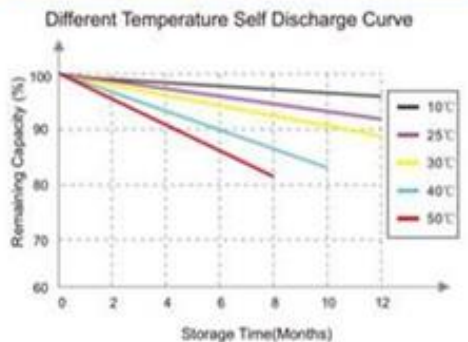
**Charging Characteristics**



**Cycle Life Curve**



**Self Discharge Characteristics Curve**



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## Wall Mount



## Steel Case



## Plastic Case

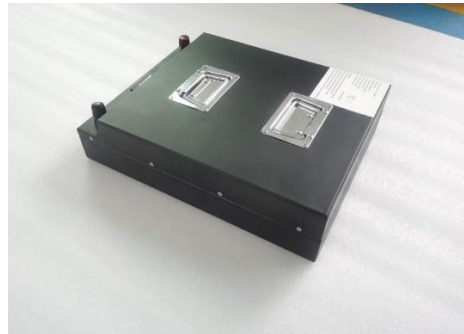


## Cabinet Style



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## Custom Cases for Any Application









## WARRANTY AND CLAIMS

All batteries purchased are guaranteed to be free from defects in material and workmanship. Our Batteries Guarantee Period is described below:

### 4 YEARS

\* Period of Guarantee from the date of shipment.

#### PLEASE NOTE:

1. The battery must be properly installed and maintained in accordance with the Installation and Operating procedure manual.
2. A battery will not be considered defective unless it fails to deliver 80% or less of its quoted capacity during the guarantee period.
3. Each battery must be stored, charged, discharged and stored in accordance with the printed instructions.
4. User agrees that the manufacturer or his agent shall be granted inspection access with reasonable notice.

#### **DISCLAIMER: Warranty will not be provided in event of the following circumstances.**

1. Guarantee & Warranty is void if temperature exceeds the recommended operating temperature range.
2. Guarantee & Warranty is void if the battery becomes unserviceable due to fire, wreckage, freezing, neglect, abuse, or any other act of GOD, use of battery additions, parts of the battery are tampered with or modified, or the battery is serviced by persons not authorized.
3. Guarantee & Warranty is void if the batteries are used in conjunction with other brand batteries.
4. Guarantee & Warranty is void if the batteries damaged by man-made, unnormal use or move cause battery cover and internal failure.
5. Guarantee & Warranty is void if the batteries has flatulence or swelling from heavy over-charging.
6. Guarantee & Warranty is void if the batteries damaged by other Battery accessories. Such as battery charger.





## **WHAT IS COVERED BY WARRANTY (examples):**

- battery will not power on
- battery will not offer proper voltage at positive/negative terminals
- battery parts (including cells and BMS) fails under normal use

## **WHAT IS NOT COVERED BY WARRANTY (examples):**

- Damage caused by unauthorized use, modification, or repairs
- Settings Adjustments, Installation or Commissioning Time or Costs
- Damage from use with incompatible equipment
- Normal wear and tear
- Any damages caused by accident, abuse, neglect, shock, improper use or storage of product
- Superficial Blemishes (small scratches/marks) on the batteries case
- Damage caused during shipping

**ALL WARRANTY CLAIMS ARE SUBJECT TO A CASE BY CASE EVALUATION**

## LITHIUM BATTERY INTERNATIONAL WARRANTY

The period of the warranty begins on the date of delivery to the original user and lasts for the period shown. This warranty excludes any and all damages caused during shipping. This warranty includes all international customers, including international freight. Extended warranties are available through your reseller or dealer.

Product	Warranty Period	What's Covered	Freight Paid?
LIFEPO4	Four Years	Parts	If Defective
Li(NiCoMn)O2	Three Years	Parts	If Defective

MODEL NO. \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

NAME OF ORIGINAL USER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE NUMBER OR EMAIL: \_\_\_\_\_



## **CLAIMS PROCESS:**

Please contact our warranty department and submit the information as below to us:

1. Invoice number and date
2. Your name/company name
3. Battery model, problem battery quantity
4. A brief description of the battery problem
5. A brief description of how to use the battery. (ex: Exact Application, Exact use of the battery as single cell or as battery bank, if battery bank, what's the voltage and capacity, Discharge current and working time of the battery, Working environment and temperature)
6. Picture or video of the battery
7. The picture when you test the voltage, show the value of voltage.
8. The picture of manufacture code (on the top of the cover)
9. The picture of all problem quantity battery
10. Front photo of the battery

## **CLAIMS:**

1. Upon satisfactory proof of claim as determined by us, the part will be repaired or replaced based on the original purchase price and the portion of the warranty term remaining to be applied towards the purchase of a replacement battery (Pro Rate may apply).
2. Under no circumstances can product be returned, credited or exchanged without prior written authority.

## CHARGE PARAMETER SETTINGS / GENERAL INVERTER SETTINGS

*PLEASE NOTE: Different brand inverters and chargers could operate with variations (ex: Efficiency losses, quirks or proven settings). These parameters below are merely **SUGGESTIONS**. The battery will likely **NOT** be the reason for any system shutdowns. Please always consult with your inverter or charger manufacturer to see if they have suggestions on compatibility with lithium batteries. You can also do a quick web search to find many others using lithium with your equipment. Your inverter or charger manufacturer will likely have software updates, equipment suggestions and/or proven parameter settings that they will share with you.*

### **48 VOLT BATTERIES**

MAX charge voltage:58.4V

Float voltage 55V

Absorb voltage :58.4V

Min / Max volts 40V/58.4

# Time for Absorb charge and/or Ending Amps for Absorb charging.

0.5C charge: about 2.5H, 1C charge: about 1.5H, Nominal Charge (=0.5C rate) cut off current is =2.5A ,Fast Charge (0.5~1C rate)cut off current is =5A

# Absorb end amperage: 0-2A (MAX)

# Minimum soc: 0% (suggest 20%)

# Maximum soc: 100% (suggest 90-100%)

# Rebulk voltage: 58.4V

# Max absorb time: suggest 0.2C to charge , absorb time is about 5-6hours

# Lbco time delay: immediately

# Hbco time delay: immediately

# Low battery restart : 46.4V

# High battery restart : 54.4V

### **24 VOLT BATTERIES**

Max charging is 29.2V

Float voltage is 28.2V

Absorb voltage:29.2V

Min / Max volts: 20V/29.2

# Time for Absorb charge and/or Ending Amps for Absorb charging.

0.5C charge: about 2.5H, 1C charge: about 1.5H, Nominal Charge(=0.5C rate) cut off current is =2.5A ,Fast Charge (0.5~1C rate)cut off current is =5A

# Absorb end amperage: 0-2A (MAX)

# Minimum soc: 0% (suggest 20%)

# Maximum soc: 100% (suggest 90-100%)

# Rebulk voltage: 29.2

# Max Absorb time: suggest 0.2C to charge , absorb time is about 5-6hours

- # Lbco time delay: immediately
- # Hbco time delay: immediately
- # Low battery restart : 23.2
- # High battery restart : 27.2

### **12 VOLT BATTERIES**

Max charging is 14.6V Float voltage is 14V

Absorb voltage :14.6V

Min / Max volts: 10V/14.6V

# Time for Absorb charge and/or Ending Amps for Absorb charging.

0.5C charge: about 2.5H, 1C charge: about 1.5H, Nominal Charge (=0.5C rate) cut off current is =2.5A ,Fast Charge (0.5~1C rate)cut off current is =5A

# Absorb end amperage: 0-2A (MAX)

# Minimum soc: 0% (suggest 20%)

# Maximum soc: 100% (suggest 90-100%)

# Rebulk voltage: 14.6

# Max Absorb time: suggest 0.2C to charge , absorb time is about 5-6hours

# Lbco time delay: immediately

# Hbco time delay: immediately

# Low battery restart : 11.6

# High battery restart : 13.6



## WARNING



### LiFePo4 Battery Pack

- Never submerge the battery in water, keep the battery always dry, store the battery in dry and shaded areas.
- Never flip the battery upside down.
- Never touch the positive or negative terminals with objects or metal.
- Never store the battery close to anything metal.
- Check the voltage of the battery and relevant connectors before using the battery. The battery's voltage should not be less than the cutoff voltage, or it will damage the battery.
- For longer term storage, try to store the battery with 50% minimum SOC.
- Never cut through the battery case in any way, for any reason.
- Never modify the case unless removed. Never disassemble the battery case.
- Always properly dispose of this battery at end of life or decommissioning. Improper disposal will seriously pollute the environment. Do not abandon the battery. Please comply with local laws and regulations regarding use and disposal of this battery.



Keep dry



US&Canada Only