SPECIALIZED POWER SYSTEMS

CATL

UN38.3

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

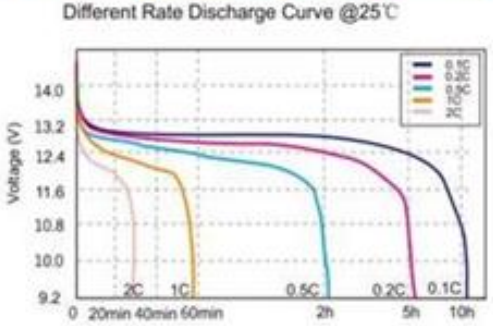
SPECIALIZED & CUSTOM

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

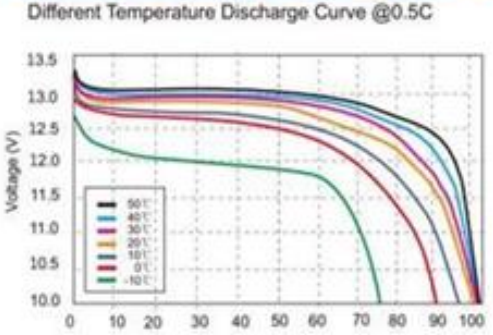
The Constants…

Specialized Power Lithium Batteries are constructed using CATL Brand cells and 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.

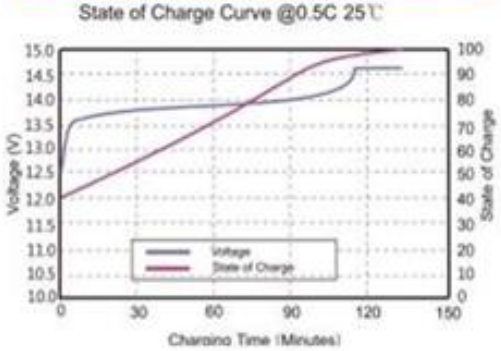
Different Rate Discharge Curve



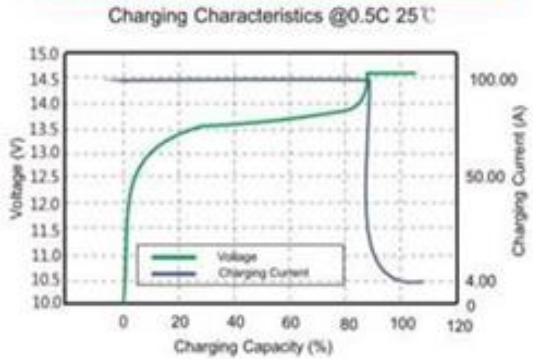
Different Temperature Discharge Curve



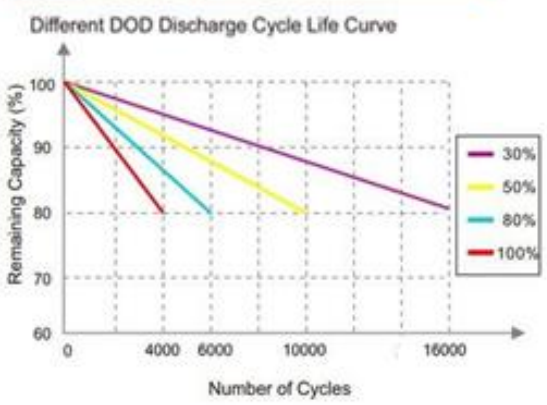
State of Charge Curve



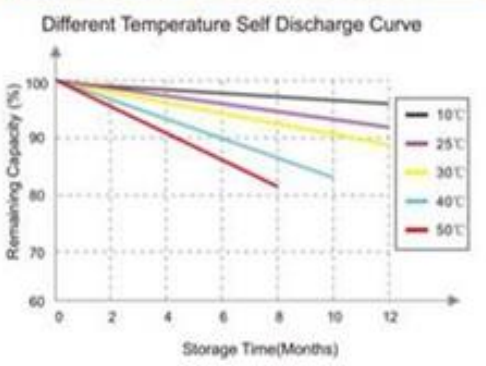
Charging Characteristics



Cycle Life Curve



Self Discharge Characteristics Curve



SPECIALIZED POWER SYSTEMS

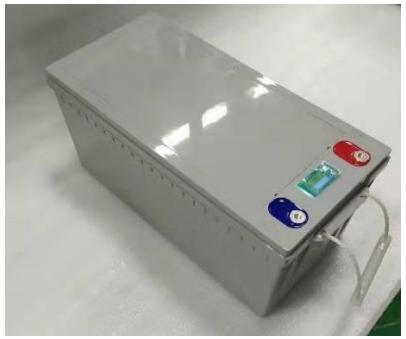
Wall Mount

Steel Case

Plastic Case

Cabinet Style

Custom Cases for Any Application



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Timeline of Our Battery Improvements Over The Past 4 Years.

V1 V2 V3 V4 V4.1 V4.2

2017 2018 2019 2020

Discontinued Products

Current Product Offerings

The Decision…

is easy; Specialized Power Lithium Batteries are superior in design, quality, craftsmanship and function. Each battery is carefully constructed using top brand name internal components offering you peace of mind from established and bankable companies.

The Promise…

to provide every customer "The Right Battery at The Right Price".

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

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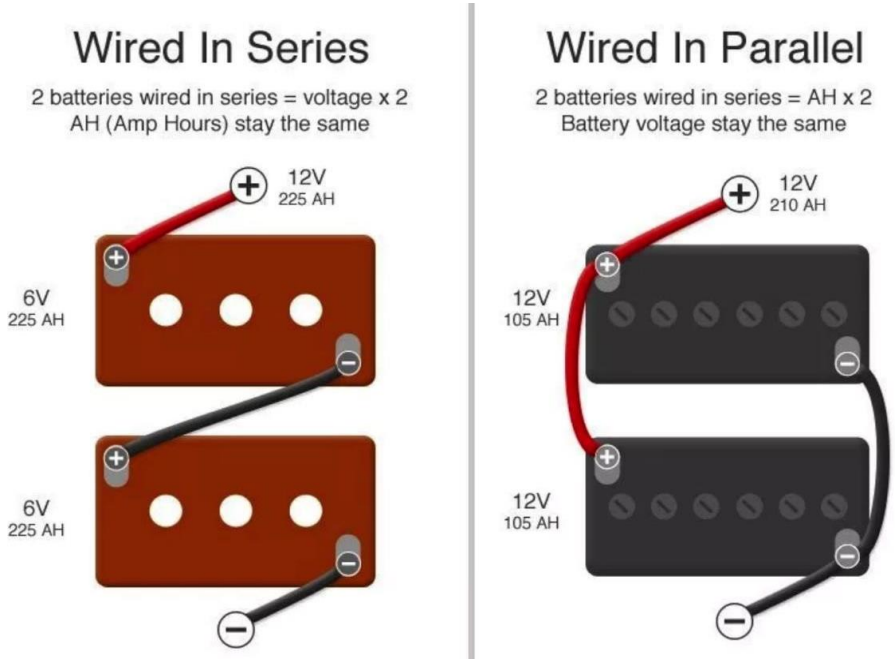
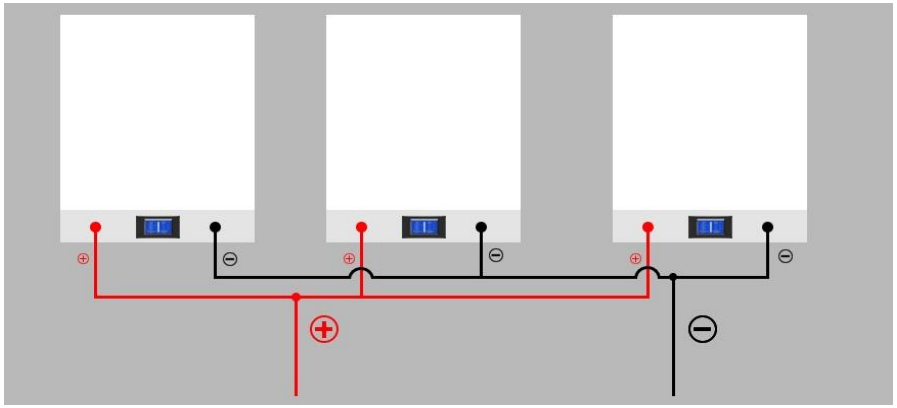
Example of Parallel vs Series Connection



Example of Proper Parallel Connection



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

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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

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